

SALIM
1000 – MCQs
IN
PAIN MEDICINE

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DEDICATED TO:

All Postgraduate Students in Anaesthesiology & Pain Medicine
for their motivating & searching questions that can only lead
forwards.

REMEMBER:

There is no single correct answer to any question. There is always
a room for improvement.

Suggestions are welcome

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INDEX

Topics	Q. No.
Pain Assessment	01-08
Pharmacology	09-96
Types of Pain	97-242
Medical and Surgical Techniques of Pain Management	243-360
Anatomy and Physiology	361-482
History of Pain Medicine	483-487
Pain Mechanisms	488-492
Evaluation Of The Pain Patient	493-497
Pain Measurement	498-502
Radiography And Neuroimaging	503-507
Neurophysiologic Studies	508-511
Diagnostic Nerve Block	512-516
Thermography	517-520
Psychologic Evaluation And Treatment	521-525
Pharmacokinetics And Pharmacodynamics Of Analgesic Agents	526-530
Opioids And Nonsteroidal Antiinflammatory Drugs	531-535
Coanalgesic Agents	536-540
Local Anaesthetics	541-545
Techniques	546-550
Central Nerve Blocks	551-555
Peripheral Nerve Blocks	556-560
Autonomic Nerve Blocks	561-565
Epidural Steroids	566-570
Facet Blocks	571-575
Epidural Infusion and Patient Controlled Epidural Analgesia	576-580
Implantable Drug-Delivery Systems	581-585
Neurolytic Agents	586-590
Cryolysis	591-595
Radiofrequency	596-600
Acupuncture	601-605
Analgesia With Intravenous Local Anaesthetics	606-608
Ablative Techniques	609-613
Neural Stimulation: Spinal Cord And Peripheral Nerve Stimulation	614-618
Physical Therapy	619-623
Trauma	624-628
Postsurgical Pain	629-633
Obstetric Pain	634-638
Acute Medical Diseases	639-643
Headache And Facial Pain	644-648
Neck And Shoulder Pain	649-653
Low Back Pain	654-658
Musculoskeletal Pain	659-663

Visceral Pain	664-668
Pelvic Pain	669-673
Central Nervous System Pain	674-679
Pripheral Nervous System Pain	680-684
The Autonomic Nervous System	685-689
Reflex Sympathetic Dystrophy	690-694
Phantom Pain	695-699
Cancer Pain Syndromes	700-704
Acute Pain Syndromes In Children	705-709
Test Bank – I	710-784
Test Bank – II	785-1000

Pain Assessment

Directions: Each question below contains suggested responses. Select the one best response.

Q1: One part of the McGill Pain Questionnaire (MPQ) asks the patient to describe what the pain feels like. Several descriptors are grouped together to characterize the pain. Which of the following would be found in the same category as the term flickering?

- A. Pinching, pressing, gnawing
- B. Sharp, cutting, lacerating
- C. Throbbing, beating, pounding
- D. Jumping, flashing, shooting

ANS: C

Q2: The Visual Analogue Scale (VAS) consists of a 10-cm line that is labeled “No pain at all” on the left and “The worst pain imaginable” on the right. Patients are asked to mark on the line how strong their pain is at the moment. How is the line divided, if at all?

- A. 1-cm divisions
- B. 1-mm divisions
- C. Divisions numbered 1 through 10
- D. Divisions numbered 1 through 100
- E. No divisions

ANS: E

Q3: All the following are true to McGill Pain Questionnaire (MPQ) EXCEPT that

- A. It uses words to describe the sensory qualities of the pain experience
- B. It uses words to describe the affective qualities of the pain experience
- C. It describes subjective overall intensity of the total pain experience
- D. It may be useful in identifying patients with suicidal ideation
- E. It may be useful in discriminating between patients with functional versus organic causes of pain

ANS: D

Q4: True statements about Minnesota Multiphasic Personality Inventory (MMPI) include which of the following

- A. It reliably discriminates between organic and psychogenic pain
- B. It can predict the outcome in multimodal pain management programs
- C. It can be used as the sole psychological test to measure coping strategies in patients with chronic pain
- D. It may reveal a “conversion V” pattern in patients with chronic pain

ANS: D

Directions: Each question below contains four suggested responses of which one or more is correct. Select

- A if 1, 2 and 3 are correct
- B if 1 and 3 are correct
- C if 2 and 4 are correct
- D if 4 is correct
- E if 1, 2, 3 and 4 are correct

Q5: True statements regarding the Visual Analogue Scale (VAS) include which of the following?

1. A new VAS should be used at each evaluation
2. It is sensitive to pharmacologic procedures that alter experience of pain
3. It correlates highly with pain measured in verbal and numerical rating scales
4. It can be reliably administered by asking the patient to rate the amount or percentage of pain relief they have obtained from a therapeutic intervention

ANS: A

Q6: The Illness Behavior Assessment Schedule is

1. A test taken by patients with chronic pain to determine which treatments will benefit them
2. An assessment tool that can help to determine the extent to which somatic illness is being used defensively
3. An assessment tool that has shown that chronic abnormal illness behavior should be regarded as a form of depressive illness
4. A structured interview that allows the clinicians to evaluate various components of illness behavior

ANS: C

Q7: The Illness Behavior Questionnaire is correctly characterized by which of the following statements?

1. It identifies organic causes of pain
2. It requires comments or essays to be written in response to questions
3. It takes approximately 1 to 2 h to complete
4. It provides scores on seven scales that assess the patient's attitudes and feelings about illness

ANS: D

Q8: Which of the following are considered positive outcomes of treatment in multidisciplinary pain management centers?

1. Diminished dependence on the health care system
2. Decreased consumption of medication
3. Increased gainful activities of daily living
4. Decreased pain scores on numeric rating scales

ANS: E

Pharmacology

DIRECTIONS: Each question below contains suggested responses. Select the one best response.

Q9: All the following are true statements regarding acetaminophen EXCEPT

- A. It has analgesic properties similar to those of aspirin
- B. It does not interfere with platelet function
- C. It does not produce gastric irritation
- D. Its antipyretic effect is due to peripheral vasodilation
- E. It is a Para aminophenol derivative

ANS: D

Q10: A 75-year-old dialysis patient underwent exploratory laparoscopy and lysis of adhesions. You are asked to recommend an appropriate postoperative analgesic regimen. Of the following, which is the best treatment option?

- A. PCA morphine
- B. PCA meperidine
- C. IM ketorolac
- D. Transdermal fentanyl
- E. PCA hydromorphone

ANS: E

Q11: All of the following are possible side effects of carbamazepine EXCEPT

- A. Vertigo
- B. Thrombocytopenia
- C. Hypertension
- D. Diplopia
- E. Gingival hyperplasia

ANS: E

Q12: After a single application of a Duragesic (transdermal fentanyl system) patch, peak serum concentrations will occur at

- A. 4 to 8 h
- B. 8 to 12 h
- C. 12 to 18 h
- D. 18 to 24 h
- E. 24 to 72 h

ANS: E

Q13: The major obstacle to diffusion of fentanyl in the Duragesic patch is the

- A. Stratum corneum
- B. Dermis
- C. Hairy skin
- D. Subcutaneous fat
- E. Body temperature

ANS: A

Q14: The most appropriate nonsteroidal anti inflammatory drug (NSAID) to use in a lactating female is

- A. Piroxicam
- B. Diflunisal
- C. Ketorolac
- D. Naproxen
- E. Ibuprofen

ANS: E

Q15: The following statements regarding drug interactions with NSAIDs are true EXCEPT that

- A. NSAIDs prolong the prothrombin time (PT) in patients on warfarin
- B. The combination of diflunisal and indomethacin has resulted in fatal gastric hemorrhage
- C. Inhibition of platelet aggregation by NSAIDs makes the patient more susceptible to bleeding
- D. There is less risk of gastrointestinal (GI) adverse effects in patients taking steroids
- E. Misoprostol has been shown to prevent NSAID induced gastropathy

ANS: D

Q16: The following statements regarding drug interactions with NSAIDs are true EXCEPT that

- A. NSAIDs prolong the prothrombin time (PT) in patients on warfarin
- B. The combination of diflunisal and indomethacin has resulted in fatal gastric hemorrhage
- C. Inhibition of platelet aggregation by NSAIDs makes the patient more susceptible to bleeding
- D. There is less risk of gastrointestinal (GI) adverse effects in patients taking steroids
- E. Misoprostol has been shown to prevent NSAID induced gastropathy

ANS: D

Q17: Select the statement that best describes the action of NSAIDs.

- A. NSAIDs have their main activity in the CNS
- B. Tolerance may occur with long term use
- C. NSAIDs are potent cyclooxygenase inhibitors
- D. NSAIDs facilitate neutrophil migration and lymphocyte responsiveness

ANS: C

Q18: Which of the following statements is true of acetaminophen?

- A. It is less potent than aspirin as an analgesic
- B. It is more potent than aspirin as an antipyretic
- C. It is a weak anti inflammatory
- D. A dose of 1500 mg will provide significantly greater analgesia than 1000 mg
- E. It is well tolerated by patients with alcoholic liver damage

ANS: C

Q19: Which of the following is implicated in the production of morphine induced pain?

- A. Morphine-6-glucuronide
- B. Morphine hydrochloride
- C. Diacetylmorphine
- D. Morphine-3-glucuronide
- E. 6-Monoacetylmorphine

ANS: D

Q20: Which of the following statements best describes the action of a specific drug at opioid receptor sites?

- A. Naltrexone acts as an antagonist at mu but not kappa receptor sites
- B. Butorphanol has no action at the sigma receptor site
- C. Pentazocine is a partial agonist at the kappa receptor site and an antagonist at the mu receptor
- D. Morphine does not act at the kappa receptor
- E. Buprenorphine is a sigma receptor antagonist

ANS: C

Q21: Early signs of local anaesthetic toxicity after intravenous administration include all the following EXCEPT

- A. Tinnitus
- B. Hypotension
- C. Agitation
- D. Metallic taste
- E. Light headedness

ANS: B

Q22: Which of the following factors has a significant effect on the distribution of local anaesthetic in CSF?

- A. Composition of CSF
- B. Concentration of injected local anaesthetic
- C. Addition of vasoconstrictors to the local anaesthetic
- D. Site of injection
- E. Patient weight

ANS: D

Q23: A hyperbaric local anaesthetic solution would have a specific gravity of

- A. 1.0010
- B. 1.0008
- C. 0.9990
- D. 0.9950

ANS: A

Q24: Which of the following antidepressants has the LEAST anticholinergic and sedating effects?

- A. Amitriptyline (Elavil)
- B. Imipramine (Tofranil)
- C. Desipramine (Norpramin)
- D. Doxepin (Sinequan)

ANS: C

Q25: A 50-year-old man with chronic low back pain and a history of heart block was started on a tricyclic antidepressant (TCA). Which drug would be the most appropriate choice?

- A. Trazodone (Desyrel)
- B. Desipramine (Norpramin)
- C. Amitriptyline (Elavil)
- D. Nortriptyline (Pamelor)

ANS: D

Q26: Which of the following antidepressant medications is considered the LEAST cardiotoxic?

- A. Doxepin (Sinequan)
- B. Trazodone (Desyrel)
- C. Nortriptyline (Pamelor)
- D. Desipramine (Norpramin)

ANS: B

Q27: All the following statements about aspirin hypersensitivity are true EXCEPT that

- A. It occurs most commonly in middle aged adults
- B. It is more common in females
- C. It has no cross sensitivity to other NSAIDs

- D. It is not classified as a true allergic reaction
- E. It usually occurs within minutes of taking aspirin

ANS: C

Q28: Symptoms associated with the administration of interferon include all the following EXCEPT

- A. Fever and chills
- B. Tenesmus and diarrhea
- C. Myalgias and arthralgias
- D. Headache

ANS: B

Q29: A cancer patient undergoing a rapid infusion of 100 mg of dexamethasone complains of an intense burning sensation in the perineum after the injection. The most likely cause of this symptom is

- A. Anxiety reaction
- B. Tumor metastasis
- C. Steroid psychosis
- D. Drug related side effect

ANS: D

Q30: Which of the following antidepressants is the LEAST sedating?

- A. Amitriptyline (Elavil)
- B. Doxepin (Sinequan)
- C. Trazodone (Desyrel)
- D. Desipramine (Norpramin)

ANS: D

Q31: In general, all antidepressants

- A. Are hydrophilic
- B. Are poorly absorbed in the GI tract
- C. Have extensive first pass hepatic metabolism
- D. Are poorly bound to alpha-1 acid glycoprotein

ANS: C

Q32: All the following medications have been associated with muscle cramps EXCEPT

- A. Phenothiazines
- B. Lithium
- C. Cimetidine
- D. Diazepam

ANS: D

Q33: Which of the following statements is true regarding opioid induces constipation?

- A. Itching and nausea are much more common side effects than constipation
- B. Tolerance develops to the constipating effects of opioids
- C. Bowel obstruction has not occurred with the use of high dose opioids
- D. The patient should be placed on a regular regimen of laxatives and stool softeners from the start of opioid therapy

ANS: D

Q34: Morphine 10 mg intramuscularly (IM) has roughly the same analgesic potency as

- A. 200 mg codeine IM
- B. 2 mg levorphanol (Levo-Dromoran) IM
- C. 200 mg meperidine (Demerol) IM

D. 5 mg methadone IM

ANS: B

Q35: Which of the following statements is true regarding the use of antidepressants as analgesics?

- A. The analgesic effect is primarily due to the relief of depression
- B. The antidepressants have no analgesic effect in patients who do not have depression
- C. To obtain analgesia, a trial of at least 6 months is needed
- D. Analgesic response usually occurs at a lower dose than that required for treatment of clinical depression

ANS: D

Q36: Which of the following local anaesthetics is NOT recommended for use in tissue infiltration?

- A. Procaine
- B. Tetracaine
- C. Lidocaine
- D. Bupivacaine

ANS: B

Q37: Which of the following drugs is an amino ester local anaesthetic?

- A. Etidocaine
- B. Propivacaine
- C. Mepivacaine
- D. Tetracaine

ANS: D

Q38: All the following are analgesic adjuvants EXCEPT

- A. Oral contraceptives
- B. Propranolol
- C. High dose steroids
- D. Opioids

ANS: D

Q39: A relative contraindication to the use of botulinum A toxin is

- A. Strabismus
- B. Myofascial pain for greater than 6 months
- C. Spasticity after spinal cord injury
- D. Myasthenia gravis
- E. Use of tricyclic antidepressants

ANS: D

Q40: All the following statements regarding botulinum A toxin are true EXCEPT

- A. It inhibits the release of acetylcholine
- B. It must enter the nerve endings to exert its effect
- C. It is produced by Clostridium botulinum
- D. Its effect on the neuromuscular junction is not permanent
- E. Its clinical effect can be seen within 1 h after injection

ANS: E

Q41: Which of the following statements is true regarding the use of lithium in a hyponatremic patient

- A. More lithium is required to achieve a therapeutic effect
- B. Sodium balance has no effect on lithium clearance

- C. Metabolism of lithium is increased
- D. Renal lithium excretion is reduced

ANS: D

Q42: Which of the following may decrease the efficacy of intravenous regional blockade with granethidine?

- A. Cimetidine
- B. Amitriptyline
- C. Steroids
- D. Tobacco

ANS: B

Q43: Which local anaesthetic can cause methemoglobinemia?

- A. Bupivacaine
- B. Lidocaine
- C. Prilocaine
- D. Tetracaine

ANS: C

Q44: Which of the following statements is true regarding addictive behavior in the chronic pain population?

- A. Drug addiction is more common in chronic pain patients than in general society
- B. The prevalence of drug abuse, dependence, or addiction is less than 20 percent in the chronic pain population
- C. Because of the high incidence of addiction, opioid use is contraindicated in chronic pain patients
- D. Alcohol abuse is more common in chronic pain patients than in general society

ANS: B

Q45: Lithium for pain control is contraindicated in patients with all the following medical conditions EXCEPT

- A. Myasthenia gravis
- B. Renal tubular disease
- C. Cardiac conduction defects
- D. Depression

ANS: D

Q46: What is the shortest acting opioid?

- A. Butorphanol
- B. Meperidine
- C. Morphine
- D. MS-Contin

ANS: B

Q47: Which of the following is true regarding corticosteroids?

- A. They have potent analgesic properties
- B. They help to prevent destruction of joints
- C. Methylprednisolone is a long acting corticosteroid
- D. They are potent anti inflammatory agents

ANS: D

Q48: The approximate dose equivalents to 10 mg of morphine are

- A. 100 mg meperidine, 25 µg fentanyl, 500 µg alfentanil, 5 mg methadone
- B. 100 mg meperidine, 100 µg fentanyl, 500 µg alfentanil, 10 mg methadone

- C. 50 mg meperidine, 50 µg fentanyl, 500 µg alfentanil, 5 mg methadone
- D. 50 mg meperidine, 100 µg fentanyl, 250 µg alfentanil, 10 mg methadone

ANS: B

Q49: What is the most appropriate medication for the treatment of benzodiazepine withdrawal?

- A. Morphine
- B. Clonidine
- C. Tricyclic antidepressants
- D. Phenobarbital
- E. Diazepam

ANS: D

Q50: Which of the following is true regarding withdrawal from short acting opioids?

- A. Seizures may occur
- B. Withdrawal is often life threatening
- C. Withdrawal symptoms peak at 48 to 72 h
- D. Untreated withdrawal resolves in 3 to 5 days
- E. Sedation and hypersomnia occur at the peak of withdrawal

ANS: C

Q51: Which local anaesthetic is most likely to be associated with an allergic reaction?

- A. Mepivacaine
- B. Bupivacaine
- C. Lidocaine
- D. Tetracaine
- E. Ropivacaine

ANS: D

Q52: All the following are true statements about intravenous phentolamine EXCEPT

- A. Phentolamine is a short acting, competitive, alpha adrenergic antagonist
- B. Intravenous phentolamine has been used as a test to diagnose reflex sympathetic dystrophy
- C. Intravenous phentolamine is equally effective in relieving stimulus independent and stimulus evoked pain
- D. There should be a marked increase in skin temperature of the painful extremity in the intravenous phentolamine test as there is with lumbar sympathetic block
- E. The pain reducing effect of intravenous phentolamine is peripheral, not central

ANS: D

Directions: Each question below contains four suggest responses of which one or more is correct, Select

- A if 1, 2, and 3 are correct
- B if 1 and 3 are correct
- C if 2 and 4 are correct
- D if 4 is correct
- E if 1,2,3 and 4 are correct

Q53: Nonacetylated salicylates include?

- 1. Salsalate
- 2. Diflunisal
- 3. Choline magnesium trisalicylate
- 4. Sulindac

ANS: A

Q54: True statements regarding tolerance include that it

1. is characteristic of opioids as a class
2. cannot occur without physical dependence
3. is defined as requiring more drug to produce the same effect
4. is synonymous with addiction

ANS: B

Q55: Opioid antagonists include

1. naltrexone
2. cholecystokinin
3. naloxone
4. dezocine

ANS: A

Q56: Clinical properties of opioid agonist antagonists and partial agonists include

1. lower potency than pure agonists
2. lower addiction potential than morphine
3. ceiling effect for both respiratory depression and analgesia
4. dysphoric reactions

ANS: E

Q57: Opioids that cause histamine release include

1. meperidine
2. sufentanil
3. codeine
4. fentanyl

ANS: B

Q58: Symptomatic treatment of cluster headaches includes

1. cyproheptadine
2. ergotamine
3. Bellergal (combination of Phenobarbital, ergotamine, and levorotatory alkaloids of belladonna)
4. oxygen

ANS: C

Q59: Statements that correctly characterize clonidine include that

1. it inhibits nociceptive neurons in the dorsal horn
2. it is an α_1 agonist
3. it produces analgesia when applied to the spinal cord in animals
4. it does not produce analgesia when applied to the spinal cord in humans

ANS: B

Q60: Tachyphylaxis with a local anaesthetic is

1. more likely to occur when a drug is administered by intermittent boluses than when given continuously
2. associated with a shorter duration of action and fading anaesthetic potency
3. less likely with the addition of acidic antioxidants to the solution
4. defined as a drug's declining effectiveness when given repeatedly

ANS: C

Q61: Which of the following can cause severe drug induced myalgia?

1. Trazodone
2. Amphetamines
3. Acetaminophen
4. Alcohol

ANS: C

Q62: Compared with morphine, buprenorphine

1. is more potent
2. is more lipid soluble
3. has a greater affinity for opioid receptors
4. is less protein bound

ANS: A

Q63: A 35-year-old woman with breast cancer and metastatic lesions to ribs and lumbar spine presents to the ER with slowly increasing, severe controlled release morphine sulfate (MS-contin) 90 mg bid and ibuprofen 600 mg qid. After extensive evaluation revealed no new metastases or CNS pathology, which oral medications below would be appropriate to add to her current regimen?

1. Increase MS-Contin
2. Amitriptyline 25 mg qhs
3. Increased ibuprofen to 800 mg qid
4. Pentazocine for breakthrough pain

ANS: A

Q64: True statements regarding naproxen include that

1. peak plasma concentrations occur within 2 h after an oral dose
2. it is an acetic acid derivative
3. it is extensively bound to plasma proteins
4. it has an elimination half life of 4 to 6 h

ANS: B

Q65: True statements regarding epidural opioids include that

1. they bind to epidural fat
2. they enter the systemic circulation by way of the epidural venous system
3. they reach the dorsal horn by way of the posterior radicular arteries
4. they enter the cerebrospinal fluid (CSF) through the dura by diffusing across arachnoid granulations

ANS: E

Q66: Fentanyl induced pruritus has been treated by

1. butorphanol
2. buprenorphine
3. nalbuphine
4. levorphanol

ANS: A

Q67: In comparison to alcohol, phenol

1. produces a less profound block
2. deteriorates in storage after 1 month
3. produces a block of shorter duration
4. is hypobaric

ANS: B

Q68: Complications resulting from bolus injections of local anaesthetic into the internal carotid artery include

1. aphasia
2. convulsions
3. hemiparesis
4. total blindness

ANS: E

Q69: Intravascular injection of 10% phenol can cause

1. flushing
2. a pleasurable sensation
3. severe tinnitus
4. thrombosis

ANS: B

Q70: The most important factors in determining the spread of spinal anaesthetic solutions include

1. volume of anaesthetic injected
2. baricity of the anaesthetic solution
3. position of the patient
4. addition of vasoconstrictors to the solution

ANS: A

Q71: True statements regarding methylparaben include that

1. it is an antimicrobial agent added to some local anaesthetic solutions
2. it is typically used as a 10% solution
3. it may be responsible for allergic reactions attributed to local anaesthetics
4. it is most effective against gram negative organisms

ANS: B

Q72: Headache may occur after the administration of which of the following antieoplastic agents?

1. Intrathecal methotrexate
2. L-Asparaginase
3. Transretinoic acid
4. 5-Fluorouracil

ANS: A

Q73: There is an increased risk of anticholinergic delirium when amitriptyline is used in conjunction with which of the following medications?

1. Phenothiazines
2. Atropine
3. diphenhydramine
4. Meperidine

ANS: E

SUMMARY OF DIRECTIONS

A	B	C	D	E
1,2,3 only	1,3 only	2,4 only	4 only	All are correct

Q74: Selective serotonin reuptake inhibitors (SSRIs)

1. fluoxetine (Prozac)
2. maprotiline (Ludiomil)
3. sertraline (Zoloft)
4. venlafaxine (Effexor)

ANS: B

Q75: Chemotherapeutic agents known to cause mental status changes include which of the following drugs?

1. Methotrexate
2. vincristine
3. Bleomycin
4. 5-Fluorouracil

ANS: E

Q76: A 40-year-old woman had been taking 50 mg of baclofen (Lioresal) each day for the last 6 months for the treatment of spasticity associated with multiple sclerosis. She then developed viral gastroenteritis, which prevented her from taking baclofen for over 24h. The patient should be observed for which of the following symptoms after this abrupt withdrawal of baclofen?

1. Coma
2. Hallucinations
3. Stroke
4. Seizures

ANS: C

Q77: The placebo effect is correctly characterized by which of the following?

1. It occurs when an intervention that is not expected to have an effect produces one
2. It occurs in over 30 percent of the population in the case of analgesia
3. It mandates a double blind crossover study design
4. It can be measured using sophisticated psychological testing

ANS: A

Q78: True statements about the “nocebo” effect include

1. effects are commonly the same as expected from the active agent
2. it implies the presence of psychogenic pain
3. it occurs when ineffective interventions produce adverse effects
4. the McGill Pain Questionnaire is used to predict its occurrence

ANS: B

Q79: Factors that predispose to the development of late-onset respiratory depression following administration of spinal opioids include

1. large doses of opioids
2. thoracic epidural opioids
3. opioid naïve patients
4. use of lipid soluble opioids

ANS: A

Q80: Physiologic properties of the body affecting the volume of distribution of a drug include

1. local pH
2. tissue composition
3. membrane permeability
4. blood flow

ANS: E

Q81: drugs used to prevent migraine include

1. beta blockers
2. methysergide
3. cyproheptadine
4. lithium

ANS: A

Q82: Medications used in the symptomatic treatment of migraine include

1. ergotamine tartrate
2. isometheptene mucate
3. meclofenamate sodium
4. sumatriptan

ANS: E

Q83: Physiochemical properties of a drug that influence its volume of distribution include

1. molecular weight
2. lipid solubility
3. degree of ionization
4. polarity

ANS: E

Q84: Allergic reactions to local anaesthetics

1. are less common with the addition of methylparaben
2. are frequently misdiagnosed as systemic toxic reactions
3. occur more commonly with the aminoamide agents
4. may involve para-aminobenzoic acid

ANS: C

Q85: The development of tachyphylaxis

1. is affected by the concentration of local anaesthetic used
2. occurs with continuous infusion as well as intermittent boluses of local anaesthetic
3. has been well documented to occur with both lidocaine and bupivacaine
4. occurs more often in patients receiving combined local anaesthetic and opioid mixtures epidurally

ANS: A

Q86: Phenol in glycerin, a commonly used subarachnoid neurolytic agent

1. is less painful on injection compared with alcohol
2. is hyperbaric compared with the CSF
3. causes nonselective destruction of nervous tissue
4. produces neurolysis by causing protein degeneration

ANS: E

Q87: True statements regarding the injection of glycerol include

1. it is injected into the trigeminal ganglion for treatment of trigeminal neuralgia
2. topical application is more damaging than intraneural injection
3. wallerian degeneration occurs

4. regeneration begins within 1 month of injection

ANS: B

Q88: Calcitonin has been used as an effective analgesic in which of the following conditions?

1. Phantom limb pain
2. Paget's disease
3. bony metastases
4. Osteoarthritis

ANS: E

Q89: Botulinum A toxin is an effective treatment in which of the following conditions?

1. Strabismus
2. Myofascial pain
3. Blepharospasm
4. Torticollis

ANS: E

Q90: Agents that may be beneficial to AIDS patients with painful sensory neuropathy include

1. tricyclic antidepressants
2. carbamazepine
3. topical capsaicin
4. opioid analgesics

ANS: E

Q91: Psychological dependence (addiction) is characterized by

1. craving for drug effects other than pain relief
2. persistent efforts to obtain sufficient narcotic to control pain
3. tendency to relapse after withdrawal
4. withdrawal symptoms when the drug is withheld

ANS: B

Q92: Which of the following may increase the clearance of other drugs?

1. Smoking
2. Phenytoin
3. Barbiturates
4. Cimetidine

ANS: A

Q93: Risks associated with chronic use of corticosteroids include

1. osteoporosis
2. avascular necrosis of bone
3. hypertension
4. cataract formation

ANS: E

Q94: Which of the following medications can be used as treatment for opioid withdrawal?

1. Clonidine
2. Diphenylhydantoin
3. Buprenorphine
4. Phenobarbital

ANS: B

SUMMARY OF DIRECTIONS

A	B	C	D	E
1,2,3 only	1,3 only	2,4 only	4 only	All are correct

Q95: Appropriate medications for management of the symptoms of alcohol withdrawal include

1. lorazepam
2. buprenorphine
3. diazepam
4. clonidine

ANS: B

Q96: How does alkalinization of urine affect the elimination of tricyclic antidepressants?

1. Metabolism is increased
2. Excretion rate is decreased
3. Clearance rate is not affected
4. Reabsorption is increased

ANS: C

TYPES OF PAIN

Directions: Each question below contains suggested responses. Select the one best response.

Q97: Pain is best defined as

- A. The response to a stimulus that is damaging to tissue integrity
- B. The process of detecting and signaling the presence of a noxious stimulus
- C. The emotional reaction of an organism to a noxious stimulus
- D. An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage

ANS: D

Q98: Diminished biceps and brachioradialis reflexes associated with numbness and weakness of the deltoid are due to compression of which nerve root?

- A. C5
- B. C6
- C. C7
- D. C8

ANS: A

Q99: A 26-year-old weight lifter felt a sharp pain in the neck, radiating to the dorsal aspect of the forearm during his workout. Over the next few days he noted progressive numbness of the thumb and index finger. He also complained of decreased ability to perform bicep curls. On examination by his primary care doctor, a markedly diminished biceps reflex was found. Which of the following is the most likely cause of the patient's problem?

- A. Fractured C5 vertebra
- B. C5-C6 disk protrusion
- C. Facet syndrome at C5-C6
- D. Compression of the C5 nerve root by an osteophyte

ANS: B

Q100: Allodynia can be defined as

- A. Hypersensitivity to a painful stimulus
- B. Summation of mildly painful stimuli that causes severe pain
- C. Pain caused by a nonpainful stimulus
- D. Pain present in an area of numbness

ANS: C

Q101: Which of the following is typically the most difficult type of pain to treat?

- A. Psychogenic pain
- B. Intermittent somatic pain
- C. Continuous visceral pain
- D. Intermittent neuropathic pain
- E. Chronic pain

ANS: A

Q102: All the following are examples of nociceptive types of pain EXCEPT

- A. Inflammation
- B. Distended viscera
- C. Fractures
- D. Phantom limb pain
- E. Lacerations

ANS: D

Q103: All the following are true regarding nociceptive pain EXCEPT

- A. It is not commonly relieved by narcotic agents
- B. It is described as sharp or shooting in nature
- C. It may be relieved by changing position
- D. It is described as intermittent, cramping, and throbbing
- E. It is commonly abolished by local anaesthetic blockade

ANS: A

Q104: A 35-year-old construction worker presents with a chief complaint of pain over the dorsal aspect of the forearm and inability to fully extend the arm at the elbow. Physical examination reveals diminished sensation over the dorsal aspect of the index and middle fingers as well as an absent triceps reflex. Which of the following nerve roots is most likely involved?

- A. C5
- B. C6
- C. C7
- D. C8
- E. T1

ANS: C

Q105: All the following are true regarding visceral pain EXCEPT

- A. Traction and distention usually produce pain
- B. Cutting and burning usually produce pain
- C. Pain can commonly be referred
- D. Pain is diffuse and poorly localized
- E. Viscera have fewer nociceptors than somatic structures

ANS: B

Q106: Ramsay Hunt Syndrome (herpes zoster oticus) occurs when herpes zoster involves the

- A. Gasserian ganglion
- B. Sphenopalatine ganglion
- C. Ciliary ganglion
- D. Geniculate ganglion
- E. Trigeminal nerve

ANS: D

Q107: Temporal arteritis is correctly described by all the following EXCEPT:

- A. A swollen, tender scalp artery is present
- B. It is frequently accompanied by polymyalgia rheumatica
- C. Patients usually have an elevated erythrocyte sedimentation rate (ESR)
- D. There are typical histologic features on biopsy
- E. It is not responsive to steroid therapy

ANS: E

Q108: All the following statements regarding endometriosis are correct EXCEPT that the pain

- A. Is characteristically worse during menstruation
- B. May mimic acute appendicitis
- C. May result from a direct action on nerve endings
- D. May be resolved with NSAIDs
- E. Is commonly felt in the hypogastric region

ANS: A

Q109: The uncommon Sluder's neuralgia, characterized by severe pain in the face below the eyebrows, primarily involves the

- A. Gasserian ganglion
- B. Sphenopalatine ganglion
- C. Ciliary ganglion
- D. Geniculate ganglion
- E. Trigeminal nerve

ANS: B

Q110: Which of the following types of headaches is most likely to be responsive to inhalation of 100% oxygen?

- A. Migraine headache
- B. Tension headache
- C. Cluster headache
- D. Cervicogenic headache
- E. Chronic paroxysmal hemicrania

ANS: C

Q111: All the following statements regarding a spinal epidural abscess are true EXCEPT that

- A. The most common symptom is back pain
- B. Symptoms may not occur for 1 to 2 weeks following a medical procedure
- C. It commonly leads to radicular symptoms
- D. Paraplegia can result
- E. It most commonly results from inadequate cleaning of the skin

ANS: E

Q112: All the following are true regarding tension headaches EXCEPT that they

- A. Occur mostly in men
- B. Are commonly associated with sleep disturbance
- C. Often occur bilaterally
- D. Do not have a hereditary pattern
- E. Evolve over hours to days

ANS: A

Q113: Which of the following is the LEAST likely location to develop an acute herpes zoster infection?

- A. Face
- B. Lumbar dermatome
- C. Sacral dermatome
- D. Thoracic dermatome
- E. Cervical dermatome

ANS: C

Q114: A patient complains of S1 radicular pain on straight leg raising to 30°. Crossed straight leg raising caused the same pain. These findings on physical examination support a diagnosis of

- A. L5-S1 disk herniation
- B. Facet arthropathy
- C. Sciatica
- D. Malingering

ANS: A

Q115: A previously healthy 27-year old woman presents to the emergency ward with a complaint of generalized muscular pain with aching in the left buttock for 1 week. The pain travels down the back of her leg to the heel and lateral side of her foot to the small toe. She has also noted a progressive numbness in her legs and arms, which has worsened over the week. She came in to the emergency ward for new onset of leg weakness. Walking is very difficult, and her legs buckle when she stands. The most likely diagnosis is

- A. Postherpetic neuralgia
- B. Brain tumor
- C. Hysterical reaction
- D. Guillain Barre syndrome

ANS: D

Q116: Which of the following statements regarding the pain of multiple sclerosis (MS) is true?

- A. Trigeminal neuralgia is the most common pain disorder associated with MS
- B. Most patients with MS have headaches associated with the disease process
- C. Primary psychogenic pain is common in MS
- D. The majority of MS patients with pain have central pain associated with the disease process

ANS: D

Q117: A 46-year old man complained of back pain after doing spring planting in his garden. Two weeks later, upon examination by his garden. Two weeks later, upon examination by his doctor, it was noted that he had difficulty walking on his heels, and increased pain in the lower back, buttock, and dorsum of the foot on straight leg raising to 30°. Deep tendon reflexes were normal. Which nerve root is involved?

- A. L3
- B. L4
- C. L5
- D. S1

ANS: C

Q118: A 25-year old woman, who underwent an appendectomy 6 months ago, complains of a stabbing, colicky pain in the right lower abdomen. The pain is exacerbated by exercise and relieved by rest. It often radiates to the base of the labia and to the inner aspect of the thigh. Which of the following statements is likely to be true?

- A. Surgical division of the nerve has caused severe neuralgia
- B. The patient is suffering from entrapment of the genitofemoral nerve
- C. An epidural steroid injection at L2-L3 may be helpful
- D. The pain can be relieved by serial injections of local anaesthetic, with or without steroids, injected at the point of maximum tenderness
- E. The patient should have a pelvic MRI before any injections are done

ANS: D

Questions 119-120

A 76-year old man complains of a 2-year history of progressive lower back pain with aching and numbness radiating from the right buttock to the lateral aspect and dorsum of his right foot. Pain is increased with walking. He found that he could walk with greater ease by leaning forward (i.e., leaning on a shopping cart and using it as support for ambulation). He is pain free while supine.

Q119: What is the most likely diagnosis?

- A. Herniated nucleus pulposus
- B. Lumbar plexopathy
- C. Spinal stenosis

D. Arachnoiditis

ANS: C

Q120: What electrodiagnostic finding would provide the most support for your diagnosis?

- A. Reduced amplitude of H-wave response
- B. Increased amplitude of the somatosensory evoked response
- C. Normal F-wave response
- D. Reduced conduction velocity of the genitofemoral nerve

ANS: A

Q121: All the following characteristics are commonly associated with postmastectomy pain syndrome EXCEPT

- A. The intercostobrachial nerve is often affected
- B. Pain may be exacerbated by arm movement
- C. The patient complains of tight, constricting, burning pain in the midback
- D. Painful areas often include the posterior arm and axilla
- E. Patients may complain of pain in the anterior chest wall

ANS: D

Q122: Select the most appropriate statement regarding mucositis in cancer patients.

- A. Poor oral hygiene has no effect on the potential for development of mucositis
- B. Chemotherapy induced mucositis usually begins 3 to 5 days after therapy is started
- C. There is no risk of an infection or hemorrhage associated with mucositis
- D. Radiation induced mucositis appears 1 day after therapy is started
- E. Pain is characterized as mild in intensity and burning in quality

ANS: B

Q123: A 16-year old boy had an above the knee amputation complains of a painful, twisting, cramping sensation in his amputated calf, and pins and needles with burning in his amputated foot. The patient is suffering from

- A. Stump pain
- B. Reflex sympathetic dystrophy
- C. Phantom limb pain
- D. Fabry's disease

ANS: C

Q124: A 5-year old presents with a 2-year history of periumbilical pain, nausea, vomiting, headache, fever, and limb pains. The attacks last 4 to 5 h, resolve spontaneously, and recur four to five times per year. Multiple GI and fever work ups are negative. Lead screening is also negative, The most likely diagnosis is

- A. Appendicitis
- B. Biliary colic
- C. Lead intoxication
- D. Abdominal migraine

ANS: D

Q125: A 50-year old man presents with a 6-month history of weight loss, low grade fever, fatigue, depression and deep muscular aches of the neck, shoulder, and hip girdle, which are most severe in the morning or after exercise. No muscle tenderness or weakness is found on examination. What is the most likely diagnosis?

- A. Fibromyalgia
- B. Polymyalgia rheumatica
- C. Polymyositis
- D. Dermatomyositis

ANS: B

Q126: A 72-year old man with a history of spinal stenosis has been a pain clinic patient for 2 years, receiving 4 to 6 months relief from epidural steroid injections before pain required. He presents to the clinic with the complaint of a recent increase in his pain. The pain is constant and is exacerbated by movement. It is not relieved by heat, NSAIDs, or bed rest. On examination, the patient is afebrile. The L4 and L5 vertebrae are tender to palpation. There is paraspinal muscle spasm. No motor or sensory deficits are present. The most likely diagnosis is

- A. Vertebral osteomyelitis
- B. Increasing spinal stenosis
- C. Herniated disk
- D. Paget's disease

ANS: A

Q127: Postherpetic neuralgia is caused by

- A. Herpes simplex type I
- B. Herpes simplex type II
- C. Varicella zoster
- D. Epstein-Barr virus

ANS: C

Q128: Which of the following is a Waddell's sign?

- A. The patient complains of back pain on dorsiflexion of the foot during straight-leg raising
- B. The patient complains of back pain during the skin roll test
- C. The patient demonstrates cogwheel movements of the back from flexion to standing upright
- D. There is absent rectal sphincter tone in the setting of low back pain

ANS: B

Q129: A 76-year old woman complains of cramping pain in the low back and buttocks that radiates down the back of her thighs to her knees with prolonged standing or when she walks a short distance. When is able to walk more comfortably when she leans over a grocery cart to go food shopping, but complains of severe pain and paresthesias when she walks down small hills. This history is most suggestive of

- A. Tabes dorsalis
- B. Facet disease
- C. Neurogenic claudication
- D. Vascular claudication

ANS: C

Q130: A 20-year old man complained of a severe, throbbing, bitemporal headache and facial flushing after eating a hot dog at the ball park. The headache and facial flushing subsided over the next few hours. The next week, the same event occurred. He commented on this to his physician at his annual physical. The doctor told him that he probably had

- A. Hot dog headache
- B. Sunburn from being in the bleachers
- C. Food poisoning
- D. Tension headache

ANS: A

Q131: A 50-year old, previously healthy man presented to the emergency room with nausea, dizziness, and headache after eating at a Chinese restaurant. The symptoms subsided over the next several hours. Upon discharge from the emergency room, his physician told him to avoid which of the following?

- A. Nitrites
- B. Water chestnuts
- C. Monosodium glutamate
- D. Hot peppers

ANS: C

Q132: A 16-year old girl with a history of childhood migraine saw her doctor with the complaint of intense midfrontal pain associated with eating frozen yogurt. The pain lasts 60 s before subsiding spontaneously. It happens almost every time she eats frozen yogurt. Which is the most likely diagnosis?

- A. Atypical migraine
- B. Temporomandibular joint syndrome
- C. Sinusitis
- D. Ice cream headache

ANS: D

Q133: An unpleasant abnormal sensation that is either evoked by a stimulus or occurs spontaneously without sensory stimulation is called

- A. Hyperpathia
- B. Paresthesia
- C. Hypoesthesia
- D. Dysesthesia

ANS: D

Q134: Pain in the left iliac region is frequently caused by all the following EXCEPT:

- A. Inflammation
- B. Crush injury
- C. Overdistention
- D. Traction
- E. Ischemia

ANS: B

Q135: Patrick's sign is present most frequently in patients who have

- A. Sciatica
- B. Herniated disk
- C. Hip joint disease
- D. Facet syndrome

ANS: C

Q136: A 35-year old man with a 20-year history of spondylolysis of L5 after a football injury develops acute pain in the buttocks and upper posterior thigh. Severe spasm of the hamstrings causes him to walk with a shuffling gait. The most likely cause of his acute symptoms is

- A. Facet syndrome
- B. Herniated disk
- C. Sacroilitis
- D. Spondylolisthesis

ANS: D

Questions 137-139

A patient is unable to push the examiner's hand away when the arm is flexed at the elbow.

Q137: The major muscle involved in this action is

- A. Biceps

- B. Deltoid
- C. Triceps
- D. Brachioradialis

ANS: C

Q138: The primary innervation of the muscles that allow extension of the forearm is from which nerve?

- A. Radial
- B. Musculocutaneous
- C. Ulnar
- D. Median

ANS: A

Q139: The patient was found to have a herniated disk on MRI. Disk herniation at which level would be most likely to produce weakness on attempting to extend the forearm against resistance?

- A. C3-C4
- B. C6-C7
- C. C7-T1
- D. T1-T2

ANS: B

Q140: The most common vertebral level at which fracture of the pars interarticularis occurs is

- A. L2
- B. L3
- C. L4
- D. L5

ANS: D

Q141: A 20-year old woman complains of a long history of episodic, generalized, colicky, abdominal pain and nausea whose episodes resolve in 1 to 3 days. The pain occurs most frequently during her menses or when she is emotionally upset. Multiple medical evaluations and exploratory laparotomies have not revealed the cause of her problem. Abdominal radiographs show a thumbprinting pattern of the small bowel. The most likely diagnosis is

- A. Endometriosis
- B. Acute intermittent porphyria
- C. Hereditary angioedema
- D. Eosinophilic enteritis

ANS: C

Q142: A 27-year old man with ankylosing spondylitis complains of neck, occipital, and shoulder pain. He denies any history of recent trauma or febrile illness. The most likely cause of his pain is

- A. Compression fracture of C2
- B. Cervical osteomyelitis
- C. Atlantoaxial subluxation
- D. Epidural hematoma

ANS: C

Q143: A 22-year old man complains of a severely aching and throbbing, unilateral headache associated with mydriasis and hyperhidrosis of the painful side. The headaches last 12 to 24 h before subsiding. A CT scan of the brain shows nothing abnormal. He has a history of a knife wound to the neck 1 year ago. The most likely diagnosis is posttraumatic

- A. Dysautonomic cephalgia
- B. Cluster headache
- C. Muscle contraction headache
- D. Basilar artery migraine

ANS: A

Q144: A 45-year old woman with systemic lupus erythematosus complains of fever, headache, and vomiting associated with a depressed level of consciousness over the last 24 h. She recently had begun taking ibuprofen as treatment for diffuse joint pain. CSF examination revealed neutrophilia and normal glucose. The most likely diagnosis is

- A. Bacterial meningitis
- B. Drug induced meningitis
- C. Fungal meningitis
- D. Viral meningitis

ANS: B

Q145: A 44-year old woman complains of intense, throbbing, bitemporal headache that occurs 4 to 6 h after she exercises and resolves with 1 dose of 400 to 600 mg of ibuprofen. What is the most likely diagnosis?

- A. Brain tumor
- B. Pheochromocytoma
- C. Multiple sclerosis
- D. Exertional headache

ANS: D

Q146: A 10-year old boy complains of upper neck and jaw pain that has persisted since his tonsillectomy 6 months ago. The pain is intensified by swallowing, talking, or turning his head. He is afebrile and blood work shows no evidence of infection. Which of the following is the most likely cause of his persistent pain?

- A. Riedel's struma
- B. Eagle's syndrome
- C. Ludwig's angina
- D. Posttraumatic stress disorder

ANS: B

Q147: Ninety percent of cervical radiculopathies caused by disk impingement involve which nerve roots?

- A. C3, C4
- B. C4, C5
- C. C5, C6
- D. C6, C7

ANS: D

Q148: A patient complains of shoulder and proximal arm pain. There is weakness of abduction (deltoid) and loss of the biceps reflex. The patient denies hand pain. Sensory examination is normal. The cervical MRI reveals the impingement of a disk upon a nerve root. What is the most likely level of the lesion?

- A. C4
- B. C5
- C. C6
- D. C7

ANS: B

Q149: A 41-year old man complains of pain involving his neck, shoulders, posterolateral arm, and hand, which occurred after a strenuous upper body workout with weights. He has also noted numbness and paresthesias in his index and middle fingers. On examination, there is marked weakness of the triceps and extensor carpi radialis and ulnaris. The triceps reflex is absent. The most likely nerve root involved is

- A. C5
- B. C6
- C. C7
- D. C8

ANS: C

Q150: A patient complains of pain involving the entire arm as well as numbness and tingling in the thumb and index finger. On examination, there is marked weakness of the biceps and brachialis muscles. Both the biceps and brachioradialis reflexes are abnormal. A lesion of which nerve root is most likely to produce these symptoms and signs?

- A. C5
- B. C6
- C. C7
- D. C8

ANS: B

Q151: A patient has pain in the medial side of the arm and forearm that radiates into the ring and little fingers and is associated with normal reflexes and weakness of the intrinsic muscles of the hand. This indicates a lesion of which cervical nerve root?

- A. C5
- B. C6
- C. C7
- D. C8

ANS: D

Q152: The most common cause of an epidural abscess is

- A. Staphylococcus aureus
- B. Pseudomonas species
- C. Gram negative rods
- D. Streptococcal species

ANS: A

Q153: Torticollis may be caused by all the following EXCEPT

- A. Herniated cervical disk
- B. Ingestion of phenothiazine
- C. Injection of botulinum toxin
- D. Syringomyelia

ANS: D

Q154: A 62-year old man complains of a 6-month history of unilateral, constant neck and occipital pain associated with numbness in the back of his head, which occurred after he was "rear-ended" in a motor vehicle accident. The most likely diagnosis is

- A. Malingering
- B. Occipital migraine
- C. Occipital neuralgia
- D. Cervical disk herniation

ANS: C

Q155: A 36-year old secretary complained for 4 months of paresthesias and aching in the right hand, especially notable after typing for several hours. The aching and numbness were most pronounced in the middle finger and medial aspect of her forearm. The aching, tingling and numbness made it difficult for her to sleep at night. She also noted some weakness in right grip strength. What is the most likely diagnosis?

- A. Pancoast syndrome
- B. Ulnar neuropathy
- C. Radial nerve entrapment
- D. Carpal tunnel syndrome
- E. Reflex sympathetic dystrophy

ANS: D

Q156: A 56-year old woman with breast cancer complains of pain and tenderness of her muscles and joints that began 24 h after she began a taper-off of prednisone. She is afebrile. Blood work does not reveal any significant abnormalities. Bone scan does not reveal new metastases. What is the most likely cause of her symptoms?

- A: Anxiety
- B: Viral influenza
- C: Steroid pseudorheumatism
- D: Arthritis

ANS: C

Q157: Geniculate neuralgia is

- A: Most often seen in elderly patients
- B: Called the Ramsay Hunt syndrome when accompanied by ipsilateral facial paralysis
- C: Associated with ocular pain
- D: More common than glossopharyngeal neuralgia

ANS: B

Q158: A 67-year old man with persistent paresis on the left side and who had a cerebrovascular accident 6 months ago began to notice a burning, aching, and occasionally shooting pain on his affected side. Full neurologic evaluation did not reveal new injuries. The most likely cause of his pain is

- A. Cancer
- B. Reflex sympathetic dystrophy
- C. Conversion reaction
- D. Central poststroke pain syndrome

ANS: D

Q159: Select the true statement from the following.

- A. Syringomyelia is common after trauma to the spinal cord
- B. Pain is common in syringomyelia
- C. Patients with syringomyelia commonly have normal temperature sensibility
- D. Syringomyelia is commonly treated by spinal cord stimulation

ANS: B

Q160: All the following statements are true regarding the occurrence of acute herpes zoster (AHZ) in cancer patients EXCEPT

- A. Patients with hematologic or lymphoproliferative cancer have an increased incidence of AHZ
- B. The location of the AHZ infection is not associated with the site of the cancer
- C. Patients receiving immunosuppressive therapies have an increased incidence of AHZ
- D. AHZ occurs less frequently in nonirradiated areas than in irradiated areas

ANS: B

Q161: A 52- year old man complains of a sudden onset of severe, stabbing pain in the left jaw and cheek the subsides in less than a minute. He is pain free during the intervals between attacks. Activities such as combing his hair and shave can cause the onset of his facial pain. He is otherwise healthy. The most likely diagnosis is

- A. Atypical facial pain
- B. Vascular facial pain
- C. Trigeminal neuralgia
- D. Postherpetic neuralgia

ANS: C

Q162: Painful polyneuropathies caused by selective small fiber loss include all the following EXCEPT:

- A. Chronic renal failure
- B. Diabetes
- C. Amyloid neuropathy
- D. Hereditary sensory neuropathy
- E. Fabry's disease

ANS: A

Q163: A 3-year old, mildly retarded boy is brought in to the ER for treatment of a tongue laceration. His mother gives a history of multiple episodes in which he accidentally injured himself without seeming to feel any pain. She states that he was burnt his hands several times picking up hot objects without obvious discomfort. He also has been to the hospital many times for evaluation of high fevers. His clinical presentation suggests

- A. Trisomy 21
- B. Congenital analgesia
- C. Child abuse
- D. Lead poisoning

ANS: B

Questions 164-165

A 56-year old woman, who has undergone two spinal surgeries, complains of persistent, gradually worsening, burning, and lancinating pain in the right buttock radiating down the lateral thigh to the middorsum of the right foot. MRI shown patent neural foramina and adequate spinal alignment. There is clustering of the lumbar nerve roots with adherence to the meninges in the right side of the spinal canal.

Q164: The most likely diagnosis is

- A. Herniated nucleus pulposus
- B. Melinging
- C. Fractured pars interarticularis
- D. Arachnoiditis
- E. Spondylolisthesis

ANS: D

Q165: Appropriate therapies for this patient would include all the following EXCEPT

- A. Spinal cord stimulation
- B. Physical therapy
- C. Piroxicam
- D. Intrathecal steroids
- E. Carbamazepine

ANS: D

Q166: True statements regarding posttraumatic headache include that it

- A. Can follow even mild head injury
- B. Is not usually associated with personality changes
- C. Causes bilateral ocular pain
- D. Is associated with conjunctival injection and rhinorrhea
- E. Is best treated with oxygen

ANS: A

Q167: A 63-year old woman complains of recent onset of unilateral temporal headaches. She has muscle and joint aches without neck stiffness. She also complains of loss of appetite, low grade fever, and visual disturbances. The most likely diagnosis is

- A. Migraine headaches
- B. Subarachnoid hemorrhage
- C. Viral influenza
- D. Giant cell arteritis
- E. Venous thrombosis

ANS: D

Q168: All the conditions listed can cause referred pain to the coccyx EXCEPT

- A. Levator syndrome
- B. Arachnoiditis
- C. Pilonidal cyst
- D. Fracture of the L3 vertebral body
- E. Vaginismus

ANS: D

Q169: A 25-year old, obese man complains of a burning pain in the anterolateral thigh. Deep tendon reflexes and findings in a motor examination are normal. There is a slight sensory deficit in the lateral thigh that corresponds to the painful area. What is the most appropriate diagnostic block to perform on this patient?

- A. Epidural local anaesthetic and steroid
- B. Trigger point injection
- C. Ilioinguinal nerve block
- D. Lumbar sympathetic block
- E. Lateral femoral cutaneous nerve block

ANS: E

Q170: A 32-year old man complains of a 2-week history of a deep, steady, dull headache is intermittent. It does not interfere with sleep, but seems worse on awakening. The headache worsens with coughing. Acetaminophen and ibuprofen relieve the headache. However, it recurs after the analgesic wears off. The patient denies prior history of headaches or history of head trauma. The most likely diagnosis is

- A. Migraine headache
- B. Cluster headache
- C. Frontal lobe tumor
- D. Posterior fossa tumor
- E. Tolosa Hunt syndrome

ANS: D

Questions 171-172

A 13-year old girl presents with recent onset of cramping abdominal pain associated with occasional vomiting and low grade fever. She is also found to have postural hypotension and

diminishing upper and lower extremity deep tendon reflexes with paresthesias of her feet and hands. She has recently been having difficulty with schoolwork.

Q171: What is the most likely diagnosis?

- A. Hyperventilation syndrome
- B. Anorexia nervosa
- C. Appendicitis
- D. Acute intermittent porphyria

ANS: D

Q172: The diagnosis can be confirmed by

- A. Exploratory laparotomy
- B. Complete blood count with differential
- C. 24-h urine collection
- D. Arterial blood gas

ANS: C

Q173: Which of the following activities places the greatest load on the L3 disk in a 70-kg person?

- A. Bending forward 20°
- B. Bending plexitis
- C. Neurofibroma of the brachial plexus
- D. Thoracic outlet syndrome
- E. Herniated nucleus pulposus

ANS: A

Q174: In order of most to least frequent, the divisions of the trigeminal nerve involved in tic douloureux are

- A. V1, V2, V3
- B. V1, V3, V2
- C. V2, V3, V1
- D. V3, V1, V2

ANS: C

Q175: True statements regarding the stress response to injury include all the following EXCEPT

- A. It is a complex hormonal and neurologic response
- B. It is mediated via sympathetic pathways
- C. A catabolic response predominates
- D. Hypoglycemia is typically observed
- E. Serum aldosterone levels are elevated

ANS: D

Q176: A 61-year old woman presents to the pain clinic with a chief complaint of left shoulder and arm pain 3 years after undergoing radiation therapy for breast cancer. Physical examination reveals lymphedema of the left axilla with noticeable skin changes. Examination of the left supraclavicular area precipitates a sharp pain that radiates down her left arm. Which of the following is her likely diagnosis?

- A. Cervical radiculopathy
- B. Tumor metastasis
- C. Reflex sympathetic dystrophy
- D. Radiation induced plexopathy
- E. Thrombangiitis obliterans

ANS: D

Q177: A 26-year old man complains of a painful scrotum. The patient should undergo careful evaluation for all the following conditions EXCEPT

- A. Testicular torsion
- B. Epididymo-orchitis
- C. Testicular cancer
- D. Paraphimosis
- E. Fractured testicle

ANS: D

Q178: Which of the following series of tests and procedures would be most helpful in distinguishing testicular torsion from epididymo-orchitis?

- A. Urinalysis, ice with elevation and immobilization, needle aspiration
- B. Urinalysis, radioactive testicular scan, ultrasound, surgical exploration
- C. Urinalysis, ultrasound, needle aspiration, testicular biopsy
- D. Urinalysis, ultrasound, needle aspiration, testicular biopsy
- E. Urinalysis, ultrasound, ice with elevation and immobilization, surgical exploration

ANS: B

Q179: A patient with right foot reflex sympathetic dystrophy has responded well to a series of lumbar sympathetic blocks. What advice would you give her to prevent it from recurring?

- A. Minimize walking
- B. Minimize any weight bearing on the foot
- C. Wear a protective boot whenever possible walking or weight bearing
- D. Wear comfortable, supportive shoes while maintaining normal physical activity and take care not to reinjure the foot

ANS: D

Q180: Which of the following activities will exacerbate pain the most in an elderly patient with severe spinal stenosis?

- A. Walking uphill
- B. Walking downhill
- C. Riding a bicycle
- D. Bending forward

ANS: B

Q181: More than 80 percent of patients with clinically apparent reflex sympathetic dystrophy will have positive

- A. Blood pool images
- B. Radionuclide angiograms
- C. Early phase bone scans
- D. Delayed image bone scans

ANS: D

Q182: Which nerve is entrapped at the wrist in carpal tunnel syndrome?

- A. Radial
- B. Median
- C. Ulnar
- D. Musculocutaneous
- E. Anterior interosseus

ANS: B

Q183: A 32-year old, HIV-positive man complains of painful burning soles of both feet. What is the most likely explanation for this pain?

- A. Secondary infection with herpes zoster
- B. Guillain-Barre syndrome
- C. Acute psychosis
- D. HIV-related sensory neuropathy
- E. HIV encephalopathy

ANS: D

Directions: Each question below contains four suggested responses of which one or more is correct. Select

- | | | | |
|---|----|---------------|-------------|
| A | if | 1, 2, and 3 | are correct |
| B | if | 1 and 3 | are correct |
| C | if | 2 and 4 | are correct |
| D | if | 4 | is correct |
| E | if | 1, 2, 3 and 4 | are correct |

Q184: True statements regarding Eagle's syndrome include which of the following?

- 1. Trigger point are present
- 2. Pain occurs during mandibular movement or twisting of the neck
- 3. Pain can occur spontaneously with the mouth closed
- 4. The pain is stabbing in nature

ANS: C

Q185: Which of the following would support the diagnosis of an S1 nerve root lesion?

- 1. Absent ankle jerk
- 2. Weakness in toe walking
- 3. Atrophy of the gastrocnemius
- 4. Knee pain

ANS: A

Q186: True statements regarding drug therapy in terminal pain syndromes include

- 1. Anxiolytics are useful
- 2. Anti inflammatory agents are useful
- 3. Narcotics are useful
- 4. Neural blockade is not useful

ANS: A

Q187: Correct statements regarding chronic pain include that it

- 1. Is not biologically useful
- 2. Has poorly defined peripheral mechanisms
- 3. Has poorly defined central pathways
- 4. Involves the physiologic stress response

ANS: A

Q188: True statements regarding deafferentation pain syndromes include that they

- 1. Are rarely successfully treated with narcotic agents
- 2. May manifest as burning, crushing, or tearing pain
- 3. Typically produce pain that is constant and unremitting
- 4. Commonly respond to neurosurgical intervention

ANS: A

Q189: Characteristic features of peripheral neuropathies include

1. Paresthesias and dysesthesias
2. Sensory loss
3. Loss or diminution of tendon reflexes
4. Pain

ANS: A

Q190: True statements regarding pathophysiologic factors of terminal pain include

1. It is not biologically harmful
2. There is well defined tissue damage
3. It is a variant of chronic pain
4. The stress response is harmful

ANS: C

Q191: Positive Waddell's signs are indicative of

1. The effects of psychosocial factors
2. A positive response to surgical intervention
3. Need for a comprehensive evaluation of pain
4. Facet joint arthropathy

ANS: B

Q192: All the following statements correctly differentiate chronic paroxysmal hemicrania (CPH) from cluster headaches EXCEPT

1. Attacks of CPH lasts for longer periods of time
2. Episodes of CPH are more frequent
3. CPH occurs more commonly at night
4. CPH can be effectively treated with inometacin

ANS: B

Q193: Several painful conditions have been described in patients with AIDS. These include

1. Guillain Barre syndrome
2. Postherpetic neuralgia
3. Encephalopathy
4. Predominant sensory neuropathy

ANS: E

SUMMARY OF DIRECTIONS

A	B	C	D	E
1,2,3	1,3	2,4	4	All are
Only	only	only	only	correct

Q194: Increases in plasma concentration of alpha-1 acid glycoprotein have been associated with

1. patients with cancer
2. patients with chronic pain
3. patients who have had myocardial infarction
4. neonates

ANS: A

Q195: Painful conditions associated with nonselective neural fiber loss include

1. Myeloma

2. Fabry's disease
3. Alcoholic neuropathy
4. Tangier disease

ANS: B

Q196: Which of the following signs may be associated with T1 root compression?

1. Weakness of the intrinsic muscles of the hand
2. Subjective numbness in the ulnar aspect of the forearm
3. Pain in the neck, medial scapula, and anterior chest
4. Horner's syndrome

ANS: E

Q197: Which of the following can be associated with a neuropathic pain syndrome?

1. Diabetes
2. Mercury poisoning
3. Causalgia
4. Guillain-Barre syndrome

ANS: E

Q198: Examples of neuropathic pain syndromes include

1. phantom limb pain
2. dyspareunia
3. thalamic syndrome
4. vaginismus

ANS: B

Q199: True statements regarding the use of ketamine in trauma patients include

1. it may be used as the sole agent for trauma surgery
2. it possesses sympathomimetic action
3. at lower doses it is an analgesic
4. it can be used in trauma patients with head injuries

ANS: A

Q200: Diagnostic features of an epidural abscess include that it

1. is most commonly caused by Staphylococcus epidermidis
2. may present as severe back pain
3. will show normal myelographic findings
4. may present as local back tenderness

ANS: C

Q201: True statements regarding glossopharyngeal neuralgia include

1. it is more common in adults than children
2. attacks can be associated with cardiac arrest
3. it is most often described as aching and burning between attacks
4. it is found to occur more frequently in patients with tic douloureux

ANS: A

Q202: True statements regarding central pain in spinal cord injury (SCI) include which of the following?

1. Few SCI patients complain of moderate to severe central pain
2. Many SCI patients suffer from visceral pain
3. Spinal cord stimulation is a highly effective treatment for most SCI-associated pain
4. Dorsal root entry zone(DREZ) lesions have been tried with varying success as treatment for SCI-associated pain

ANS: C

Q203: True statements regarding Parkinson's disease include which of the following?

1. A significant proportion of patients with Parkinson's disease complain of pain, tingling, and numbness
2. Most of the pain associated with Parkinson's disease is related to fluctuations in motor symptoms
3. Proper adjustment of antiparkinsonian medications often decreases pain symptoms
4. Droperidol has been used to decrease the pain related to Parkinson's disease

ANS: A

Q204: Headache types more common in women include

1. tension headache
2. giant cell arteritis
3. migraine headache
4. cluster headache

ANS: A

Q205: Phantom limb sensation is described by which of the following?

1. It is a very common occurrence in the first month after amputation
2. It is strongest in below-knee amputations
3. It occurs more frequently in older amputee patients
4. It is weakest in above elbow amputations

ANS: B

Q206: In the evaluation of a patient complaining of testicular pain, which of the following diagnostic tests would be helpful in establishing diagnosis?

1. Urinalysis
2. Testicular biopsy
3. Testicular ultrasound
4. Radioactive testicular scans

ANS: E

Q207: Referred pain to the penis can be caused by which of the following neuralgias?

1. Ilioinguinal
2. Iliohypogastric
3. Genitofemoral
4. Lateral femoral cutaneous

ANS: A

Q208: Treatment of Reiter's syndrome may include

1. NSAIDs
2. azathioprine
3. methotrexate
4. plasmapheresis

ANS: A

Q209: Which of the following conditions can be associated with a painful peripheral neuropathy?

1. AIDS
2. Sjogren's syndrome
3. Guillain Barre syndrome
4. Insulinoma

ANS: E

Q210: Priapism is a prolonged, painful penile erection that is

1. seen in patients with leukemia
2. an emergency condition
3. a potential cause of erectile impotence
4. seen in patients with sickle cell disease

ANS: E

Q211: A 27-year old runner developed a 2nd metatarsal stress fracture. Four months later, she developed temperature changes, swelling, and burning pain in her foot. What diagnostic tests or procedures may be helpful in establishing a diagnosis?

1. Delayed image bone scans
2. Plain film of the foot
3. Lumbar sympathetic block
4. Intravenous lidocaine

ANS: A

Q212: Which of the following should be present to make the diagnosis of acute radicular syndrome?

1. Leg pain as the dominant complaint when compared with back pain
2. Neurologic symptoms in a typical dermatomal distribution
3. Significant straight leg raising findings
4. Evidence of disk herniation on MRI

ANS: A

Q213: Characteristics of Raeder's syndrome (paratrigeminal neuralgia) include

1. frontotemporal pain
2. amaurosis fugax
3. incomplete Horner's syndrome
4. transient facial paralysis

ANS: B

Q214: The differential diagnosis for occipital neuralgia should include

1. Whiplash
2. Metastatic neoplasm at the base of the skull
3. Herniated cervical intervertebral disk cluster headache
4. Cluster headache

ANS: E

Q215: Which of the following should be present to make the diagnosis of temporomandibular pain and dysfunction syndrome?

1. Pain and tenderness of the masticatory muscles
2. Joint sounds with jaw opening
3. Limited mandibular movement
4. History of bruxism

ANS: A

Q216: Conditions that increase the risk of developing carpal tunnel syndrome include

1. Pregnancy
2. Rheumatoid arthritis
3. Gout
4. Amyloidosis

ANS: E

Pain Management in the Pediatric, Critical Care, and Obstetric Populations

DIRECTIONS: Each question below contains suggested responses. Select the one best response.

Q217: The analogue chromatic continuous scale (ACCS) allows a child to rate his or her pain according to

- A. Numbers
- B. Faces
- C. Color
- D. Words
- E. Pictures

ANS: C

Q218: A 32-year old woman who had epidural analgesia (bupivacaine and morphine) for vaginal delivery of a 9-1b, 6-oz baby boy complains of numbness and footdrop 24 h after delivery. The most likely cause is

- A. Transient neurologic deficit due to compression of the nerves by the baby during delivery
- B. Permanent neuropathy from pelvic neural compression
- C. Herniated intervertebral disk
- D. Ischemia of the conus medullaris
- E. Myelopathy due to epidural analgesia

ANS: A

Q219: Pain assessment and measurement in children between the ages of 2 and 7 years is best evaluated by

- A. Visual analogue scale rating
- B. Body movements and facial expressions
- C. Self report
- D. Oucher scale (faces scale)

ANS: D

Q220: Which of the following statements is true regarding the effect of spinally administered narcotic agents on pain and the stress response?

- A. They completely block the stress response to surgery
- B. Plasma glucose and cortisol levels are lower than in patients receiving general anaesthesia and parenteral narcotics
- C. Plasma glucose and cortisol levels are lower than in patients receiving epidural local anaesthetics
- D. They suppress the pain pathways involving gamma-aminobutyric acid and the sympathetic afferents
- E. They block A-beta and A-delta neural fibers preferentially

ANS: B

Q221: Which of the following is NOT recommended to provide sedation and reduce anxiety in critically ill patients in an intensive care setting?

- A. Morphine
- B. Hydromorphone
- C. Midazolam
- D. Etomidate
- E. Lorazepam

ANS: D

DIRECTIONS: Each question below contains four suggested responses of which one or more is correct. Select

- | | | | |
|---|----|-------------|-------------|
| A | if | 1,2 and 3 | are correct |
| B | if | 1 and 3 | are correct |
| C | if | 2 and 4 | are correct |
| D | if | 4 | is correct |
| E | if | 1,2,3 and 4 | are correct |

Q222: Advantages of acetaminophen over aspirin when used as an analgesic in children include

1. lack of gastric irritation
2. no association with Reye syndrome
3. lack of platelet dysfunction
4. complete absorption when administered rectally

ANS: A

Q223: True statements regarding the use of opioids for pain management in children include

1. minor side effects occur more commonly in children than adults
2. the incidence of respiratory depression is directly related to dose
3. meperidine is preferred over morphine
4. tolerance is an uncommon clinical problem in children

ANS: C

Q224: True statements regarding the use of IV-PCA in children

1. it is safe and effective
2. its use may be restricted by inability to activate the pump
3. it can be used in children age 7 and older
4. it is a universal therapy for postoperative pain control in children

ANS: A

Q225: Caudal block in children is

1. a widely used neural blockade technique
2. commonly performed in the lateral Sims position
3. performed as both single injection and continuous analgesia
4. an effective way to provide postoperative pain control

ANS: E

Q226: In a 4-year old child scheduled for hypospadias repair, the advantages of combining a dorsal penile nerve block with general anaesthesia over general anesthesia alone include

1. quick emergence
2. shorter recovery time
3. less requirement for inhalational anaesthetics
4. decreased postoperative analgesic requirements

ANS: E

Q227: The nerves to be blocked in a fascia iliaca compartment block in a child include the

1. obturator nerve
2. lateral femoral cutaneous nerve
3. femoral nerve
4. sciatic nerve

ANS: A

Q228: After repair of an inguinal hernia in a child, infiltration analgesia of the surgical wound

1. produces analgesia comparable to that produced by a caudal technique
2. requires a local anaesthetic dose equal to that of a caudal technique
3. results in lower local anaesthetic concentrations in plasma compared with those in adults
4. is commonly used in neonates

ANS: B

Q229: True statements regarding pain assessment in nonverbal children include

1. neurophysiologic elements involved in pain perception are present in preterm infants
2. undesirable physiologic responses can be caused by pain in neonates
3. hormonal metabolic responses to noxious stimuli are present in preterm infants
4. neonates experience pain

ANS: E

Q230: True statements regarding labor and the administration of regional anaesthesia/analgesia include

1. epidural opioids produce a higher incidence of nausea in pregnant patients than in nonpregnant patients
2. cardiotoxicity from bupivacaine is more severe in pregnant patients than in nonpregnant patients
3. ephedrine is the preferred vasoconstrictor for use in pregnant patients
4. spinal opioids produce a lower incidence of pruritus in pregnant patients than in nonpregnant patients

ANS: A

Q231: Pain relief during the first stage of labor can be achieved by

1. lumbar sympathetic block
2. paracervical block
3. lumbar epidural block
4. pudendal nerve block

ANS: A

Q232: True statements regarding the administration of nitrous oxide (N₂O) for analgesia during labor include

1. no more than 50% N₂O in oxygen is recommended
2. accumulation occurs over time
3. elimination of the gas in the newborn takes hours
4. there are virtually no metabolites

ANS: D

Q233: Epidurally administered morphine as the sole analgesic during labor

1. has a delayed onset
2. has a low incidence of side effects
3. is inadequate for the second stage of labor
4. is comparable to epidural local anaesthetic during the first stage of labor

ANS: B

Q234: Advantages of using 2-chloroprocaine administered epidurally to test for accidental intravenous injection include

1. no interference with subsequently administered opioids
2. rapid plasma hydrolysis

3. increased uterine blood flow
4. minimal fetal effects

ANS: D

Q235: An 85-year old, 300-pound man underwent right upper lobectomy. Which of the following would be acceptable techniques to provide adequate postoperative pain relief?

1. Cryoneurolysis of the right intercostals nerves at multiple levels
2. Continuous segmental epidural analgesia with local anaesthetic
3. Intercostal blocks with long acting local anaesthetic on the right at multiple levels
4. Intercostal blocks with long acting local anaesthetic bilaterally at multiple levels

ANS: A

Q236: Postoperative respiratory function tests that are more depressed after parenteral opioids or local anaesthetic include

1. peak expiratory flow rate
2. forced vital capacity
3. forced expiratory volume
4. functional residual capacity

ANS: E

SUMMARY OF DIRECTIONS

A	B	C	D	E
1,2,3	1,3	2,4	4	All are
Only	only	only	only	correct

Q237: Epidurally administered local anaesthetics have which of the following effects on pain and the stress response?

1. T6-L2 blockade can abolish the stress response during lower abdominal surgery
2. There is inhibition of catecholamine discharge from the adrenal glands
3. Epidural blockade to the T5 sensory level is less effective in abolishing the stress response during upper abdominal than during lower abdominal surgery
4. There is a reduction in the negative nitrogen balance postoperatively

ANS: E

Q238: A 65-year old man is about to undergo coronary artery bypass grafting. The administration of 1 mg/kg intravenous morphine prior to surgical incision will have which of the following effects on pain and the stress response?

1. Inhibition of ACTH release
2. Complete suppression of epinephrine release
3. Analgesia
4. Prevention of cortisol elevation

ANS: B

Q239: The stress response to acute injury and pain includes

1. increased renal and splanchnic blood flow
2. elevated levels of antidiuretic hormone
3. increased glomerular filtration
4. sodium and water retention

ANS: C

Q240: Which of the following medication regimens would be appropriate for use in a ventilated patient in an intensive care unit?

1. Intravenous morphine and diazepam

2. Epidural morphine and local anaesthetic with intravenous diazepam
3. Intravenous fentanyl and midazolam
4. Epidural local anaesthetic alone

ANS: A

Q241: Which of the following criteria can be used to support the diagnosis of brain death in the intensive care unit?

1. Light fixed pupils
2. An isoelectric electroencephalogram recorded in part at full gain
3. No evidence of decerebrate or decorticate posturing or shivering
4. Heart rate increase of less than 5 beats per minute after intravenous atropine 0.04 mg/kg

ANS: E

Q242: A patient in the intensive care unit is in a persistent vegetative state and has total loss of cortical layers demonstrated on CT scan of the brain. The patient is able to breathe spontaneously. Which of the following interventions would be appropriate in the care of this patient?

1. New infusions of vasopressors to maintain hemodynamics
2. Mechanical ventilation if spontaneous respiration deteriorates
3. Insertion of an intraaortic balloon pump to augment cardiac function
4. Continued nutrition via a nasogastric tube

ANS: D

Medical and Surgical Techniques of Pain Management

DIRECTIONS: Each question below contains suggested responses. Select the one best response.

Q243: All the following statements regarding superior laryngeal nerve block are true EXCEPT that

- A. The block is performed at the inferior border of the hyoid bone
- B. It can produce motor blockade of the cricoarytenoid muscles
- C. The local anaesthetic is deposited deep to the thyrohyoid membrane
- D. The superior laryngeal nerve is a branch of the vagus nerve
- E. Anaesthesia results over the inferior aspect of the epiglottis

ANS: B

Q244: When performing a “third occipital nerve block,” it is important to know that this nerve is a branch of the dorsal rami of

- A. C1
- B. C2
- C. C3
- D. C4
- E. C5

ANS: C

Q245: Landmarks used in performing a cave of Retzius block include the

- A. Costophrenic angle
- B. Anterior superior iliac spine
- C. L2 vertebral body
- D. os pubis

ANS: D

Q246: A splanchnic nerve block is correctly characterized by which statement?

- A. It is performed at the L1 level
- B. It is performed with the needle at the posterolateral aspect of the vertebral body
- C. It is recommended for surgical anaesthesia
- D. It requires a larger volume of local anaesthetic than celiac plexus block
- E. It can result in a chylothorax

ANS: E

Q247: When performing an inguinal perivascular block, one should

- A. Insert the needle just medial to the femoral artery
- B. Inject a volume of 10 to 15 mL of local anaesthetic
- C. Hold pressure proximal to the needle insertion site
- D. Search for a paresthesia

ANS: D

Q248: Advantages of the interscalene approach to blocking the brachial plexus include all the following EXCEPT that

- A. It can be performed with the arm in any position
- B. It can also block the cervical plexus
- C. There is less risk of pneumothorax
- D. A low volume of solution is required

ANS: D

Q249: The spinal needle with a “pencil point” is also known as the

- A. Touhy needle

- B. Quincke-Babcock needle
- C. Greene needle
- D. Pitkin needle
- E. Whitacre needle

ANS: E

Q250: The Taylor approach for performing a lumbar puncture is commonly performed at which interspace?

- A. L1-L2
- B. L2-L3
- C. L3-L4
- D. L4-L5
- E. L5-S1

ANS: E

Q251: Treatment of steroid pseudorheumatism should consist of

- A. Benzodiazepines
- B. Rest
- C. Steroids
- D. NSAIDs

ANS: C

Q252: A celiac plexus block is very helpful in relieving pain from each of the following EXCEPT

- A. Hepatic cancer
- B. Gastric cancer
- C. Uterine cancer
- D. Cholangiocarcinoma
- E. Pancreatic cancer

ANS: C

Q253: A 21-year old man is complaining of left groin and thigh pain 2 days after undergoing a left sided neurolytic lumbar sympathetic block for reflex sympathetic dystrophy of the left leg. The most likely diagnosis is

- A. Persistent reflex sympathetic dystrophy
- B. Lumbar plexopathy
- C. Lumbar radiculopathy
- D. Genitofemoral neuralgia
- E. Meralgia paresthetica

ANS: D

Q254: Which agent destroys nerves by producing wallerian degeneration (axonal degeneration without disruption of the schwann cells)?

- A. Alcohol
- B. Mehtrexate
- C. 5% Lidocaine
- D. Propylene glycol

ANS: A

Q255: The most common complication seen after a retrobulbar injection is

- A. Perforation of the globe
- B. Optic nerve damage
- C. Intravascular injection
- D. Retrobulbar hemorrhage

E. Oculocardiac reflex

ANS: D

Q256: All the following statements regarding the treatment of the pain associated with multiple sclerosis (MS) are true EXCEPT

- A. Carbamazepine is the treatment of choice for MS-associated trigeminal neuralgia or paroxysmal extremity pains
- B. Antidepressants have been recommended as treatment of nonparoxysmal extremity pain associated with MS
- C. Dorsal column stimulation is a highly successful and recommended treatment for MS-associated extremity pain
- D. Intrathecal baclofen has been used to successfully treat pain associated with severe spasticity

ANS: C

Q257: A 27-year old woman with a history of malignant melanoma and multiple subcutaneous metastases has been successfully managed with slowly increasing doses of MS-Contin, in conjunction with doxepin and ibuprofen. She calls the pain center to complain of a new onset of increasing nausea, vomiting, and headaches, as well as poor pain control. The most appropriate immediate action would be to

- A. Speak with the patient by telephone and tell her to increase the MS-contin
- B. Schedule the patient for an evaluation in your office within the week
- C. Add ondansetron for nausea and vomiting so she is able to continue to take oral analgesics
- D. Switch to a fentanyl patch since the patient is nauseated and may be unable to take oral analgesics
- E. See the patient as soon as possible to determine if there is a new, treatable source of pain

ANS: E

Q258: The most effective initial treatment for trigeminal neuralgia is

- A. Baclofen
- B. Tocainide
- C. Phenytoin
- D. Oxycodone
- E. Carbamazepine

ANS: E

Q259: TENS has been shown to be effective in all the following clinical settings EXCEPT

- A. After thoracotomy
- B. Diabetic neuropathy
- C. Labor
- D. After upper abdominal surgery
- E. Chronic low back pain

ANS: C

Q260: Contraindications to therapeutic heat include all the following EXCEPT

- A. Chronic tendonitis or bursitis
- B. Acute inflammation
- C. Fresh hematoma
- D. Pressure sores
- E. Sensory loss

ANS: A

Q261: the physiologic effects of cold that are considered beneficial include all the following EXCEPT

- A. Decreased metabolic rate
- B. Decreased muscle spasm
- C. Decreased nerve conduction velocity
- D. Decreased spontaneous neural discharge
- E. Decreased collagen distensibility

ANS: E

Q262: Which of the following statements is true regarding isometric exercise?

- A. The joint moves through its normal range
- B. It is the exercise of choice in patients with hypertension
- C. It requires expensive equipment to perform effectively
- D. It may be useful in a patient whose entire leg is in a cast
- E. It is not beneficial to patients with acute inflammatory arthritis

ANS: D

Q263: Traction has been used in the treatment of neck and low back disorders. All the statements about traction below are true EXCEPT

- A. In cervical traction, the angle of pull is 20 to 25° forward flexion with maximum weight of 22 kg
- B. To successfully perform lumbar traction, a pulling force of 40 kg or more may be needed
- C. Traction is believed to enlarge intervertebral foramina, separate facet joints, and stretch muscles and ligaments
- D. It is safe to use in patients with osteoporosis, osteomyelitis, and rheumatoid arthritis
- E. Active peptic ulcer and hiatal hernia are relative contraindications to lumbar traction

ANS: D

Q264: All the following complications of acupuncture can occur EXCEPT

- A. Fainting
- B. Pneumothorax
- C. Needle breakage
- D. Infection
- E. Massive hemorrhage

ANS: E

Q265: The physiologic effects of massage are claimed to include all the following EXCEPT

- A. Improved perfusion of soft tissue
- B. Production of soft tissue edema and induration
- C. Rapid elimination of waste products
- D. Loosening and stretching of contracted tissues
- E. Production of relaxation and a sense of well being

ANS: B

Q266: The conditions for which spinal manipulation is most frequently suggested include all the following EXCEPT

- A. Low back pain, especially if associated with degenerative changes of the facet joints
- B. Chronic headaches of unknown etiology when full work up is negative
- C. Coccygodynia
- D. Chronic cervical pain, usually in the presence of degenerative disk disease
- E. Realignment of spine after vertebral fracture

ANS: E

Q267: A 16-year old boy sustained a traumatic amputation of the left leg and subsequently developed phantom limb pain. All conservative therapies have been unsuccessful. The patient

is scheduled for a trial of spinal cord stimulation. At what level should the electrodes be placed?

- A. Middle to lower thoracic region
- B. Upper to middle thoracic region
- C. Lumbar region
- D. Middle to lower cervical region

ANS: A

Q268: All the following have been successfully treated with spinal cord stimulation EXCEPT

- A. Failed back surgery syndrome
- B. Cancer pain
- C. Postamputation pain
- D. Reflex sympathetic dystrophy

ANS: B

Q269: The best results will be obtained from spinal cord stimulation when

- A. Unipolar electrodes are used
- B. Electrodes are localized at the dermatomal level of the pain
- C. Electrodes are placed intrathecally
- D. The patient has no secondary gain from the pain

ANS: D

Q270: A gastroenterologist has referred a patient to you with abdominal pain and the diagnosis of biliary dyskinesia. The patient had increased basal sphincter pressure on biliary manometry and delayed biliary emptying. An endoscopic sphincterotomy was performed. However, the pain was relieved only a slight degree. The patient is told to expect "some blocks" to be performed. Which prognostic block would be most appropriate?

- A. Celiac plexus block
- B. Splanchnic block
- C. Intercostals nerve block
- D. Impar ganglion block

ANS: B

Q271: Which of the following statements is true regarding management of burn pain?

- A. Narcotics remain the drugs of choice for treatment of acute, severe burn pain
- B. Tolerance does not develop with the use of ketamine for burn therapy over an extended period of time
- C. Silver sulfadiazine cream (Silvadene) is a potent topical anaesthetic
- D. Biofeedback has not been shown to be effective in reducing anxiety and pain in children with severe burns

ANS: A

Q272: You are consulted by a medical intern for evaluation and treatment of painful leg ulcers on a 76-year old man. You note 2 × 3cm ulcers on the medial malleoli. The surrounding tissue is hyperpigmented and indurated. There is bilateral pitting edema of the ankles. What treatments would you suggest for this patient?

- A. Tylenol with codeine and prednisone
- B. Elevation of the legs and support stockings
- C. Capsaicin cream and antibiotics
- D. Surgical excision of the ulcer and indurated tissue with primary closure

ANS: B

Q273: All the following patients regarding patient controlled analgesia (PCA) pumps are true EXCEPT

- A. All PCA pumps have data storage capabilities
- B. A key and code numbers are required to make any changes
- C. A demand bolus can be administered while a baseline continuous infusion is running
- D. The number of times the button may be pushed during a dosing interval is limited

ANS: D

Q274: A 56-year old man has an interpleural catheter in his left chest for pain relief from multiple rib fractures. He has a continuous infusion of 0.25% bupivacaine running at 6mL/h but is still complaining of pain. On physical examination you notice that his left pupil is miotic. However, he is hemodynamically stable. The next logical step would be to

- A. Stop the infusion
- B. Increase the infusion rate
- C. Order an emergent neurologic examination
- D. Bolus the catheter
- E. Change solution to 0.5% bupivacaine

ANS: D

Q275: A 64-year old man has a lumbar epidural catheter in place for postoperative pain control after undergoing a low anterior resection. On physical examination, the patient is unable to flex his hips, extend his knees, and dorsiflex his right ankle. He would be assessed a Bromage score of

- A. 2
- B. 3
- C. 5
- D. 7
- E. 10

ANS: C

Q276: While performing a brachial plexus block with the aid of a nerve stimulator, you notice the onset of pronation of the arm, flexion of the wrist, and opposition of the thumb and forefinger. Which of the following nerves is most likely being stimulated?

- A. Ulnar
- B. Median
- C. Radial
- D. Musculocutaneous
- E. Brachioradialis

ANS: B

Q277: All the following complications have occurred after dorsal column stimulation EXCEPT

- A. Infection at the incision site
- B. Persistent incisional tenderness
- C. Dislocation of the stimulating electrode
- D. Bleeding and injection in the epidural space
- E. Accelerated rate of epidural tumor growth

ANS: E

Q278: in the performance of a lumbar sympathetic block, injection of 15 to 20 mL of local anaesthetic at the anterior aspect of the vertebral bodies of L2 or L3 will interrupt the sympathetic innervation of which of the following structures?

- A. Kidney
- B. Adrenal gland
- C. Ureter
- D. Prostate

E. Ascending colon

ANS: D

Q279: in a selective posterior rhizotomy

- A. A 1-to2-mm incision is made in the ventrolateral aspect of the rootlet cord junction
- B. No anaesthesia is required
- C. The rootlet is completely divided
- D. Only one rootlet at each level may be incised
- E. Pial vessels may be safely incised

ANS: A

Q280: A 75-year old man with unilateral thoracic wall pain secondary to multiple rib metastases is scheduled to undergo intrathecal phenol neurolysis. Which of the following statements is true regarding intrathecal phenol neurolysis?

- A. The patient should be positioned with the painful side up
- B. Phenol is painful on injection
- C. Phenol acts immediately on contact with the dorsal root
- D. A 25-gauge spinal needle should be used to inject the phenol
- E. After injection of phenol brings the desired effect, the patient's position should be maintained for 45 min

ANS: E

Q281: When performing an intrathecal neurolytic block of the left C7 to T1 nerve roots using absolute alcohol, which of the following positions would be most appropriate?

- A. Left side up
- B. Left side down
- C. Sitting
- D. Prone
- E. Supine

ANS: A

Q282: A patient with intractable cancer pain is scheduled to undergo percutaneous C1-C2 cordotomy on the left. This can be expected to provide analgesia in which part of the body?

- A. Left thorax, abdomen, leg, and hand
- B. Below the waist on the left side
- C. Below the waist on the right side
- D. The entire right side below the clavicle including the leg and the inner aspect of the right arm, right forearm, and hand
- E. The entire left side beginning below the mandible and including the left arm, thorax, abdomen, and leg

ANS: D

Q283: Treatment of priapism may include all the following EXCEPT:

- A. Spinal or caudal anaesthesia
- B. Aspiration of the corpus cavernosa
- C. Surgical shunt of blood from the corpus cavernosa to the saphenous vein
- D. Vitamin E and steroid injections
- E. Narcotic pain relief and sedation

ANS: D

Q284: The mandibular nerve leaves the cranial cavity by way of the

- A. Foramen ovale
- B. Foramen spinosum
- C. Foramen rotundum

- D. Jugular foramen
- E. Foramen lacerum

ANS: A

Q285: The Achilles tendon reflex is innervated by which nerve?

- A. Saphenous
- B. Femoral
- C. Deep peroneal
- D. Tibial

ANS: D

SUMMARY OF DIRECTIONS

A	B	C	D	E
1,2,3	1,3	2,4	4	All are
only	only	only	only	correct

Q286: Indications for dorsal root entry zone (DREZ) lesioning include

- 1. brachial plexus avulsion
- 2. postparaplegic or postquadriplegic pain
- 3. postamputation pain
- 4. postherpetic neuralgia

ANS: E

Q287: True statements regarding cryolesioning include

- 1. it is associated with less fibrous tissue reaction than other forms of destruction
- 2. it completely disrupts the endoneurium
- 3. it causes wallerian degeneration with axonal disintegration
- 4. it uses nitric oxide as the refrigerant gas

ANS: B

Q288: When performing an intrathecal alcohol block for pain in the chest wall, the

- 1. volume of injectate should be small
- 2. patient should be placed in an oblique lateral position
- 3. rate of injection should be slow
- 4. patient should be placed with the affected side down

ANS: A

Q289: Epidural steroid injections can

- 1. alter blood glucose levels in susceptible patients
- 2. cause a rash
- 3. cause fluid retention
- 4. depress plasma cortisol levels for 4 to 6 weeks

ANS: A

Q290: True statements regarding lumbar medial branch block include

- 1. a facet joint can be completely anaesthetized by blocking one medial branch
- 2. medial branches arise from dorsal rami
- 3. each median nerve crosses the lower border of the lower transverse process
- 4. each medial branch enters the multifidus muscle

ANS: C

Q291: Intercostal nerve block is highly effective in relieving severe pain resulting from

- 1. costochondral dislocation
- 2. rectus nerve entrapment

3. acute herpes zoster
4. pleurisy

ANS: E

Q292: Local anaesthetic nerve blocks may be helpful in which of the following neuropathic pain syndromes?

1. Trigeminal neuralgia
2. Diabetic neuropathy
3. Lumbosacral plexalgias
4. Entrapment syndrome

ANS: E

Q293: Which of the following can occur after neurolytic celiac plexus block?

1. Unilateral leg paralysis
2. Loss of function of the bladder sphincter
3. Hypotension
4. Decreased bowel motility

ANS: A

Q294: When performing an intravenous regional Bier block, which of the following is likely to result in high venous pressure with resultant systematic administration of solution?

1. Rapid injection
2. Injection into a distal vein
3. Large volume of injectate
4. Prolonged exsanguinations

ANS: B

Q295: True statements regarding the ilioinguinal nerve include that it

1. lies superficial to the fascia of the external oblique muscle
2. originates from the T12 and L1 spinal levels
3. does not pass through the inguinal canal
4. is blocked near the anterior superior iliac spine

ANS: C

Q296: Characteristics of the common peroneal nerve include that it

1. originates at the apex of the popliteal fossa
2. is typically blocked at the neck of the fibula
3. lies medial to the biceps femoris muscle
4. lies superficial to the popliteal fascia

ANS: B

Q297: Blockade of the deep cervical plexus is aided by locating the

1. C6 transverse process
2. cricoid cartilage
3. mastoid process
4. ramus of the mandible

ANS: E

Q298: For complete anaesthesia of the mandible, which of the following must be blocked?

1. Lingual nerve
2. Long buccal nerve
3. Inferior alveolar nerve
4. Masseter nerve

ANS: A

Q299: Infiltration of local anaesthetic at the midpoint of the posterior border of the sternocleidomastoid will block the

1. lesser occipital nerve
2. greater auricular nerve
3. anterior cervical nerve
4. supraclavicular nerve

ANS: E

Q300: Blockade of the greater occipital nerve is aided by locating the

1. mastoid process
2. superior nuchal line
3. external occipital protuberance
4. temporal artery

ANS: A

Q301: An accessory nerve block is

1. performed superficial to the prevertebral fascia
2. used as an adjunct for shoulder surgery under regional anaesthesia
3. performed at the junction of the middle and superior thirds of the sternocleidomastoid muscle
4. accomplished in the anterior triangle of the neck

ANS: A

Q302: Possible sequelae of a glossopharyngeal nerve block include

1. ipsilateral sternocleidomastoid muscle weakness
2. ipsilateral trapezius muscle weakness
3. tracheal numbness
4. hoarseness

ANS: E

Q303: Important landmarks used when performing a glossopharyngeal nerve block include

1. styloid process
2. angle of the mandible
3. mastoid process
4. zygomatic arch

ANS: A

Q304: True statements regarding a glossopharyngeal nerve block include that it commonly

1. results in blockade of CN X
2. results in blockade of CN XII
3. results in blockade of CN XI
4. is performed just below the foramen ovale

ANS: B

Q305: In the performance of a maxillary nerve block by a lateral approach, which of the following anatomic structures may be entered?

1. Infratemporal fossa
2. Parotid gland
3. Maxillary artery
4. Pterygopalatine fossa

ANS: E

Q306: In the performance of a combined infratrochlear and anterior ethmoidal nerve block, the needle should be

1. inserted 1 cm above the inner canthus
2. inserted to a depth of 4 cm
3. inserted on the medial wall of the orbit
4. directed posteriorly and slightly laterally

ANS: B

Q307: Nerves that lie in the same vertical plane as the pupil in midposition include

1. supraorbital
2. mental
3. infraorbital
4. supratrochlear

ANS: A

Q308: Landmarks used for performing an interscalene block of the brachial plexus include

1. anterior scalene muscle
2. cricoid cartilage
3. external jugular vein
4. sternocleidomastoid muscle

ANS: E

SUMMARY OF DIRECTIONS

A	B	C	D	E
1,2,3	1,3	2,4	4	All are
only	only	only	only	correct

Q309: A successful obturator nerve block is demonstrated by

1. Abductor paresis
2. Adductor paresis
3. Numbness over the anterior aspect of the thigh
4. Numbness over the medial aspect of the thigh

ANS: C

Q310: A lateral femoral cutaneous nerve block can be performed

1. 2 cm inferior and medial to the anterior superior iliac spine
2. after contacting the iliac bone just medial to and below the anterior superior iliac spine
3. deep to the fascia lata
4. deep to the external oblique aponeurosis

ANS: E

Q311: In the performance of a sciatic nerve block, the classic approach of Labat involves

1. Positioning the patient lying on the side opposite the one to be blocked
2. placing the lower extremities in an extended position
3. drawing a line that coincides with the upper border of the piriformis muscle
4. drawing a trisected line over the inguinal ligament

ANS: B

Q312: With the standard techniques for performing a transsacral block, which of the following complications can occur?

1. Intravascular injection
2. Parasympathetic block
3. Subarachnoid injection
4. Sympathetic block

ANS: A

Q313: Landmarks commonly used in a transsacral block include

1. posterior superior iliac spine
2. iliac crest
3. sacral cornu
4. posterior inferior iliac spine

ANS: B

Q314: The lumbar plexus lies between which muscles?

1. Quadratus lumborum
2. Iliacus
3. Psoas
4. Piriformis

ANS: B

Q315: Complete sensory anaesthesia of the thumb may involve which of the following blocks?

1. Radial nerve
2. Median nerve
3. "Ring"
4. Lateral cutaneous nerve of the forearm

ANS: A

Q316: The musculocutaneous nerve can be blocked

1. in the substance of the coracobrachialis muscle
2. lateral to the biceps tendon at the intercondylar line
3. 5 cm proximal to the intercondylar line
4. medial to the brachial artery at the intercondylar line

ANS: A

Q317: Important landmarks for a radial nerve block at the wrist include which of the following tendons?

1. Flexor carpi radialis
2. Extensor pollicis longus
3. Palmaris longus
4. Extensor pollicis brevis

ANS: C

Q318: Radial nerve block at the elbow uses which of the following anatomic landmarks?

1. Lateral epicondyle
2. Intercondylar line
3. Biceps tendon
4. Brachial artery

ANS: A

Q319: Landmarks commonly used in an ulnar nerve block at the wrist include

1. flexor carpi ulnaris
2. palmaris longus
3. ulnar artery
4. flexor retinaculum

ANS: B

Q320: Other nerves that can be blocked as a result of an interscalene plexus block include

1. inferior cervical ganglia
2. vagus nerve

3. phrenic nerve
4. recurrent laryngeal nerve

ANS: E

Q321: Possible complications of a supraclavicular brachial plexus block include

1. neuritis
2. block of phrenic nerve
3. toxic reaction
4. Horner's syndrome

ANS: E

Q322: True statements regarding the development of a pneumothorax after a supraclavicular brachial plexus block include

1. it is less likely to occur with finer needles
2. the occurrence rate is approximately 15 percent
3. the majority of cases take up to 24 h to develop
4. it is more common in obese patients

ANS: B

Q323: Factors affecting the spread of local anaesthetic after injection in the caudal canal of adults include

1. speed of injection
2. age of patient
3. dose
4. height of patient

ANS: B

Q324: Bony landmarks commonly used for a caudal block include

1. posterior inferior iliac spine
2. sacral cornua
3. sacral crest
4. posterior superior iliac spine

ANS: C

Q325: Advantages of the supraclavicular approach to performing a brachial plexus block include

1. it blocks the plexus at the level of the trunks
2. a low volume of solution is required
3. there is quick onset time to block
4. all the plexus is reliably blocked

ANS: E

Q326: Landmarks commonly used when performing a supraclavicular brachial plexus block include the

1. sternocleidomastoid muscle
2. external jugular vein
3. subclavian artery
4. lateral third of the clavicle

ANS: A

Q327: Chemical hypophysectomy for pain relief in patients with cancer

1. is less successful than surgical hypophysectomy
2. is more successful than transnasal cryoprobe ablation
3. relieves pain in less than half of these patients

- usually provides rapid pain relief

ANS: D

Q328: Electrocardiographic findings indicative of lidocaine toxicity include

- increased PR interval
- sinus bradycardia
- increased QRS duration
- complete atrioventricular (AV) dissociation

ANS: E

Q329: Opioid induced pruritus has been successfully treated with

- naloxone
- naltrexone
- nalbuphine
- hydroxyzine

ANS: B

Q330: Interpleural analgesia can provide relief of pain from

- mastectomy
- nephrectomy
- cholecystectomy
- pancreatic cancer

ANS: E

Q331: Signs that occur in the presence of Horner's syndrome include

- ptosis
- myosis
- enophthalmos
- anhidrosis

ANS: A

SUMMARY OF DIRECTIONS

A	B	C	D	E
1,2,3	1,3	2,4	4	All are
only	only	only	only	correct

Q332: When using a nerve stimulator to perform a peripheral nerve block

- motor response should be obtained with close to 1 milliampere (mA) of current
- accuracy is increased if a coated needle is used
- the anode of the stimulator should be attached to the needle
- a motor response should be obtained at only minimal current output

ANS: C

Q333: Negative pressure in the lumbar epidural space increases

- if a blunt needle with side openings is used
- as the needle advances across the epidural space toward the dura
- if the needle is introduced slowly
- in the sitting position

ANS: A

Q334: True statements regarding epidural neurolysis include that

- it is indicated for thoracic and upper abdominal wall pain

2. baricity of the injectate must be considered
3. it can be carried out over 2 to 3 days
4. positioning of the patient is of paramount importance

ANS: B

Q335: Clinical symptoms suggestive of a subdural block with local anaesthetic include

1. widespread sensory or motor blockade
2. unilateral block
3. a delay in time before onset of symptoms
4. involvement of cranial nerves

ANS: E

Q336: Retrobulbar injection of local anaesthetic provides akinesia of the extraocular muscles by blocking which of the following cranial nerves?

1. VI
2. III
3. IV
4. VII

ANS: A

Q337: Therapeutic modalities that may be effective in neuropathic pain include

1. neural blockade
2. neurosurgical interruption
3. narcotics
4. anti-inflammatory agents

ANS: B

Q338: Therapeutic modalities that may be useful in treating intractable chronic pain include

1. anti inflammatory agents
2. neural blockade
3. narcotics
4. antidepressants

ANS: D

Q339: Characteristics of a sympathetic nerve block include that

1. it is considered successful if a rise in temperature occurs in the affected area
2. it may provide pain relief secondary to increased blood flow
3. it can be achieved by blocking a somatic nerve
4. it interrupts only afferent sympathetic activity

ANS: A

Q340: Treatment of coccygodynia may include

1. neurolytic nerve blocks
2. caudal cryoanalgesia
3. caudal epidural steroid injections
4. sacral rhizotomy

ANS: E

Q341: Treatment for central poststroke pain syndrome may include which of the following?

1. TENS
2. Antiepileptic drugs
3. Antidepressants
4. Peripheral neurolysis

ANS: A

Q342: Relative contraindications to the use of TENS include

1. implanted cardiac pacemaker
2. pregnancy
3. dementia
4. cephalic application in an epileptic

ANS: E

Q343: Deep brain stimulation can be used to treat

1. facial anaesthesia dolorosa
2. thalamic syndrome
3. postcordotomy dysesthesia
4. chronic abdominal and perineal pain

ANS: E

Q344: Spinal cord stimulation (SCS) has been used to treat which of the following painful syndromes?

1. Postamputation neuralgia
2. Reflex sympathetic dystrophy (RSD)
3. Phantom limb pain
4. Ischemic pain

ANS: E

Q345: The most frequent indications for cold laser therapy include

1. reduction of pain associated with acute trauma of tendons and ligaments
2. acceleration of wound healing and reduction of edema
3. reduction of chronic pain associated with osteoarthritis or rheumatoid arthritis
4. peripheral nerve regeneration immediately following injury

ANS: E

Q346: The term iontophoresis refers to the

1. use of direct current to cause muscle contraction in a denervated state
2. use of an electrical current to induce chemical changes on the skin
3. use of alternating current to stimulate innervated muscles
4. transfer of ions across a tissue plane

ANS: C

Q347: Superficial heating modalities include

1. hydrocollator pack
2. ultrasound
3. paraffin wax
4. short wave diathermy

ANS: B

Q348: A 66-year old woman presents with known cervical facet arthropathy at the C5-C6 facet joint. She is to undergo cryoneurolysis in an attempt to provide pain relief.

Cryoneurolysis should be performed at

1. C4-C5
2. C6-C7
3. C5-C6
4. C3-C4

ANS: B

Q349: Important principles of acute pain therapy include

1. establishing drug levels to maintain analgesia
2. reevaluating therapy regularly to meet the needs of individual patients
3. determining the source and degree of nociception
4. providing therapy for nociception and other components of suffering such as anxiety

ANS: E

Q350: Landmarks for performing a median nerve block at the elbow include the

1. brachial artery
2. lateral epicondyle
3. medial epicondyle
4. biceps tendon

ANS: A

Q351: Cryolesioning produces its analgesic effects by causing

1. wallerian degeneration
2. disruption of the myelin sheath
3. axonal disintegration
4. disruption of the Schwann cell basal lamina

ANS: A

Q352: When performing a celiac plexus block, which of the following are important external landmarks?

1. 12th ribs
2. T12 spinous process
3. L1 spinous process
4. L2 spinous process

ANS: A

Q353: True statements regarding hypnosis as an adjunctive technique for the treatment of pain include which of the following?

1. The greater the level of hypnotic susceptibility, the greater the likelihood of pain reduction
2. It has been shown to be very effective in the treatment of painful burns
3. Both sensory pain and the suffering components of acute pain are reduced
4. The reduction of pain is most likely due to a placebo effect

ANS: A

Q354: True statements regarding lumbar epidural analgesia with lidocaine include which of the following?

1. Blockade below T6 in healthy, normovolemic patients does not produce significant decreases in blood pressure
2. Blockade to T3 decreases cardiac output
3. In hypovolemic patients, blockade to T4 will cause significant decreases in heart rate, cardiac output, and mean arterial pressure
4. Blockade of T3-T12 does not decrease mean arterial pressure in normovolemic patients

ANS: B

Q355: In a stellate ganglion block, injection of 15 mL of local anaesthetic solution will spread sufficiently to involve the sympathetic innervation of which of the following structures?

1. Esophagus
2. Head and neck
3. Lungs
4. Stomach

ANS: A

Q356: When performing a celiac-splanchnic block, injection of 15 to 25 mL of local anaesthetic solution bilaterally will spread sufficiently to block the sympathetic innervation of which of the following structures?

1. Descending colon
2. Pancreas
3. Rectum
4. Liver and gallbladder

ANS: C

Q357: True statements regarding treatment of osteoarthritis include

1. regular use of salicylates and NSAIDs will slow the progression of the disease
2. intraarticular corticosteroid injections every 2 weeks are useful as adjunctive therapy to oral medications
3. there is very high patient compliance with outpatient physical therapy
4. weight reduction for obese patients and assistive devices can help decrease pain

ANS: D

Q358: Contraindications to spinal column manipulation include which of the following?

1. Cervical osteophytes
2. Fixed posterior lumbar facet syndrome
3. Cervical degenerative joint disease with reduced disk height
4. Spondylolisthesis

ANS: B

Q359: Blockade of the hypogastric plexus will relieve pain caused by which of the following structures?

1. Uterus
2. Ovaries
3. Testes
4. Transverse colon

ANS: A

Q360: For which of the following painful conditions is circumcision a recommended treatment?

1. Phimosis
2. Balanitis
3. Paraphimosis
4. Condyloma acuminata

ANS: E

Anatomy and Physiology

DIRECTIONS: Each question below contains suggested responses. Select the one best response.

Q361: All the following statements about the “wind-up” phenomenon are true EXCEPT

- A. Prolonged hyperexcitability of spinal dorsal horn neurons increases with repeated C-fiber input
- B. The spinal cord neurons receive the C-fiber impulses and respond with greater discharges when input arrives at intervals of less than 3 s
- C. Wind-up does not play a role in the pain experienced by patients with reflex sympathetic dystrophy (RSD)
- D. Mk-801 decreases Fos protein expression in the superficial laminae of the dorsal horn
- E. The early immediate gene C-Fos activity increases after nerve injury to produce Fos protein within 2 h after nerve section

ANS: C

Q362: Regarding a myelinated nerve fibers, all the following statements are true EXCEPT

- A. The action potential is regenerated only at the nodes of Ranvier
- B. The resting potential is about -90 microvolts (μV)
- C. Sodium channels are present only at the nodes of Ranvier
- D. Potassium ions flow inward across the cell membrane during depolarization

ANS: D

Q363: Which Rexed lamina has the highest concentration of wide dynamic range neurons?

- A. I
- B. II
- C. III
- D. V
- E. IX

ANS: D

Q364: Meckel’s cave is

- A. Located between the mastoid process and the angle of the mandible
- B. The recess in which the gasserian ganglion resides before dividing into the branches of the trigeminal nerve
- C. An intestinal diverticulum that may cause epigastric pain
- D. The location of the glossopharyngeal nerve as it passes near the tonsillar fossa
- E. The retrouterine recess in which an abscess or tumor may compress the hypogastric plexus

ANS: B

Q365: A patient presents with a chief complaint of pain over and around a scar on the left thigh. On examination, there is an old, well-healed scar on the anterior aspect of the left thigh. The patient states that even light touch causes severe pain. Pinching the area is intolerable. Each of the following terms could describe this pain problem EXCEPT

- A. Primary hyperalgesia
- B. Secondary hyperalgesia
- C. Hyperpathia
- D. Allodynia
- E. Referred pain

ANS: E

Q366: All the following statements are true of spinal nerves EXCEPT

- A. They exit the spinal canal at the intervertebral foramina

- B. Thoracic spinal nerves form the intercostals nerves
- C. They are derived from ventral and dorsal roots of the spinal cord
- D. The dorsal rami combine to form plexuses at the cervical and lumbosacral levels

ANS: D

Q367: Most A-delta and C-fibers

- A. Are myelinated
- B. End as free nerve endings
- C. Terminate in the deep dermis
- D. End as specific nociceptive receptors
- E. Terminate in specialized structures

ANS: B

Q368: All the following have been identified as algogenic substances EXCEPT

- A. Serotonin
- B. Leukotrienes
- C. G protein
- D. Acetylcholine
- E. Histamine

ANS: C

Q369: All the following tracts are primarily involved with transmission of sensation EXCEPT

- A. Spinocerebellar
- B. Fasciculus gracilis
- C. Spinothalamic
- D. Fasciculus cuneatus
- E. Corticospinal

ANS: E

Q370: Correct statements regarding the sympathetic nervous system include which of the following?

- A. It has cell bodies of preganglionic neurons in the anterolateral quadrant of the spinal cord
- B. It has axons that pass via posterior spinal roots to reach paravertebral ganglia
- C. It has lumbar ganglia that lie on the posterolateral surface of the respective vertebrae
- D. It has paravertebral ganglia that extend from the second cervical vertebra to the coccyx

ANS: D

Q371: A plexus differs from a ganglion in that

- A. A plexus refers to prevertebral ganglia only
- B. A plexus refers to a site of synaptic connections specific to the sympathetic system
- C. A plexus may be either sympathetic or parasympathetic
- D. A plexus refers to ganglia and axons (sympathetic and parasympathetic) in a defined anatomic location

ANS: D

Q372: Which of the following ganglia transmit purely sympathetic impulses?

- A. Ciliary
- B. Sphenopalatine
- C. Otic
- D. Stellate

ANS: D

Q373: Abdominal autonomic plexuses include all the following EXCEPT the

- A. Celiac plexus

- B. Inferior hypogastric plexus
- C. Superior hypogastric plexus
- D. Esophageal plexus

ANS: D

Q374: The cells of the adrenal medulla are homologous to

- A. Postganglionic parasympathetic neurons
- B. Preganglionic sympathetic neurons
- C. Cholinergic interneurons
- D. Preganglionic parasympathetic neurons
- E. Postganglionic sympathetic neurons

ANS: D

Q375: All the following statements regarding partial agonists are true EXCEPT

- A. The slope of the dose response curve is less steep than that of a full agonist
- B. The dose response curve exhibits a ceiling effect
- C. Concomitant administration of a partial and a full agonist can antagonize the effect of the full agonist
- D. The agent can act as an agonist at one receptor and an antagonist at another

ANS: D

Q376: What is the diameter and conduction velocity of the A-beta fibers, which transmit small motor, touch, and pressure impulses?

- A. 20 microns (μ), 5 meters per second (m/s)
- B. 20 μ , 100 m/s
- C. 4 μ , 20 m/s
- D. 4 μ , 5 m/s

ANS: B

Q377: The patellar reflex is innervated by

- A. L2-L4
- B. L1-L4
- C. L3-L5
- D. L2-L5

ANS: A

Q378: Which of the following reflexes has the same lumbar innervation as the patellar reflex?

- A. Internal hamstring reflex
- B. Adductor reflex
- C. Tensor fascial lata reflex
- D. External hamstring reflex

ANS: B

Q379: For optimal epidural analgesia after a hysterectomy, the epidural insertion site should be close to?

- A. T9-T10
- B. L1-L2
- C. L3-L4
- D. L5-S1

ANS: A

Q380: All the following are true statements regarding the sacral canal EXCEPT

- A. It contains the cauda equine

- B. Its inferior border is the sacral hiatus
- C. It has a mean volume of 15 mL
- D. It communicates laterally with the sacral foramina
- E. It contains the filum terminale

ANS: C

Q381: The maxillary nerve leaves the cranial cavity by way of the

- A. Foramen ovale
- B. Foramen spinosum
- C. Foramen rotundum
- D. Jugular foramen
- E. Foramen lacerum

ANS: C

Q382: Each of the following nerves passes in front of the ear to provide innervation of the scalp EXCEPT the

- A. Supratrochlear nerve
- B. Great auricular nerve
- C. Zygomaticotemporal nerve
- D. Supraorbital nerve
- E. Auriculotemporal nerve

ANS: B

Q383: The styloid process is an important landmark when one performs a blockade of the

- A. Phrenic nerve
- B. Maxillary nerve
- C. Facial nerve
- D. Glossopharyngeal nerve
- E. Trigeminal nerve

ANS: D

Q384: The recurrent laryngeal nerve supplies motor function to all the intrinsic muscles of the larynx EXCEPT the

- A. Sternothyroid
- B. Sternohyoid
- C. Thyrohyoid
- D. Cricothyroid
- E. Cricohyoid

ANS: E

Q385: A 36-year old is undergoing a cervical plexus block for manipulation of a frozen shoulder. After the block is performed, it is noted that the patient is unable to elevate the shoulder. Which of the following nerves was blocked during the cervical plexus block?

- A. Thoracodorsal
- B. Accessory
- C. Anterior cervical
- D. Supraclavicular
- E. Greater articular

ANS: B

Q386: Each of the following nerves is a branch of the maxillary nerve contained within the pterygopalatine fossa EXCEPT the

- A. Inferior alveolar
- B. Greater palatine

- C. Nasopalatine
- D. Superior alveolar
- E. Pharyngeal

ANS: A

Q387: The afferent limb of the oculocardiac reflex is by way of which nerve?

- A. Facial
- B. Optic
- C. Ophthalmic
- D. Vagus
- E. Ciliary

ANS: C

Q388: The muscle involved in stabilizing the disk on the condyle of the temporomandibular joint (TMJ) is the

- A. Temporalis
- B. Buccinator
- C. Masseter
- D. Internal pterygoid
- E. Lateral pterygoid

ANS: E

Q389: The thorax of females differs from that of males in that

- A. Its capacity is greater
- B. The cranial margin of the sternum is at the T2 level
- C. Its sternum is shorter
- D. Its upper ribs are less movable
- E. It has a conical shape

ANS: C

Q390: When performing an epidural injection, each of the following structures is traversed EXCEPT the

- A. Supraspinous ligament
- B. Subcutaneous tissue
- C. Interspinous ligament
- D. Ligamentum flavum
- E. Posterior longitudinal ligament

ANS: E

Q391: The anterior surface of the head of each rib is connected to the sides of the bodies of two adjacent vertebrae by which ligament?

- A. Intraarticular
- B. Anterior longitudinal
- C. Radiate
- D. Superior costotransverse
- E. Lateral costotransverse

ANS: C

Q392: The rib that articulates with the sternum at the level of the xiphisternal junction is the

- A. 6th
- B. 7th
- C. 8th
- D. 9th
- E. 10th

ANS: B

Q393: The inner lining of the thoracic cage is also known as the

- A. Endothoracic fascia
- B. External thoracic fascia
- C. Innermost intercostals muscles
- D. Visceral pleura
- E. Parietal pleura

ANS: A

Q394: The muscles that compose the anterior abdominal wall include all the following EXCEPT the

- A. Cremaster
- B. Internal oblique
- C. Transverses abdominis
- D. Iliacus
- E. Pyramidalis

ANS: D

Q395: The thoracic duct ascends from the abdominal cavity to enter the thorax via which aperture?

- A. Esophageal
- B. Central tendon
- C. Splanchnic
- D. Inferior vena caval
- E. Aortic

ANS: E

Q396: All the following statements are true with regard to the superior hypogastric plexus EXCEPT that it

- A. Is located at the level of the aortic bifurcation
- B. Receives contributions from the L5 and S1 splanchnic nerves
- C. Often lies to the left of the midline
- D. Is a retroperitoneal structure
- E. Contains parasympathetic fibers derived from the pelvic splanchnic nerves

ANS: B

Q397: Characteristics of the lumbar vertebrae include

- A. The body is wider anteroposteriorly than transversely
- B. They are the smallest of the immovable vertebrae
- C. The lumbar vertebral (spinal) canal is larger than the cervical canal
- D. The lumbar vertebral (spinal) canal is larger than the thoracic canal

ANS: D

Q398: All the following are true statements concerning intervertebral disks EXCEPT

- A. In the lumbar region, the disks constitute 30 percent of the length of the column
- B. The nucleus pulposus is a colloidal gel composed of mucopolysaccharide
- C. The annulus fibrosus is a fibrocartilaginous ring
- D. The superior and inferior plates of the disk are composed of hyaline cartilage
- E. At birth, an intervertebral disk contains 50 percent water

ANS: E

Q399: The posterior primary division of a spinal nerve provides sensory innervation to all the following structures EXCEPT

- A. Cutaneous and muscular structures
- B. Intervertebral (facet) joints
- C. Posterior ligaments
- D. Posterior longitudinal ligament
- E. Periosteum

ANS: D

Q400: Which of the following branches of the spinal artery provides blood supply to the vertebral body?

- A. Anterior
- B. Intermediate
- C. Lateral
- D. Medial
- E. Posterior

ANS: A

Q401: Which of the following positions is associated with the greatest amount of load on the lumbar intervertebral disks?

- A. Lying supine
- B. Sitting, bending over
- C. Sitting with back straight
- D. Standing, flexed at the waist
- E. Standing upright

ANS: B

Q402: All the following are true statements regarding pain and spinal cord lesions EXCEPT

- A. Both complete and incomplete spinal cord lesions can cause pain
- B. The development of central pain after a spinal cord lesion depends on cord level
- C. Pain is usually produced in an area of somatosensory loss
- D. Spinal cord lesions commonly cause central pain
- E. Traumatic spinal cord lesions are the most common cause of central pain of spinal cord origin

ANS: B

Q403: The substantia gelatinosa resides in which laminar segment of the spinal cord?

- A. I
- B. II
- C. V
- D. VII
- E. X

ANS: B

Q404: Muscle-stretch reflexes are diminished or absent in each of the following EXCEPT

- A. Deep sedation
- B. Strychnine poisoning
- C. Deep coma
- D. Nerve root block
- E. Hypothyroidism

ANS: B

Q405: All the following statements regarding the *N*-methyl-D-aspartate (NMDA) receptor are true EXCEPT

- A. Mk-801 is a noncompetitive NMDA receptor antagonist

- B. NMDA may be involved in injury induced wind up
- C. Glutamate and aspartate act at the NMDA receptor
- D. Ketamine is an NMDA receptor agonist
- E. Wind-up is prevented by NMDA antagonists

ANS: D

Q406: Each of the following is a function of the facial nerve EXCEPT

- A. It carries parasympathetic secretory fibers to the lacrimal glands
- B. It is involved in the afferent limb of the orbicularis oculi reflex
- C. It conveys taste sensation from the posterior two thirds of the tongue
- D. It innervates muscles of facial expression
- E. It conveys exteroceptive sensation from the region of the eardrum

ANS: C

Q407: The intensity of a signal that is transmitted to the brain can be increased by increasing the frequency of impulses traveling along a single fiber.

- A. Spatial summation
- B. After discharge
- C. Temporal summation
- D. Recruitment
- E. Salutory conduction

ANS: C

DIRECTIONS: Each question below contains four suggested responses of which one or more is correct. Select

A	B	C	D	E
1,2,3	1,3	2,4	4	All are
only	only	only	only	correct

Q408: Which of the following statements is true regarding the termination of the C-fiber primary afferents in the spinal cord?

- 1. C fibers enter mostly medial to the A-beta fibers in the dorsal root entry zone
- 2. C fibers collateralize into the tract of Lissauer
- 3. No C fibers exist within the ventral nerve roots
- 4. C fibers project rostrally and caudally in the tract of Lissauer

ANS: C

Q409: Statements that correctly describe mechanothermal nociceptors include

- 1. they are the most common type of nociceptor
- 2. they activate both A-delta and C fibers
- 3. they respond to both noxious mechanical and thermal stimuli
- 4. they may also be referred to as C-polymodal nociceptors

ANS: E

Q410: Visceral nociception is accurately characterized by which of the following statements?

- 1. it responds to cutting, burning, or crushing stimuli
- 2. it typically has a significant autonomic component
- 3. it involves more nociceptors than cutaneous nociception
- 4. it is often diffuse and poorly localized

ANS: C

Q411: Descending inhibitory pathways typically involve which of the following neurochemical mechanisms?

1. Noradrenergic
2. Enkephalinergic
3. Serotonergic
4. Cholinergic

ANS: A

Q412: Opiate receptors in the brainstem are found in the

1. nucleus raphe magnus
2. dorsal raphe nuclei
3. periaqueductal gray area
4. locus ceruleus

ANS: A

Q413: True statements regarding postoperative pain include

1. malfunction of the “gate”
2. generation of ectopic impulses by nerves
3. “crosstalk” between large and small fibers
4. malfunction of central processing

ANS: C

Q414: The pathophysiologic factors involved in neuropathic pain include

1. well defined inhibitory mechanisms
2. poorly defined central pathways
3. well defined nociceptive mechanisms
4. well defined neurologic damage

ANS: C

Q415: Which of the following might be associated with sympathetic efferent overactivity?

1. Cutaneous nociceptive sensitivity
2. Alteration in piloerection
3. Alteration in blood flow to skin and muscle
4. Alteration of sweating

ANS: E

Q416: Physiologic processes involved in nociception include

1. Transmission
2. Modulation
3. Perception
4. Transduction

ANS: E

Q417: The central nervous system consists of

1. Brain
2. Cranial nerves
3. Spinal cord
4. Spinal nerves

ANS: B

Q418: Correct statements regarding cell bodies include that those

1. of somatic motor nerves lie in the anterior horn of the spinal cord
2. of cranial nerves lie in the sensory nuclei of the cranial nerve
3. of somatic sensory nerves lie in the dorsal root ganglia
4. of visceral sensory nerves lie in the autonomic nervous system

ANS: B

Q419: A-delta fibers can be characterized by which of the following statements?

1. They are myelinated
2. They do not respond to mechanical stimulation
3. They conduct impulses at a rate of 20 m/s
4. They are also called low-threshold mechano-receptors

ANS: B

Q420 Sensitization of high threshold mechanoreceptors

1. is associated with a higher threshold to thermal stimulation
2. requires repeated stimulation
3. is associated with a lower threshold to mechanical stimulation
4. results in increased frequency of discharge

ANS: C

Q421: True statements regarding C fibers include that they

1. are mostly nociceptive
2. respond to mechanical, thermal, and chemical stimuli
3. are unmyelinated
4. make up a small proportion of fibers in a peripheral nerve

ANS: A

Q422: C-polymodal nociceptors (C-PMNs)

1. have large receptive fields
2. do not undergo sensitization
3. are involved with secondary hyperalgesia
4. respond only to mechanical and thermal stimulation

ANS: B

Q423: Pain caused by a brief noxious stimulus and experienced as brief and sharp (first pain)

1. can be blocked by applying local anaesthetic
2. can be blocked by applying pressure
3. is mediated by C-PMNs
4. can occur in response to a thermal stimulus

ANS: C

Q424: Which of the following will characteristically occur after injury to the skin?

1. Local edema
2. Intense vasoconstriction
3. Secondary vasodilation in adjacent areas
4. Increased threshold for nonnoxious stimuli

ANS: B

Q425: The sequence of events involved in neurogenic inflammation include

1. spreading vasodilation
2. sensitization of C-PMNs
3. edema
4. secondary hyperalgesia

ANS: E

Q426: Bradykinin, a peptide produced by activation of the kinin system,

1. decreases vascular permeability
2. has binding sites in the dorsal horn
3. inhibits leukocyte chemotaxis

4. is produced at sites of tissue injury

ANS: C

Q427: The class of compounds considered prostanoids includes

1. prostacyclins
2. thromboxanes
3. prostaglandins
4. leukotrienes

ANS: A

Q428: True statements substance P include that it

1. is synthesized in the dorsal root ganglia
2. is released by stimulation of primary afferent nociceptors
3. is transported to peripheral and central terminals
4. inhibits the release of histamine

ANS: A

Q429: Administration of substance P causes which of the following?

1. Plasma extravasation
2. Pain on local injection
3. Neurogenic inflammation
4. Activation of nociceptors

ANS: B

Q430: Histamine is correctly described by which of the following?

1. it causes edema
2. it causes activation of nociceptors
3. it causes vasodilation
4. it is released from injured cells

ANS: E

Q431: True statements regarding serotonin include that it

1. is an analgesic substance
2. is released by platelets
3. has no known antagonist
4. has receptors located on peripheral nerves

ANS: C

Q432: Bone pain may be characterized by which of the following descriptions?

1. It can originate from the cortex and marrow
2. It is transmitted by A-delta and C fibers
3. It has the highest pain threshold of the deep somatic structures
4. It primarily arises from cancellous bone

ANS: C

Q433: Accurate descriptions of visceral afferent fibers include that they

1. travel with sympathetic fibers
2. are autonomic fibers
3. have large receptive fields
4. do not undergo sensitization

ANS: B

Q434: The brainstem is

1. made up of the medulla, pons, and midbrain

2. roofed by the fourth ventricle
3. bounded rostrally by the thalamus
4. bounded ventrally by the clivus

ANS: E

Q435: Criteria for neurotransmitters in primary afferent nociceptors include

1. the substance is present in the dorsal horn synapse
2. the substance is released on noxious stimulation
3. release of the substance causes the same effect as stimulation of the primary afferent
4. injection of the substance causes pain

ANS: A

Q436: Cells found in the dorsal horn include

1. excitatory interneurons
2. inhibitory interneurons
3. projection cells
4. wide dynamic range (WDR) neurons

ANS: E

Q437: Laminae I, II, and V in the dorsal horn

1. project to the brainstem
2. abolish cutaneous pain when cut
3. produce analgesia when stimulated
4. are major areas for convergence of nociceptive transmission

ANS: C

Q438: Ascending nociceptive pathways in the anterolateral quadrant (ALQ) of the spinal cord include the

1. spinothalamic tract
2. spinomesencephalic tract
3. spinoreticular tract
4. spinomedullary system

ANS: E

Q439: The reticular formation is accurately described by which of the following statements?

1. It regulates motor, sensory, and autonomic functions
2. It consists of nuclei located in the brainstem
3. It responds to noxious stimulation
4. It is involved with the affective component of pain

ANS: E

Q440: True statements regarding serotonin include

1. it is found in the rostral ventral medulla
2. it inhibits nociceptive neurons in laminae V and X
3. it is involved in descending antinociceptive pathways
4. its direct application to the spinal cord has no effect on pain

ANS: B

Q441: The major anatomic areas of the CNS involved in opioid-mediated analgesia include the

1. periventricular region
2. rostral ventral medulla
3. periaqueductal gray matter
4. thalamus

ANS: A

Q442: The parasympathetic nervous system includes

1. axons that travel with the accessory nerve
2. cell bodies of preganglionic fibers in cranial nerve nuclei
3. short preganglionic fibers
4. cell bodies in the intermediolateral gray area of the sacral spinal cord

ANS: C

Q443: Acetylcholine is released at

1. preganglionic parasympathetic nerve endings
2. preganglionic sympathetic nerve endings
3. postganglionic parasympathetic nerve endings
4. postganglionic sympathetic nerve endings

ANS: A

Q444: Muscarinic receptors are located in all effector cells stimulated by

1. preganglionic sympathetic neurons
2. postganglionic parasympathetic neurons
3. preganglionic parasympathetic neurons
4. postganglionic cholinergic sympathetic neurons

ANS: C

Q445: Stimulation of which of the following receptors serves as a negative feedback mechanism?

1. Beta-1
2. Beta-2
3. Alpha-1
4. Alpha-2

ANS: D

Q446: Enkephalins are found in the

1. sympathetic nervous system
2. gastrointestinal tract
3. periaqueductal gray
4. adrenal medulla

ANS: E

Q447: Beta-endorphine is found in the

1. locus ceruleus
2. hypothalamus
3. periaqueductal gray
4. pituitary

ANS: E

Q448: Prototypic kappa-receptor agonists include

1. dynorphin
2. N-allyl normetazocine
3. ketocyclazocine
4. DADL

ANS: B

Q449: True statements regarding tolerance include

1. it is characteristic of opioids as a class of drugs

2. it cannot occur without physical dependence
3. it is defined as requiring more drug to produce the same effect
4. it is synonymous with addiction

ANS: B

Q450: Opioid peptides are derived from larger prohormones that include

1. proenkephalin A
2. proopiomelanocortin
3. proenkephalin B
4. alpha neoendorphin

ANS: A

Q451: True statements regarding alpha 1-acid glycoprotein include that it

1. has a high capacity
2. has a high affinity for basic drugs
3. remains unaffected by recent trauma
4. is an acute phase reactant

ANS: C

Q452: Saltatory conduction is correctly described by which of the following?

1. It occurs in myelinated nerves
2. It occurs in unmyelinated nerves
3. It greatly increases the velocity of nerve conduction
4. It expends more energy

ANS: B

Q453: A neuron contains

1. a cell body
2. a dendrite
3. an axon
4. a synapse

ANS: A

Q454: Sensory receptors include

1. thermoreceptors
2. electromagnetic receptors
3. nociceptors
4. mechanoreceptors

ANS: E

Q455: Inhibitory neurotransmitters include

1. glycine
2. glutamic acid
3. gamma-aminobutyric acid (GABA)
4. substance P

ANS: B

Q456: Neuronal excitability is enhanced by

1. alkalosis
2. inhaled anaesthetics
3. hyperventilation
4. hypoxemia

ANS: B

Q457: Withdrawal reflexes are correctly described by which of the following statements?

1. They are most often elicited by a stretch stimulus
2. They are transmitted by pathways that pass directly to anterior motor neurons
3. They typically take 1 to 2 s to occur
4. They are associated with extension of the opposite limb

ANS: D

Q458: Cranial tissues that are sensitive to pain include

1. pia mater
2. arteries of the dura mater
3. brain parenchyma
4. cranial sinuses and afferent veins

ANS: C

Q459: Receptor types that mediate analgesia include

1. delta
2. kappa
3. mu-1
4. mu-2

ANS: A

Q460: Changes that have been shown to take place after peripheral nerve injury include which of the following?

1. The primary afferent nerve endings in the spinal cord sprout new connections within the dorsal horn
2. Injured primary afferents may change neuropeptide production from substance P and calcitonin gene-related peptide (CGRP) to neuropeptide y, galanin, and vasoactive intestinal polypeptide (VIP)
3. Upregulation of C-Fos in intrinsic spinal neurons occurs
4. There is a large increase in the endogenous opioid dynorphin

ANS: E

Q461: Enkephalins are found in the

1. lungs
2. CNS
3. bladder
4. adrenal medulla

ANS: C

Q462: Nerve fibers primarily responsible for the transmission of pain impulses include

1. A-beta fibers
2. A-delta fibers
3. B fibers
4. C fibers

ANS: C

Q463: True statements regarding epidural veins include

1. they communicate with abdominal veins via the intervertebral foramina
2. it connects the laminae of adjacent vertebrae
3. it is thickest in the lumbar region
4. its fibers are arranged parallel to the laminae to which it is attached

ANS: A

Q464: The innervation of the diaphragm includes

1. vagus nerves
2. intercostals nerves
3. lumbar plexus
4. cervical plexus

ANS: C

Q465: Except for the first intercostals nerve, all intercostals nerves differ from other spinal nerves in that

1. each pursues an independent course
2. they only have a sensory modality
3. they do not result in the formation of a plexus
4. their posterior divisions only supply muscles of the back

ANS: B

Q466: The visceral pleura receives innervation from

1. intercostals nerves
2. sympathetic fibers with vasomotor function
3. primary nociceptive afferent fibers
4. parasympathetic fibers via the pulmonary plexus

ANS: C

Q467: The abdominal wall is divided into nice imaginary quadrants, which include

1. left iliac
2. right hypochondriac
3. epigastric
4. hypergastric

ANS: A

Q468: True statements with regard to the celiac plexus include

1. it lies anterior to the crura of the diaphragm
2. the entire plexus lies posterior to the stomach and amental bursa
3. it is composed of parasympathetic and sympathetic fibers
4. it lies anterior to the vertebral body of L1

ANS: E

Q469: True statements regarding the pundental nerve include

1. it is derived from the S2, S3 and S4 nerves
2. it leaves the pelvic cavity through the greater sciatic foramen
3. it receives sympathetic fibers form the sacral portion of the sympathetic trunk
4. it divides into five main branches

ANS: A

Q470: Characteristics of the posterior longitudinal ligament (PLL) include that

1. it begins to progressively widen below the L1 vertebral level
2. it extends along the posterior surface of the body of the vertebra
3. it is composed of fibers that are less compact than those of the anterior longitudinal ligament
4. it contributes to the anterior wall of the vertebral canal

ANS: C

Q471: The intervertebral disk is correctly characterized by which of the following statements?

1. It receives blood supply from vessels in the bodies of adjacent vertebrae

2. It receives nutrients by diffusion after its blood supply diminishes
3. It receives nutrients by alternating compression and relaxation of the annulus fibrosus
4. It becomes avascular after the sixth decade of life

ANS: A

Q472: The posterior articulation, or facet joints, in the lumbar spine

1. permit rotation
2. comprise two arthrodial joints lined with synovium
3. allow lateral flexion or bending in the lordotic curve
4. lie in a vertical sagittal plane, permitting flexion and extension

ANS: C

Q473: True statements regarding the epidural space include that it is

1. bound anteriorly by the posterior longitudinal ligament
2. triangular in the lumbar region
3. bound posteriorly by the ligamentum flavum
4. most narrow anteriorly

ANS: E

Q474: Neuralgic pain differs from nociceptive pain in that it usually

1. has a delayed onset after a causative event
2. is responsive to opioid administration
3. has a dysesthetic component to it
4. can be treated by proximal surgical interruption

ANS: B

Q475: Exteroceptive sensations include

1. temperature
2. pain
3. touch
4. distention

ANS: A

Q476: Cranial nerves involved in the corneal reflex include

1. CN VII
2. CN III
3. CN V
4. CN VI

ANS: B

Q477: The cremaster reflex is correctly describe by which of the following statements?

1. It is mediated through the ilioinguinal nerve
2. It is mediated through the genitofemoral nerve
3. It is evoked by stroking the inner thigh
4. It results in bilateral elevation of the testicles

ANS: A

Q478: Possible mechanisms for the production of neuropathic pain include

1. malfunction of the "gate"
2. generation of ectopic impulses by nerves
3. "crosstalk" between large and small fibers
4. malfunction of central processing

ANS: E

Q479: Landmarks used in performing a deep cervical plexus block include the

1. mastoid process
2. cricoid cartilage
3. Chassaignac's tubercle (C6)
4. posterior border of sternocleidomastoid muscle

ANS: A

Q480: The extraocular muscles innervated by CN III include the

1. lateral rectus
2. medial rectus
3. superior oblique
4. inferior rectus

ANS: C

Q481: The term floating applies to which ribs?

1. 1st
2. 11th
3. 2nd
4. 12th

ANS: C

Q482: True statements regarding the ligamentum flavum include?

1. it is thinnest in the cervical region
2. it connects the laminae of adjacent vertebrae
3. it is thickest in the lumbar region
4. its fibers are arranged parallel to the laminae to which it is attached

ANS: A

History of Pain Medicine

Q483: In this ancient country pain was considered the result of spiritis of the dead entering an individual's body through an ear or nostril.

- A. India
- B. Egypt
- C. Greece
- D. China

ANS: B

Q484: In about 1000 B.C this physician wrote:

Medicine are of three kinds...

First, Mantras and religious acts;

Second, dieting and drugs;

Third, the subjugation of the mid by withdrawing it from every kind of injurious or harmful act.

- A. Sushruta
- B. Charaka
- C. Huang Ti
- D. Asclepios

ANS: B

Q485: Which one of the following drugs was not included in the early Chinese pharmacopeia?

- A. Ephedrine
- B. Ginseng
- C. Siberian wort (antispasmodic)
- D. Opium

AND: D

Q486: The practice of acupuncture was first described in:

- A. Canon Medicine
- B. Nei Ching
- C. Veda
- D. Iliad

ANS: B

Q487: The credit of classifying the humors into phlegmatic, sanguine, choleric, and melancholic is given to which one of the following?

- A. Asclepios
- B. Galen
- C. Plato
- D. Hippocrates

ANS: B

PAIN MECHANISMS

Q488: Tissue damage causes inflammation, which releases chemical substances at the site of injury. Which of the following chemical substances causes pain?

- A. Enkephline
- B. Prostaglandins
- C. Na
- D. Ca

ANS: B

Q489: The site of substance P in the peripheral tissues is:

- A. Plasma
- B. Vascular endothelium
- C. Nerve terminals
- D. Mast cells

ANS: C

Q490: For transduction of painful stimuli into nociceptive impulse this conditions is necessary:

- A. Local decrease in bradykinin
- B. Inhibition of prostaglandin synthesis
- C. Local extravasation of substance P
- D. Local increase of encephalins

ANS: C

Q491: The mean conduction velocity (m/sec) of A-delta afferents that transmit nociceptive impulse is:

- A. Greater than 15m/sec
- B. Greater than 8m/sec
- C. Greater than 3m/sec
- D. Less than 3m/sec

ANS: C

Q492: In the normal functioning of the dorsal horn this process occurs:

- A. Afferent C fiber inhibits substance P release
- B. Under appropriate conditions, NMDA receptor can excite
- C. Excitatory amino acids inhibit secondary neurons
- D. Interneurons (e.g., contain encephalins, norepinephrine, serotonin) act presynaptically.

ANS: B

EVALUATION OF THE PAIN PATIENT

Q493: Within the medical history, limitations of activity created by painful disorders are often recorded as part of the:

- A. Chief complaint
- B. Systems review
- C. Past medical history
- D. Social occupational history

ANS: D

Q494: Data that should be collected by inspection early in the physical examination includes:

- A. Observations of facial expression
- B. The patient's comments regarding weakness
- C. Results of upper and lower extremity reflexes
- D. Skin texture at sites of sympathetic dystrophy

ANS: A

Q495: Components for Waddell's signs of nonorganic low back pain behavior include tests of:

- A. Axial loading
- B. Hip rotation
- C. Skin pinch
- D. Heel-shin coordination

ANS: C

Q496: Which of the following tests of sensory function usually provides the most clinically relevant information regarding radicular pain?

- A. Application of cold and/or warm stimuli
- B. Presence of graphesthesia
- C. Pin and/or point stimulation
- D. Vibration and/or positions assessment

ANS: A

Q497: A history of being "allergic" to a specific analgesic medication should be checked to determine whether the symptoms that occurred following ingestion represented:

- A. An unexpected bitter taste
- B. A common unpleasant side effect
- C. Reduced efficacy of the medicine
- D. A potentially serious adverse reaction

ANS: B

PAIN MEASUREMENT

Q498: The most commonly used assessment tools for chronic pain are based upon:

- A. Health care staff observations
- B. Patient medication usage
- C. Patient self reporting
- D. Psychiatric assessment

ANS: C

Q499: Disadvantages of the Verbal Descriptor Scale include:

- 1. It requires nonparametric statistics to analyze the data
- 2. It cannot be used in experimental pain situations
- 3. There is a limitation on the possible number of responses
- 4. It is difficult to administer

A: 1, 2 and 3

B: 1 and 3

C: 2 and 4

D: 4

E: All of the above

ANS: D

Q500: A VAS score of 5:

- A. Represents the same level of pain that another patient with a VAS of 5 feels
- B. Is not affected by the patient's cultural upbringing
- C. Can be used as an indicator of the efficacy of a treatment regimen
- D. Represents a measurement of pain behavior
- E. All of the above

ANS: D

Q501: Which of the following patient characteristics affect that patient's ability to measure pain?

- A. Age
- B. Gender
- C. Culture
- D. The amount of suffering, as perceived by the patient
- E. All of the above

ANS: E

Q502: Which of the following groups of patients are at risk for inadequate measurement?

- A. Elderly
- B. Pediatric
- C. Burn patients
- D. Low back pain patients
- E. All of the above

ANS: E

RADIOGRAPHY AND NEUROIMAGING

Q503: T₂ weighted scans can be distinguished by their TR and TE times. Which of the following could produce a T₂ weighted scan?

- A. The TR is short (0.5 sec), and the TE is short (25.0 msec)
- B. The TR is short (0.5 sec), and the TE is long (80.0 msec)
- C. The TR is long (2.0 sec), and the TE is short (25.0 msec)
- D. The TR is long (2.0 sec), and the TE is long (80.0 msec)

ANS: D

Q504: T₁ weighted scans can be distinguished by their TR and TE times. Which of the following could produce a T₁ weighted scan?

- A. The TR is short (0.5 sec) and the TE is short (25.0 msec)
- B. The TR is short (0.5 sec) and the TE is long (80.0 msec)
- C. The TR is long (2.0 sec) and the TE is short (25.0 msec)
- D. The TR is long (2.0 sec) and the TE is long (80.0 msec)

ANS: A

Q505: On T₁ weighted scans the CSF appears:

- A. Black
- B. Gray
- C. White

ANS: A

Q506: Magnetic resonance imaging is not the study of choice in which disease state of the brain?

- A. Neoplasm
- B. Inflammation
- C. Acute hemorrhage
- D. Demyelinating disease

ANS: D

Q507: Myelography is the most useful method to evaluate which suspected disease state of the spine?

- A. Herniated nucleus pulposus with radiculopathy
- B. Osteophyte encroachment of neural foramen
- C. Vertebral body metastatic disease
- D. Spinal trauma with fracture of the posterior elements

ANS: B

NEUROPHYSIOLOGIC STUDIES

Q508: Single-fiber electromyographic recordings are helpful in assessing:

- A. Sensory nerve fibers affected by ABC syndrome
- B. Jitter that occurs in some myopathies
- C. Postherpetic neuralgia
- D. Trigeminal neuralgia

ANS: B

Q509: The most significant difference between the active and passive phenomena measured during electrodiagnostic testing is that:

- A. The former are associated with spontaneous or evoked changes in electrical potential difference
- B. The latter are only created by passive stretching of nerve roots
- C. The former may be used to diagnose severe active joint disease
- D. Measurements of the latter may be made on neural, but not nonneural, tissue

ANS: A

Q510: Frontal headaches that are present early on awakening in patients who do not drink alcohol may be related to:

- A. Occult trauma
- B. Obstructive sleep apnea
- C. Migraine with aura
- D. Lumbar pain

ANS: B

Q511: Changes in sudomotor function over the frontal and molar regions can be assessed using:

- A. Slow nerve conductors across the ulnar groove
- B. Prolonged distal latencies at the wrist
- C. Reduced electromyographic amplitude
- D. Reduced somatosensory evoked response amplitude

ANS: B

DIAGNOSTIC NERVE BLOCK

Q512: The basis for differential nerve block is the study by Gasser and Erlanger. They showed that as the recording electrode is moved away from the nerve, the compound action potential shows several smaller spikes traveling at different rates. These data are interpreted as due to:

- A. Different sized nerve fibers
- B. Same sized nerve fibers
- C. Topographic arrangement of nerve fibers
- D. Stimulation of spinal neurons

ANS: A

Q513: Differential spinal block requires preparation of four solutions containing normal saline or different procaine concentrations. Which of the solutions should contain normal saline?

- A. Solution A
- B. Solution B
- C. Solution C
- D. Solution D

ANS: A

Q514: During the performance of a differential spinal block the patient does not obtain pain relief from normal saline but does obtain relief after the injection of 0.25% procaine. This is commonly interpreted as due to:

- A. Somatic mechanism
- B. Sympathetic mechanism
- C. Neurogenic mechanism
- D. Psychogenic mechanism

ANS: B

Q515: The principle of modified differential spinal block is to observe changes in the patient's pain:

- A. At the onset of the block
- B. During the effect of the block
- C. At the recovery of the block
- D. After the recovery of the block

ANS: C

Q516: Differential epidural block is inherently appealing because it:

- A. Avoids lumbar puncture headache
- B. Takes longer time than differential spinal block
- C. Can be done by a small gauge needle
- D. Needs to be done as an outpatient

ANS: A

THERMOGRAPHY

Direction: For questions 517-525, choose from the following

A: 1, 2 and 3

B: 1 and 3

C: 2 and 4

D: 4

E: All of the above

Q517: Which of the following statements about medical thermography is (are) true?

1. It may be used as a graphic representation of a patient's pain
2. Thermal asymmetry of more than 0.6° is typically abnormal
3. Proximal changes occur before distal changes
4. Skin temperature continually fluctuates in response to physiologic and environmental conditions

ANS: B

Q518: Contact thermography:

1. Is more reliable than infrared thermography
2. Is best performed at normal room temperatures
3. Can picture the entire body
4. Is less expensive than infrared thermography

ANS: D

Q519: Thermography is best performed:

1. With room temperature at 20° to 24° C
2. With examined body part exposed
3. Without any skin lotions or creams
4. After a challenge with intravenous caffeine

ANS: A

Q520: In evaluating a patient with back pain:

1. Thermography provides a radicular picture
2. Thermography correlates well with other imaging studies to define the level of pathology
3. Thermography is a reliable screening test of the general population
4. Infrared thermography is more reliable than contact thermography

ANS: C

PSYCHOLOGIC EVALUATION AND TREATMENT

Q521: The purpose of the psychologic evaluation is:

1. To determine the current status of pain sensations, cognitions, pain behaviors, and mood
2. To assess environmental factors that influence pain
3. To assess the premorbid personality function
4. To determine if the pain is psychogenic or organic

ANS: A

Q522: The following symptoms of depression are observed in chronic pain patients:

1. Sleep disturbance
2. Appetite disturbance
3. Suicidal ideation
4. Poor concentration and memory disturbance

ANS: E

Q523: Common forms of biofeedback used to manage chronic pain include:

1. Electromyographic biofeedback
2. Thermal or skin temperature biofeedback
3. Alpha biofeedback
4. Pulse wave velocity biofeedback

ANS: B

Q524: The following therapeutic approaches are useful in treating chronic pain patients:

1. Cognitive behavioral
2. Contingency management or operant approaches
3. Hypnosis
4. Psychoanalytic therapy

ANS: A

Q525: The following are methods of achieving hypnotic pain control:

1. After the perception of pain
2. Substitute the painful sensation with a different or less painful sensation
3. Move the pain to another area of the body
4. Distortion of time

ANS: E

PHARMACOKINETICS AND PHARMACODYNAMICS OF ANALGESIC AGENTS

Q526: The time required for drug to blood concentration to be elevated by a factor of two is called in pharmacokinetic terms:

- A. Clearance
- B. Volume of distribution
- C. Half life
- D. Redistribution

ANS: C

Q527: In acute pain therapy when one selects an analgesic agent, the choice is:

- A. Fewer repeated doses of high clearance drug
- B. Fewer repeated doses of low clearance drug
- C. Frequent repeated doses of low clearance drug
- D. Oral administration

ANS: B

Q528: In chronic pain therapy the best route of drug administration is:

- A. Intraspinal
- B. Intravenous
- C. Oral
- D. Transdermal

ANS: C

Q529: Which of the following routes allow analgesic drugs to have direct access at the target receptor by diffusion?

- A. Rectal
- B. Epidural
- C. Subcutaneous
- D. Intravenous

ANS: B

Q530: When prescribing sublingual or buccal route of administration, the best drug (55%) for absorption is:

- A. Methadone
- B. Fentanyl
- C. Morphine
- D. Buprenorphine

ANS: D

OPIOIDS AND NONSTEROIDAL ANTIINFLAMMATORY DRUGS

Direction: For questions 531-534, choose from the following

A: 1, 2 and 3

B: 1 and 3

C: 2 and 4

D: 4

E: All of the above

Q531: Which of the following opioids are naturally occurring?

1. Morphine
2. Hydromorphone
3. Codeine
4. Methadone

ANS: B

Q532: Which of the following statements is (are) true regarding classes of opioid drugs and their analgesic effects?

1. κ receptor agonists can provide good analgesia.
2. A potent δ opioid receptor agonist will likely have significant excitatory effects relative to its analgesic properties.
3. δ receptor agonists will likely produce similar analgesic effects to those of μ agonists
4. Agonists of μ_1 and μ_2 receptors produce both analgesia and respiratory depression

ANS: E

Q533: Which of the following factors explains the relatively rapid onset of alfentanil as compared with other opioids?

1. Alfentanil is far more lipid soluble than most opioids, including fentanyl and morphine
2. Alfentanil has a far greater unionized fraction than morphine in plasma
3. Alfentanil has a long elimination half-life relative to other opioids such as sufentanil or fentanyl, allowing it to quickly accumulate high blood concentrations
4. Alfentanil has a very small volume of distribution compared with most of the other opioids

ANS: D

Q534: The following is (are) true regarding nonsteroidal anti-inflammatory drug renal toxicity:

1. The risk of renal toxicity is not related to patient intravascular volume status.
2. Tubulointerstitial nephritis from nonsteroidal anti-inflammatory drugs is a form of allergic reaction
3. Even normal patients are highly dependent on prostaglandins for regulation of renal blood flow
4. Renal effects of nonsteroidal anti-inflammatory drugs can antagonize the effects of antihypertensive drugs and worsen preexisting heart failure

ANS: C

Q535: Oral morphine sustained release formulations and oral methadone are both used to provide prolonged analgesia in patients with cancer pain. Which of the following comparisons between the two drugs is true?

- A. Sustained release formulations provide longer effect than regular morphine preparations by prolonging the elimination half life of morphine
- B. Methadone is far more likely to accumulate in the bloodstream than morphine because of its much longer half life
- C. Like methadone, slow release morphine preparations can be prepared in elixir form
- D. Slow release morphine preparations are less dependent upon variations in GI transit than methadone

ANS: B

COANALGESIC AGENTS

Q536: The anticholinergic effects of antidepressants (e.g., xerostomia, poor visual accommodation, tachycardia, urinary retention) are due to their:

- A. Nicotinic action
- B. Muscarinic action
- C. Histaminic action
- D. α_1 adrenergic action

ANS: B

Q537: When selecting an antidepressant for use in pain management, one should consider all of the following EXCEPT:

- A. Match the patient's pain syndrome with the drug that most likely will effect it
- B. Consider a tricyclic or trazadone for patients with poor sleep
- C. Start with a high dose and decrease gradually
- D. Inform the patient about the drug's side effects ahead of time

ANS: C

Q538: Side effects of neuroleptics include all of the following EXCEPT:

- A. Dystonia
- B. Akathisia
- C. Drug-induced parkinsonism
- D. Muscular flaccidity

ANS: D

Q539: When choosing neuroleptics for use in pain management, one should consider all of the following EXCEPT:

- A. Start the antidepressant first
- B. Use of antidepressant is ineffective even with improved sleep
- C. The liver function test is normal
- D. The institution of neuroleptics should be done fast

ANS: D

Q540: The mechanism of benzodiazepine is through binding with a specific receptor that is complexed to:

- A. Dopamine receptor
- B. GAA_A receptor
- C. Opiate receptor
- D. α adrenergic receptor

ANS: B

LOCAL ANAESTHETICS

Direction: For questions 541-544, choose from the following

A: 1, 2 and 3

B: 1 and 3

C: 2 and 4

D: 4

E: All of the above

Q541: Name the local anaesthetic(s) most likely to produce an allergic reaction.

1. Prilocaine
2. Ropivacaine
3. Etidocaine
4. Benzocaine

ANS: D

Q542: Which of the following statements regarding bupivacaine is (are) true?

1. The degree of motor blockade is greatest when isobaric solutions of bupivacaine are used as opposed to hyperbaric formulations.
2. One of the disadvantages with the use of bupivacaine is that it does not produce a good enough differential blockade when used for postoperative pain management.
3. Bupivacaine has produced neural blockade for longer than 10 hours.
4. In the United States the use of bupivacaine for IV analgesic techniques has been banned secondary to its metabolites ability to oxidize hemoglobin to met hemoglobin.

ANS: A

Q543: Which of the following local anaesthetics exist as chiral forms?

1. Bupivacaine
2. Mepivacaine
3. Etidocaine
4. Prilocaine

ANS: D

Q544: Which of the following statements is (are) true about local anaesthetic physicochemical properties?

1. Lipid solubility influences the duration of the neural blockade.
2. The protein binding has significant effect on the potency of the local anaesthetic.
3. The nonionic form of the local anaesthetic molecule has been postulated to have no direct effect on the conduction of ions through the Na⁺ channels.
4. It is believed that the stereoisomer known to exist differences in potency, toxicity and duration.

ANS: D

Q545: The addition of epinephrine has the following effects on local anaesthetic properties EXCEPT:

- A. Increases the degree of motor blockade
- B. Increases the area of the blockade
- C. Increases the time of the blockade
- D. Decreases the peak plasma concentration

ANS: C

TECHNIQUES

Q546: The ganglion that lies in the recess of the petrous portion of the temporal bone on its superior aspect and is surrounded by the invagination of the dura is known as:

- A. Geniculate ganglion
- B. Otic ganglion
- C. Trigeminal ganglion
- D. Sphenopalatine ganglion

ANS: C

Q547: The landmark commonly used for gangliolysis of trigeminal ganglion is all of the following EXCEPT:

- A. Midpoint of the zygomatic arch
- B. Needle entry point 1 cm lateral to the angle of the mouth
- C. At the level of upper second molar
- D. Root of the nose

ANS: D

Q548: The rootlets of the glossopharyngeal nerve originate in a groove on the lateral aspect of the medulla. It exits the skull via the:

- A. Foramen lacerum
- B. Foramen ovale
- C. Foramen rotundum
- D. Jugular foramen

ANS: D

Q549: Areas innervated by the mandibular nerve are all of the following EXCEPT:

- A. Teeth of the lower jaw
- B. Anterior two thirds of the tongue
- C. Temporomandibular joint
- D. Skin over the middle third of the face

ANS: D

Q550: Areas innervated by glossopharyngeal nerve are all of the following EXCEPT:

- A. Palatine tonsils
- B. Posterior one third of the tongue
- C. Pharyngeal wall
- D. Epiglottis

ANS: D

CENTRAL NERVE BLOCKS

Q551: The epidural space contains the following EXCEPT:

- A. Spinal nerve roots
- B. Vertebral venous plexus
- C. Areolar tissue
- D. Lymphatic duct

ANS: D

Q552: Cervical epidural anaesthesia is indicated for pain relief and surgery for:

- A. Carotid endarterectomy
- B. Cholecystitis
- C. Hysterectomy
- D. Knee replacement

ANS: A

Q553: In the paramedian approach for cervical epidural block the angle taken by the needle at the skin entry is:

- A. 10°
- B. 15°
- C. 20°
- D. 30°

ANS: B

Q554: In the lumbar region the position of the epidural needle from the spinous process in the paramedical approach should be:

- A. 15°
- B. 25°
- C. 35°
- D. 45°

ANS: C

Q555: Landmarks for caudal block are all of the following EXCEPT:

- A. Posterior superior iliac spine
- B. Anterior superior iliac spine
- C. Sacral cornu
- D. Sacral hiatus

ANS: B

PERIPHERAL NERVE BLOCKS

Q556: The 12 pairs of thoracic nerve roots can be blocks:

- A. As they emerge from thoracic intervertebral foramina
- B. In the thoracic epidural space as the anterior and posterior nerve roots unite
- C. After the anterior primary rami of the thoracic nerve roots have been given off
- D. At the level of thoracic sympathetic ganglion

ANS: A

Q557: The intercostal nerve block is commonly done at all of the following EXCEPT:

- A. At the angle of the rib posteriorly
- B. At the posterior axillary line
- C. At the midaxillary line
- D. At the head of the rib posteriorly

ANS: D

Q558: A successful brachial plexus by the interscalene approach will provide analgesia of all of the following EXCEPT:

- A. Shoulder
- B. Inner aspect of the upper arm and elbow
- C. Forearm
- D. Hand

ANS: B

Q559: The landmark for supraclavicular approach to brachial plexus block are all of the following EXCEPT:

- A. Midpoint of clavicle
- B. Point of entry 1 cm superior to midpoint of clavicle
- C. Lateral border of the anterior scalene muscle
- D. Midway between sternal and clavicular head of the sternomastoid

ANS: D

Q560: The following is true about the lumbar plexus:

- A. Formed by the union of anterior primary divisions of L₁-L₄ nerve roots
- B. Does not join the T₁₂ to form a common trunk of iliohypogastric and ilioinguinal nerves
- C. Formed by the union of both anterior primary divisions of L₁-L₄ nerve roots
- D. Formed by the union of posterior division of L₁-L₄

ANS: A

AUTONOMIC NERVE BLOCKS

Q561: The ganglion that is located posterior to the middle turbinate, deep to the lateral nasal mucosa is called:

- A. Geniculate ganglion
- B. Sphenopalatine ganglion
- C. Otic ganglion
- D. Gasserian ganglion

ANS: B

Q562: In this approach for stellate ganglion block, the patient lies supine, with the head hyperextended. The C₆ tubercle is palpated and confirmed by locating the cricoid cartilage. The common carotid artery is retracted laterally. Then a 4- to 5-cm long needle is inserted between the trachea and the finger retracting the carotid vessel towards the anterior surface of the transverse process:

- A. Anterolateral approach
- B. Anterior approach
- C. Posterior approach
- D. Posterolateral approach

ANS: B

Q563: The preganglionic sympathetic nerves that are destined to end in the celiac, aorticorenal, and superior mesenteric ganglia come from these sites of anterolateral horn of the spinal cord:

- A. T₁-T₄
- B. T₅-T₁₂
- C. T₁₂-T₂
- D. L₂-L₅

ANS: B

Q564: The celiac plexus is located just anterior to the crux of the diaphragm and extends several centimeters:

- A. Anterolaterally around the aorta
- B. Posterolaterally around the aorta
- C. Anteromedial to lumbar sympathetic ganglia
- D. Posteromedial to lumbar sympathetic ganglia

ANS: A

Q565: For patients with large abdominal mass and difficulty in lying prone, this approach is indicated for celiac plexus block:

- A. Lateral approach
- B. Anterior approach
- C. Sitting approach
- D. Surgical open approach

ANS: B

EPIDURAL STEROIDS

Q566: The polyethylene glycol in depot steroids:

- A. Does not cause degenerative lesions in nerves of experimental animals
- B. Is present in methylprednisolone but not triamcinolone
- C. Is not concentrated enough in the commercial preparation to block nerve transmission
- D. Does not cause arachnoiditis when injected intrathecally

ANS: C

Q567: Intrathecal steroid injections:

- A. Should be given when there is no response to an epidural steroid injection
- B. Do not cause suppression of the hypothalamic adrenal system
- C. May be given in cases of arachnoiditis
- D. May cause arachnoiditis

ANS: D

Q568: Free joint syndromes:

- A. Are due to abnormalities such as inflammation arthritis, or segmental instability of the facet joint
- B. Are characterized by pain that usually radiates below the knee
- C. Are usually characterized by nerve root tension signs such as limitation of straight leg raising
- D. Are treated with facet injection, and the relief is related to the use of a local anaesthetic

ANS: A

Q569: A 30-year old man had low back pain that radiated to the lateral aspect of his right leg. The pain was precipitated by the patient lifting a heavy object 2 days before onset. Which of the following statements is true?

- A. An EMG should be performed to localize the involved nerve root
- B. A CT scan is of no value since the injury is recent
- C. Physical examination will show decreased knee jerk
- D. The patient will probably have a good response to an epidural steroid injection

ANS: D

Direction: For question 570, choose from the following

- A: 1, 2 and 3
- B: 1 and 3
- C: 2 and 4
- D: 4
- E: All of the above

Q570: Patients with chronic back pain may respond to epidural steroid injections if:

- 1. A local anaesthetic is added to the steroid
- 2. They have a symptom free interval
- 3. Three epidural steroid injections are given
- 4. Their new radiculopathy involves a nerve root different from the one they had before

ANS: C

FACET BLOCKS

Q571: The diagnosis of facet syndrome is made by all of the following EXCEPT:

- A. History
- B. Physical examination
- C. Radiographic evaluation
- D. Blood chemistry

ANS: D

Q572: Best treatment of cervical facet syndrome is:

- A. Conservative management, with physical therapy, local trigger point injection, and nonsteroidal anti-inflammatory drugs
- B. Surgical management
- C. Use of systemic narcotics
- D. Psychotherapy

ANS: A

Q573: The diagnosis of lumbar facet syndrome can be made if all of the following are seen during history and physical examination EXCEPT:

- A. Dull ache that radiates into the low back, buttocks, hip, or posterior or lateral thigh up to the knee
- B. Tenderness to deep palpation over the facet joint
- C. Sharp aching pain on extensions of the lumbar spine
- D. Radiating pain of flexion of the lumbar spine

ANS: D

Q574: The apophyseal joint is formed by all of the following EXCEPT:

- A. Superior articular facet of the lower vertebra
- B. Inferior articular facet of the upper vertebra
- C. Synovium and fibrous joint capsule
- D. Ligamentum flavum

ANS: D

Q575: Whereas the articular facets of the cervical spine are oriented in the coronal plane and thoracic facets are 20° off the coronal plane, the lumbar facets are oriented in a sagittal plane approximately:

- A. 35°
- B. 45°
- C. 55°
- D. 65°

ANS: B

EPIDURAL INFUSION AND PATIENT CONTROLLED EPIDURAL ANALGESIA

Q576: The therapeutic advantage of continuous epidural infusion over intermittent bolusing is all of the following EXCEPT:

- A. Ease of titration
- B. No tachyphylaxis
- C. Steady state concentration
- D. Increased local anaesthetic concentration

ANS: D

Q577: Segmental epidural analgesia mandates placement of an epidural at sites adjacent to dermatomes covering the field of pain. This reduces dose requirements while increasing the specificity of spinal analgesia. Suggested interspaces for thoracic surgery are:

- A. T₉-T₁₁
- B. T₂-T₈
- C. C₆-T₁
- D. T₁₂-L₂

ANS: B

Q578: In comparison with each drug infused alone, combinations of local anaesthetics and opioids provide pain relief:

- A. Of lesser magnitude
- B. Of greater magnitude
- C. With more side effects
- D. With lesser reliability

ANS: B

Q579: Patient controlled epidural analgesia is indicated for patients with all of the following EXCEPT:

- A. Intra-abdominal surgery
- B. Major orthopedic surgery
- C. Major thoracic surgery
- D. Diagnostic arthroscopic surgery

ANS: D

Q580: A common technique of patient controlled epidural analgesia consists of bupivacaine 0.065% with fentanyl ($\mu\text{g/ml}$ concentration) with a lockout interval of 20 minutes and running at a continuous infusion rate of:

- A. 2-4 ml/hr
- B. 4-6 ml/hr
- C. 8-10 ml/hr
- D. 10-12 ml/hr

ANS: B

IMPLANTABLE DRUG-DELIVERY SYSTEMS

Q581: There are currently _____ classifications of implantable drug delivery systems in clinical use:

- A. 1
- B. 3
- C. 4
- D. 6
- E. 9

ANS: C

Q582: The preimplantation trial:

- A. Verifies that the drug administered will relieve the patient's pain
- B. Allows the patient to experience the anticipated results of drug administration before implantation
- C. Allows the patient to experience the side effects of drug administration before implantation
- D. Allows the patient to learn the mechanism of the pump

ANS: A

Q583: Contraindications of implantation of a drug delivery system include all of the following EXCEPT:

- A. Sepsis
- B. Coagulopathy
- C. Bipolar personality
- D. Cancer pain

ANS: D

Q584: Physiologic abnormalities that may interfere with the patient's ability to assess pain relief during preimplantation trials include all of the following EXCEPT:

- A. Hyponatremia
- B. Cerebral metastatic disease
- C. Drug induced organic brain syndrome
- D. Normocalcemia

ANS: D

Q585: Behavioral abnormalities that may interfere with the patient's ability to assess pain relief during preimplantation trials include:

- A. Preexisting chemical dependence on opioid analgesics
- B. Preexisting psychiatric disease
- C. Compliance of the patient
- D. Patient desire for sedation and anxiolysis associated with systemic opioids

ANS: C

NEUROLYTIC AGENTS

Q586: In terms of neurolytic activity, 40% ethanol is equal to approximately:

- A. 35 phenol in saline
- B. 3% phenol in glycerin
- C. 6% phenol in glycerin
- D. 6% phenol + 3% chlorprocaine

ANS: B

Q587: The mechanism whereby hypertonic saline produces neurolysis is:

- A. Hypoxia secondary to vasospasm
- B. Extraction of phospholipids from neural tissue
- C. Induction of cell death via repetitive discharge induced by excess sodium
- D. Not clearly established

ANS: D

Direction: For questions 588 to 590, choose from the following

- A: 1, 2 and 3
- B: 1 and 3
- C: 2 and 4
- D: 4
- E: All of the above

Q588: Which of the following statements about ethanol are true?

- 1. The minimum concentration of ethanol required for neurolysis is 10%
- 2. Ehanol and local anaesthetics are sometimes used together
- 3. Ethanol is sometimes mixed with glycerin
- 4. Alcohol spreads quite rapidly from the injection site

ANS: B

Q589: Which of the following statements regarding phenol and alcohol are true?

- 1. They are bio-transformed by liver enzymes
- 2. They are excreted from the body essentially unchanged via the kidneys
- 3. They act by highly selected mechanisms
- 4. They cannot be used in patients with pancreatic cancer

ANS: B

Q590: Procedural complications related to the use of neurolytics include:

- 1. Systemic toxic reactions caused by accidental intravascular injection
- 2. Hypotension secondary to sympathetic block
- 3. Intense pruritus in the facial area
- 4. High output renal failure

ANS: B

CRYOLYSIS

Q591: Below what temperature does cell death occur?

- A. 0° C
- B. -10° C
- C. -20° C
- D. -60° C

ANS: C

Q592: What degree of nerve injury is produced with a cryolesion?

- A. First
- B. Second
- C. Third
- D. Fourth

ANS: A

Q593: Evans and colleagues showed in vitro that the rate of nerve regeneration after a cryolesion, i.e., cell death, was independent of all of the following EXCEPT

- A. Duration of freezing
- B. Repeat freeze cycle
- C. Nerve cell temperature
- D. Size of the freeze zone

ANS: C

Direction: For questions 594 to 597, choose from the following

A: 1, 2 and 3

B: 1 and 3

C: 2 and 4

D: 4

E: All of the above

Q594: Which of the following types of cryoprobes are currently in clinical use?

- 1. Gas expansion
- 2. Helium gas
- 3. Change of phase
- 4. Joule Thompson

ANS: E

Q595: Which of the following are indications for percutaneous cryoneurolysis?

- 1. Treatment of neuromas
- 2. Treatment of flexion contractures
- 3. Treatment of chest wall pain
- 4. Treatment of nerve entrapment pain

ANS: E

RADIOFREQUENCY

Q596: During a lumbar facet radiofrequency denervation procedure, stimulation at 5 Hz before lesion formation produces neuromuscular activity in a lower extremity. The next action should be:

1. Abandon the procedure
2. Insert 2% lidocaine
3. Reposition the probe
4. Produce a large lesion

ANS: B

Q597: Radiofrequency thermocoagulation has been successfully used for:

1. Dorsal root entry zone lesions
2. Cordotomy
3. Peripheral nerve block
4. Celiac plexus block

ANS: A

Q598: Radiofrequency thermocoagulation produces a lesion characterized by:

- A. Charred tissue
- B. Tissue vaporization
- C. Hematoma formation
- D. Spheroid shape

ANS: D

Q599: Radiofrequency thermocoagulation employs what type of energy?

- A. Ultrasound
- B. Direct current
- C. Laser
- D. Alternating current

ANS: D

Q600: Heat develops in tissue during radiofrequency thermocoagulation by:

- A. Convection
- B. Conduction
- C. Friction
- D. The tip of the probe heat

ANS: C

ACUPUNCTURE

Q601: Acupuncture points are located on meridians. How many meridians are there?

- A. 3
- B. 6
- C. 8
- D. 14

ANS: D

Q602: The following sensation is essential for a successful acupuncture treatment:

- A. Cun
- B. Tech
- C. Suan
- D. Ma

ANS: B

Q603: The peripheral nerve fibers that respond to acupuncture are generally:

- A. Smaller fibers
- B. Larger fibers
- C. Medium sized fibers
- D. Motor fibers

ANS: A

Q604: During the performance of acupuncture, once the needles are inserted they may be manipulated by hand or by electrical stimulations. If the hand is used, there are three kinds of movements. Of the movements listed below, which one is NOT employed?

- A. Rotating motion
- B. Oscillating movement
- C. Twirling or up-and-down movement
- D. Scratching movement

ANS: D

Q605: The acupuncture point located between the first and second metatarsal bones in the web is called:

- A. Lieh Chueh
- B. Ho Ku
- C. Chih Tse
- D. Chien chen

ANS: B

ANALGESIA WITH INTRAVENOUS LOCAL ANAESTHETICS

Q606: There is controversy as to the mechanisms of action of IV local anaesthetic agents. Earlier theories suggest peripheral site of action at the arteriolar and capillary endothelia. The later theory suggests CNS activity because:

- A. Spinal electrogram of deafferentation is changed with IV local anaesthetics
- B. IV local anaesthetics effects the low frequency discharge activity in the CNS
- C. IV local anaesthetic causes numbness in the periphery
- D. Patient experiences hypotension with the use of IV local anaesthetics

ANS: A

Q607: The choice of drug for IV local anaesthetic currently is lidocaine. It is indicated for all of the following conditions EXCEPT:

- A. Peripheral neuralgia
- B. Deafferentation syndrome
- C. Paroxysmal attacks associated with postherpetic neuralgia
- D. Acute low back pain without radiculopathy

ANS: D

Q608: The side effects of IV local anaesthetics are related to CNS toxicity. Early signs are all of the following EXCEPT:

- A. Metallic taste
- B. Tinnitus
- C. Agitation
- D. Increased appetite

ANS: D

ABLATIVE TECHNIQUES

Q609: If trigeminal neuralgia fails to respond to oral medication, the most appropriate next step is to:

- A. Refer to patient for psychologic counseling and biofeedback
- B. Inject the trigger zone with local anaesthetic
- C. Prescribe a combination of tricyclic mood elevators and phenothiazines
- D. Refer the patient for rhizolysis of the nerve root or ganglion

ANS: D

Q610: Cordotomy is a surgical procedure that:

- A. Severs the spinal cord
- B. Selectively severs the spinothalamic tract
- C. Selectively severs the corticospinal tract
- D. Severs the spinal terminate cord

ANS: B

Q611: Cordotomy is best suited to treat:

- A. Cancerous, unilateral pain in the lower extremity
- B. Benign, unilateral pain in the lower extremity
- C. Cancerous, bilateral pain in the upper extremities
- D. Benign, bilateral pain in the upper extremities

ANS: A

Q612: Mesencephalotomy is a:

- A. Procedure done in the midmenstrual cycle
- B. Lesion in the middle of the cerebral hemispheres
- C. Stereotactic lesion not often used today
- D. Special procedure with limited pain treatment

ANS: C

Q613: Cingulotomy affects which part of the brain?

- A. Primary sensory cortex
- B. Thalamic projection for disagreeable sense
- C. Secondary sensory cortex
- D. Thalamic projection for primary sensation

ANS: B

NEURAL STIMULATION: SPINAL CORD AND PERIPHERAL NERVE STIMULATION

Q614: Inconsidering spinal cord stimulation, which of the following types of stimulation silences most dorsal horn cells?

- A. Low-frequency, low-amplitude stimulation
- B. High-frequency, low-amplitude stimulation
- C. High-frequency, high-amplitude stimulation
- D. Mid-frequency, mid-amplitude stimulation

ANS: B

Q615: Spinal cord stimulation has been demonstrated to produce the following neurohumoral changes:

- A. An increase in CSF endorphine and serotonin
- B. An increase in CSF endorphin and a decrease in serotonin
- C. A decrease in CSF endorphin and a decrease in CSF endorphin
- D. An increase in serotonin and a decrease in CSF endorphin

ANS: A

Q616: When referring to electrical stimulation, which of the following terms properly describes the electrode polarity used in spinal cord stimulation?

- A. The anode is a negative lead
- B. The cathode is a positive lead
- C. The anode is a neutral lead
- D. The anode is a positive lead

ANS: D

Q617: The major factor in successful spinal cord stimulation is:

- A. Electrode positioning
- B. Electrode combination
- C. Size of electrode
- D. Amount of current passed between electrodes

ANS: A

Q618: Spinal cord stimulation has been demonstrated to be somewhat effective in which of the following disease states?

- A. Spasmodic torticollis
- B. Mixed migraine headaches
- C. Temporal arteritis
- D. Cluster headaches

ANS: A

PHYSICAL THERAPY

Q619: The principles of physical therapy and rehabilitation of pain patients include all of the following EXCEPT:

- A. Development of pain relieving behaviors
- B. Work ergonomics
- C. Education of body mechanics
- D. Limit the previous life style and work

ANS: D

Q620: The contraindication for heat therapy is:

- A. Pain
- B. Muscle spasm
- C. Edema
- D. Bursitis

ANS: C

Q621: Ultrasound machines use ceramic and quartz piezoelectric crystals to produce ultrasonic energy. The sound produced by these machines is above the frequencies of human hearing. Their frequencies ranges more than:

- A. 1000 Hz
- B. 5000 Hz
- C. 13,000 Hz
- D. 17,000 Hz

ANS: D

Q622: A process in which electrically charged molecules (ions) are driven into the tissue with an electrical field is known as:

- A. Vibration
- B. Compression
- C. Biofeedback
- D. Iontophoresis

ANS: D

Q623: In functional restoration programs, the aim is to provide all of the following EXCEPT:

- A. Aerobic conditioning
- B. Group therapy
- C. Dependency on the physical therapist
- D. Cost effective approach

ANS: C

TRAUMA

Direction: For questions 624 to 628, choose from the following

A: 1, 2 and 3

B: 1 and 3

C: 2 and 4

D: 4

E: All of the above

Q624: A 7-year-old involved in a multitrauma is evaluated by the pain management team. Appropriate options to be considered, dependent on the injuries sustained, might include:

1. Epidural analgesia
2. PCA
3. Brachial plexus catheter
4. Interpleural catheter

ANS: E

Q625: A patient involved in an automobile accident is treated in the emergency department. More extensive injuries are ruled out, and the patient is diagnosed with a whiplash injury. Appropriate management considerations include:

1. Immobilization in a soft collar for 4 weeks, which will rest the strained cervical muscles, allowing them to heal
2. Performance of early cervical manipulations, Grade 2, to prevent microadhesions from developing after the trauma
3. Alternate ice and heat for 4 weeks and avoidance of other physical therapy modalities while the neck muscles heal
4. Administration of nonsteroidal anti-inflammatory drugs, ice, and physical therapy early to prevent long term sequela from developing

ANS: D

Q626: Injury of the long thoracic nerve will result in a deficit of the ipsilateral:

1. Scapula
2. Chest wall sensation between T₄-T₆
3. Sensation of the underneath side of the upper arm
4. Decreased respiratory effect secondary to block of the intercostalis muscles

ANS: A

Q627: One advantage of interpleural analgesia over epidural analgesia in the trauma patient is:

1. Improved respiratory parameters with interpleural analgesia
2. Decreased risk of infection with interpleural catheters
3. Lower plasma local anaesthetic concentrations after a bolus injection through an interpleural catheter
4. The ability to concomitantly administer systemic opiates with an interpleural technique

ANS: D

Q628: A patient with a flail chest and lower extremity fractures is consulted by the trauma team to provide pain management. The most appropriate plan would be:

1. Small intravenous doses of opiates
2. Lumbar epidural with a hydrophilic opiate to promote cephalad distribution to thoracic dermatomes
3. Thoracic epidural with opiate and local anaesthetic
4. Thoracic epidural with local anaesthetic alone and systemic PCA

ANS: D

POSTSURGICAL PAIN

Q629: Respiratory depression from epidural opioids is characterized by:

- A. A respiratory rate that is an adequate indicator of ventilatory status
- B. A pattern of respiratory depression that is slow and progressive rather than sudden apnea
- C. Sedation is not a significant indicator in its development
- D. Increased incidence unrelated to the vertebral level of opioid injection

ANS: B

Q630: A 52-year-old man who just had a gastrectomy complained of severe pain in the recovery room. His vital signs include a blood pressure of 90/50, heart rate of 110, and respiratory rate of 26/minute. What is the most appropriate next step?

- A. Patient controlled analgesia should be started with morphine 2 mg as a bolus dose, and a lockout interval of 10 minutes.
- B. Fentanyl 100 µg in 5 ml saline should be injected through the epidural catheter and the epidural infusion started.
- C. Intravenous morphine should be given in 2 mg increments until there is pain relief.
- D. Bupivacaine 0.1% should be added to the epidural infusion.

ANS: C

Direction: For questions 631 to 633, choose from the following

A: 1, 2 and 3

B: 1 and 3

C: 2 and 4

D: 4

E: All of the above

Q631: Rational use of opioids in postoperative pain includes the following:

- 1. They should be used in the treatment of moderately severe to severe postoperative pain.
- 2. Meperidine should never be used because of accumulation of nomeperidine.
- 3. The oral route should be used as soon as the patient tolerates oral intake.
- 4. They should not be withheld even with respiratory rates of less than 8/min.

ANS: B

Q632: Preemptive analgesia refers to:

- 1. Prevention of neuroplasticity changes in the peripheral or CNS after injury
- 2. Prevention of pain that can be accomplished by regional nerve blockade or analgesic agents before surgical trauma
- 3. The effectiveness of preincisional lidocaine in decreasing the pain after herniorrhaphy
- 4. Equal doses of morphine prescribed before or after the injury

ANS: A

Q633: Intermittent epidural morphine injections for hospitalized wards are acceptable because:

- 1. Respiratory depression is extremely rare, predictable, and easily treated
- 2. The incidence of urinary retention is not higher than intermittent IM injections
- 3. Nurses do not mind giving epidural injections
- 4. There is low incidence of respiratory depression, and catheter related problems are minimal

ANS: D

OBSTETRIC PAIN

Q634: During early labor, pain is felt over the following dermatomes:

- A. T₅-T₉
- B. T₁₁-T₁₂
- C. L₂-L₃
- D. S₁-S₃

ANS: B

Q635: Afferent fibers supplying the uterus and cervix travel with sympathetic nerves. Before entering the spinal cord, these fibers pass sequentially through uterine and cervical plexus to all of the following regions EXCEPT:

- A. Inferior hypogastric plexus
- B. Superior hypogastric plexus
- C. Lumbar and lower thoracic sympathetic chain
- D. Anterior L₁ to L₅ spinal roots

ANS: D

Q636: The standard practice of providing analgesia during labor is:

- A. Paracervical block
- B. Continuous lumbar epidural analgesia
- C. Patient controlled analgesia
- D. Spinal block

ANS: B

Q637: Caudal anaesthesia is not commonly used for labor analgesia today because:

- A. It is easy to provide analgesia from this site for the first stage of labor
- B. The first stage of labor requires blocking of lower thoracic dermatomes
- C. Small doses of local anaesthetic are sufficient to provide adequate anaesthesia for caesarean section
- D. It is technically easy to place a continuous caudal catheter in a laboring parturient

ANS: B

Q638: The most appropriate method of providing analgesia for labor by PCA technique is the following EXCEPT:

- A. Drugs 0.125% bupivacaine + 1 µ/ml fentanyl
- B. Lockout dose of 4 ml at 10 min
- C. Basal infusion at 6 ml/hr
- D. Hourly limit of 4 ml

ANS: D

ACUTE MEDICAL DISEASES

Q639: A sudden circulatory insufficiency in the limb caused by trauma or embolism can initiate:

- A. Reflex dilatation of the collateral vessels
- B. Reflex spasm of the collateral vessels
- C. Decreased afferent fiber nociceptive activity to the CNS
- D. Decreased efferent fiber activity to the periphery

ANS: B

Q640: Acute venous thrombosis (thrombophlebitis) encompasses a spectrum of signs or symptoms that include severe pain, marked edema, and excessive perspiration. If anticoagulants are being used for the treatment of this condition, the option available for increasing vascularity and pain relief to the effected limb is:

- A. Lumbar sympathetic block (lower extremity)
- B. Epidural local anaesthetic infusion
- C. Oral narcotics
- D. Intravenous regional guanethidine injection

ANS: D

Q641: A specific nonarteriosclerotic lesion involving arteries, veins, and nerves that frequently leads to gangrene and confines itself to medium sized arteries of the distal leg or the arm is due to:

- A. Thromboangitis obliterans
- B. Thrombophlebitis
- C. Diabetic gangrene
- D. Frostbite

ANS: A

Q642: Patients with sickle cell disease can experience episodic painful crises, which are characterized by:

- A. Hypothermia
- B. Normoxemia
- C. Acidosis
- D. Dehydration

ANS: B

Q643: A congenital bleeding disorder that is X linked and occurs almost exclusively in men and is due to deficiency of Factor IX is known as

- A. Sickle cell disease
- B. Hemophilia B
- C. Hemophilia A
- D. Von Recklinghausen's disease

ANS: B

HEADACHE AND FACIAL PAIN

Q644: The most important assessment procedure to include in a headache evaluation is:

- A. An MRI
- B. A CT scan
- C. An erythrocyte sedimentation rate
- D. A targeted history

ANS: D

Direction: For questions 645 to 647, choose from the following

A: 1, 2 and 3

B: 1 and 3

C: 2 and 4

D: 4

E: All of the above

Q645: Which of the following types of headaches is (are) characterized by a rapid onset-to-speak?

- 1. Cluster
- 2. Tension type
- 3. Increased intracranial pressure
- 4. Migraine with aura

ANS: B

Q646: Which of the following premonitory symptoms and/or auras is (are) associated with migraine headache?

- 1. Visual disturbances
- 2. Photophobia
- 3. Sonophobia
- 4. Nausea and vomiting

ANS: E

Q647: Which of the following statement(s) regarding tension type headaches is (are) true?

- 1. It was previously referred to as muscle contraction headache
- 2. It is characterized as bandlike pressure or pain
- 3. It may be associated with cervical spine symptoms
- 4. It has a rapid onset to peak

ANS: A

Q648: Side effects of methysergide include which of the following?

- A. Anemia
- B. Hyperglycemia
- C. Retroperitoneal fibrosis
- D. Photosensitivity

ANS: C

NECK AND SHOULDER PAIN

Q649: Acute disk herniation is NOT managed by:

- A. Muscle relaxation by cyclobenzaprine
- B. Nonsteroidal anti-inflammatory agents
- C. Gentle limbering exercises
- D. Cervical laminectomy and fusion

ANS: D

Q650: If symptoms persist after conservative management of acute cervical disk herniation, the next step is to perform:

- A. Cervical laminectomy and fusion
- B. Cervical epidural injection
- C. Chemonucleolysis
- D. Cervical facet injection

ANS: B

Q651: Neurogenic pain originating from the neck and shoulder region can be due to:

- A. Degenerative disk disease
- B. Myofascial pain
- C. Fibromyalgia
- D. Herpetic neuralgia

ANS: D

Q652: A diminished triceps jerk indicates lesion of the:

- A. C₄ nerve root
- B. C₅ nerve root
- C. C₆ nerve root
- D. C₇ nerve root

ANS: D

Q653: In a patient complaining of pain in the neck and right arm, laminectomy is indicated if the patient was:

- A. Facet arthropathy
- B. Arachnoiditis
- C. Spinal cord compression
- D. Brachial plexus entrapment

ANS: C

LOW BACK PAIN

Q654: Waddell's signs of a nonorganic basis of low back pain are all of the following EXCEPT:

- A. Positive simulation as with skin rolling
- B. Pain increase with light axial loading
- C. Nonanatomic regional hypesthesia
- D. Positive straight leg raising (SLR) at 30°

ANS: D

Q655: The posterior elements of the vertebral column include all of the following EXCEPT:

- A. Lamina
- B. Pedicles
- C. Facet joints
- D. Vertebral discs

ANS: D

Q656: A 37-year-old man complains of low back pain radiating to the hips, buttocks, and upper posterior thighs. Pain gets worse at the end of the day, and the back gets stiff with poor range of spinal motion. The patient further gives a history of having had laminectomy for similar complaints 2 years previously. The most likely diagnosis of the low back pain is:

- A. Facet syndrome
- B. Post-laminectomy (failed back) syndrome
- C. Myofascial lumbosacral strain
- D. Arachnoiditis

ANS: B

Q657: Muscle relaxants (cyclobenzaprine, methocarbamol) are indicated for low back pain patients when the pain is due to acute myofascial pain because they:

- A. Relieve reflex muscle spasm
- B. Provide sedation
- C. Decrease range of motion
- D. Break the pain cycle

ANS: A

Q658: In appropriately selected patients, epidural steroid injection is effective in:

- A. 15% of patients
- B. 33% of patients
- C. 66% of patients
- D. 99% of patients

ANS: C

MUSCULOSKELETAL PAIN

Q659: Trigger points:

- A. Are exquisitely tender points within muscle only
- B. Feel like firm nodules or bands within muscle
- C. Have direct cortical projections and pain is well localized
- D. Show distinct laboratory findings

ANS: B

Direction: For questions 660 to 668, choose from the following

A: 1, 2 and 3

B: 1 and 3

C: 2 and 4

D: 4

E: All of the above

Q660: Which of the following statements is (are) true concerning thermography?

- 1. It is useful in localizing trigger points in myofascial pain syndrome
- 2. It uses infrared radiation from the body for diagnostic purposes
- 3. It is useful for revealing dysfunction in microcirculation
- 4. It is usually associated with abnormal laboratory studies

ANS: C

Q661: Cryotherapy is useful in myofascial pain syndromes because it can:

- 1. Act by direct and indirect mechanism to relieve pain
- 2. Stimulate A-delta fibers and reduce C-fiber activity
- 3. Directly reduce pain to the affected area
- 4. Increase blood flow to the muscle

ANS: B

Q662: Which of the following statements regarding pyogenic joints is (are) true?

- 1. They occur when uric acid precipitates into the joint space
- 2. They are associated with systemic signs
- 3. They should be treated empirically
- 4. They constitute a medical emergency

ANS: C

Q663: Which of the following statements concerning osteoarthritis is (are) true?

- 1. A history of episodic locking, giving way, and associated effusion is common
- 2. It usually develops in joints injured by inflammatory or intraarticular derangement
- 3. Non-weight bearing radiographs should be taken to confirm the diagnosis
- 4. Pain is relieved by unloading of the joint

ANS: C

VISCERAL PAIN

Q664: Neurotransmission of nociception from lamina of the dorsal root ganglia to the second order neurons is affected by which of the following substances?

1. Vasoactive
2. Calcitonin gene-related peptide
3. Substance P
4. 5-hydroxytryptamine

ANS: A

Q665: Visceral afferents reach the spinal cord through which of the following nerve pathways?

1. Sympathetic
2. Parasympathetic
3. Splanchnic
4. Ventral roots

ANS: E

Q666: Which of the following medications is (are) generally effective in treating esophageal pain?

1. Nitroglycerine
2. Calcium channel blockers
3. Antidepressants
4. Interleukins

ANS: B

Q667: Which of the following medications should not be used in Crohn's disease?

1. Systemic corticosteroids
2. Azathioprine
3. Sulfasalazine
4. Meperidine

ANS: D

Q668: Which of the following pain management techniques is (are) most appropriate for patients with hepatic carcinoma?

1. Chemotherapy
2. Celiac plexus block
3. Abdominal surgery
4. Segmental analgesia

ANS: C

PELVIC PAIN

Q669: Chronic pelvic pain without obvious pathology is found in what percentage of patients with a history of physical or sexual abuse?

- A. 10%
- B. 25%
- C. 50%
- D. 80%

ANS: C

Q670: Laparoscopy detects the presence of all of the following conditions EXCEPT:

- A. Endometriosis
- B. Ovarian cyst
- C. Uterine malformations
- D. Pelvic venous congestion

ANS D

Direction: For question 671 to 673 Choose from the following

- A: 1, 2 and 3
- B: 1 and 3
- C: 2 and 4
- D: 4
- E: All of the above

Q671: Which of the following is (are) the most common causative organism(s) implicated in the genesis of pelvic inflammatory disease?

- 1. Neisseria gonorrhoea
- 2. Staphylococcus epidermitis
- 3. Chlamydia trachomatis
- 4. Herpes simplex

ANS: B

Q672: Sudden, sharp abdominal pain in a 44-year-old patient with a history of abnormal bleeding is most likely to be due to:

- 1. Uterine prolapse
- 2. Ovarian remnant syndrome
- 3. Degeneration of a fibroid tumor
- 4. Ovarian cancer

ANS: C

Q673: A terminal patient is experiencing intractable cancer pain that is well localized to one side of the pelvis. Which of the following invasive procedures would be most appropriate for treating the pain?

- 1. Percutaneous cordotomy
- 2. Midline myelotomy
- 3. Epidural block
- 4. Subarachnoid phenol saddle block

ANS: A

CENTRAL NERVOUS SYSTEM PAIN

Q674: Central pain states are often associated with lesions of which central nervous system pathways?

- A. Corticospinal tracts
- B. Dorsal columns – medial lemniscal pathways
- C. Reticulospinal tracts
- D. Spinothalamic tracts

ANS: D

Q675: Brain and brain stem lesions that produce central pain are most commonly the result of:

- A. Vascular incidents
- B. Trauma
- C. Multiple sclerosis
- D. Neoplasm

ANS: D

Q676: Anatomical structures believed to be involved in thalamic pain syndrome include:

- A. VL and VA
- B. VPL and VPM
- C. VNA and VP
- D. Dorsomedial and pulvinar

ANS: B

Q677: The most frequent affective problem seen with acute pain is

- A. Depression
- B. Anger
- C. Anxiety
- D. Panic

ANS: C

Q678: Which of the following surgical techniques is most appropriate for treatment of central pain?

- E. Pain pathway destruction and neuromodulation
- F. Pain pathway destruction, neuromodulation, and neuroattenuation
- G. Neuromodulation and neuroattenuation
- H. Cryotherapy

ANS: A

Direction: For questions 679-680 Choose from the following

A: 1, 2 and 3

B: 1 and 3

C: 2 and 4

D: 4

E: All of the above

Q679: Which of the following statement(s) is (are) true of symptoms of allodynia present in central pain?

1. The appearance of symptoms may be delayed after the introduction of the eliciting stimulus
2. The symptoms may be produced by nonpainful stimuli
3. The symptoms may be excruciating
4. The symptoms can be produced by mild stimuli

ANS: E

PRIPHERAL NERVOUS SYSTEM PAIN

Q680: Which of the following medications is (are) appropriate for treatment of diabetic peripheral neuropathy?

1. Carbamazepine
2. Amitriptyline
3. Desipramine
4. Phenytoin

ANS: E

Q681: The healing of acute herpes zoster lesions is promoted by which of the following medications?

- A. Acyclovir
- B. Augmentin
- C. Ascriptin
- D. Amitriptyline

ANS: A

Q682: Which of the following statements about posterior microvascular decompression of the trigeminal nerve is true?

- A. It has a significant incidence of “anaesthesia dolorosa”
- B. It may produce good results 50% of the time
- C. It is not indicated in multiple sclerosis with trigeminal neuralgia
- D. It is indicated for tumor in the anterior cranial fossa

ANS: C

Q683: Glossopharyngeal neuralgia:

- A. Can be diagnosed by finding trigger points
- B. Affects the abdominal viscera
- C. Is rarely seen in multiple sclerosis
- D. Occurs about as often as trigeminal neuralgia

ANS: C

Q684: Atypical facial pain may present with:

- A. Symptoms similar to nasopharyngeal carcinoma
- B. Lancinating pains or paroxysms
- C. Symptoms confined to the trigeminal neuralgia distribution
- D. Muscle spasms in the neck

ANS: A

THE AUTONOMIC NERVOUS SYSTEM

Q685: Autonomic reflexes enable physiologic regulation by the ANS to be used in hemostatic control of involuntary functions via all the following EXCEPT:

- A. Central integration
- B. Peripheral monitoring
- C. Increased venous pressure
- D. Altered autonomic regulation

ANS: C

Q686: The primary neurotransmitter at the preganglionic postganglionic synapses in both divisions of the ANS is :

- A. Serotonin
- B. Acetylcholine
- C. Vasoactive intestinal peptide
- D. Norepinephrine

ANS: B

Q687: Cholinergic receptors are divided into the following two categories:

- A. Nicotinic and adrenergic
- B. Adrenergic and muscarinic
- C. Cholinergic and adrenergic
- D. Nicotinic and muscarinic

ANS: D

Q688: The most common side effects of antimuscarinic anticholinergic medications include all the following EXCEPT:

- A. Bradycardia
- B. Sedation
- C. Confusion
- D. Urinary retention

ANS: A

Q689: Sympathomimetics, or adrenergic agonists, include all the following EXCEPT:

- A. Phenylephrine
- B. Ritalin
- C. Methamphetamine
- D. Phentolamine

ANS: D

REFLEX SYMPATHETIC DYSTROPHY

Q690: In reflex sympathetic dystrophy there is:

- A. Correlation between pain and known dermatomal distribution
- B. Abnormality in EMG studies
- C. Abnormality in peripheral angiograms
- D. Abnormality in triple phase bone scan

ANS: D

Q691: When considering psychotherapy for longstanding reflex sympathetic dystrophy patients, one should not plan for:

- A. Management of depression
- B. Psychologic factors that affect compliance with treatment
- C. Teaching of effective coping strategies
- D. Learning new skills at work

ANS: D

Q692: One of the reasons for failure of surgical sympathectomy has been:

- A. Reinnervation of contralateral sympathetic chain
- B. Permanent destruction of the cut sympathetic chain
- C. Inability of myelinated A fibers to take over the function of sympathetic fibers
- D. Increased vascularity of the region effected by sympathectomy

ANS: A

Q693: Appropriate medications for chronic reflex sympathetic dystrophy are all of the following EXCEPT:

- A. Tricyclic antidepressants
- B. Anticonvulsants
- C. Narcotics
- D. Calcium channel blockers

ANS: C

Q694: Several clinical measurements and investigations are available for the diagnosis of reflex sympathetic dystrophy. These tests include the following EXCEPT:

- A. Temperature measurements
- B. Triple phase bone scan
- C. Q-QART test
- D. MRI

ANS: D

PHANTOM PAIN

Q695: The most commonly presented medications for phantom limb pain are all of the following EXCEPT:

- A. Antidepressants
- B. Anticonvulsants
- C. Narcotics
- D. Benzodiazepines

ANS: D

Q696: Nerve blocks commonly used in the treatment of phantom limb pain are all of the following EXCEPT:

- A. Sympathetic blocks
- B. Direct stump injections
- C. Epidural block
- D. Subarachnoid block

ANS: D

Q697: Phantom limb sensation was first described in 1551 by:

- A. Weir Mitchell
- B. Ambroise Pare
- C. Hippocrates
- D. Damas

ANS: B

Q698: Phantom limb pain is usually described as all of the following EXCEPT:

- A. Burning, aching, shooting
- B. Cold and dull
- C. Sharp, shocklike
- D. Knifelike

ANS: B

Q699: Early treatment modalities for phantom limb pain are all of the following EXCEPT:

- A. Physical therapy
- B. Transcutaneous electrical nerve stimulation
- C. Acupuncture
- D. Dorsal column stimulation

ANS: D

CANCER PAIN SYNDROMES

Direction: For questions 700-704 Choose from the following

A: 1, 2 and 3

B: 1 and 3

C: 2 and 4

D: 4

E: All of the above

Q700: Which of the following statements is (are) true regarding Neuropathic cancer pain syndromes?

1. They are often due to antitumor treatment directed at the cancer.
2. They may need to be treated with adjuvant analgesics.
3. They are characteristically less opioids responsive than is nociceptive pain.
4. They are characteristically unresponsive to treatment with the opioids.

ANS: A

Q701: Which of the following statement(s) regarding opioids mediated side effects is (are) true?

1. They can be managed symptomatically (e.g., laxatives, antiemetics, amphetamines).
2. They can be managed with a trial of a nonopioid adjuvant drug.
3. They occur frequently, but with the exception of constipation most usually recede after a short period.
4. They may serve as a rationale to institute treatment with a different opioids or a more invasive approach.

ANS: E

Q702: Which of the following statement(s) regarding the use of parenteral opioids for treating cancer pain is (are) true?

1. They are usually more effective than treatment with oral anaesthetics.
2. They are usually administered by the intravenous rather than subcutaneous route.
3. They are indicated based on the presence of severe pain.
4. They are most commonly instituted because of gastrointestinal disturbances.

ANS: D

Q703: Which of the following statement(s) is (are) true regarding treatment of cancer pain with intraspinal opioids therapy?

1. It is efficacious for pain that is present in multiple regions.
2. The incidence of side effects is similar to that for treatment of perioperative pain.
3. It usually is used when treatment with systemic opioids has resulted in intractable side effects.
4. It must be administered by an expensive fully implantable infusion pump.

ANS: B

Q704: Which of the following statements is (are) true regarding subarachnoid neurolysis?

1. The patient should be tilted 45° posteriorly when it is performed with alcohol.
2. It usually requires radiologic guidance.
3. The patient does not need to lie on the painful side when it is performed with phenol.
4. It is safest when performed in the thoracic region.

ANS: D

ACUTE PAIN SYNDROMES IN CHILDREN

Q705: Newborns respond to pain by demonstrating changes in the following EXCEPT:

- A. Blood pressure and heart rate
- B. Transcutaneous PO₂
- C. Stress hormones
- D. Urine output

ANS: D

Q706: Postoperative pain scoring system comprising of quality of sleep, facial expression, cry, motor activity, and sociability is used in the age group of children from age:

- A. 1 to 8 months
- B. 1 to 5 years
- C. 5 to 12 years
- D. 12 to 18 years

ANS: A

Q707: The dose of ketorolac which is comparable to 0.1mg/kg of morphine in children is:

- A. 0.3 mg/kg
- B. 0.6 mg/kg
- C. 0.9 mg/kg
- D. 1.2 mg/kg

ANS: C

Q708: The percentage of school-age children who complain of nonorganic abdominal pain is:

- A. 0-5%
- B. 10-15%
- C. 15-20%
- D. 20-25%

ANS: B

Q709: There are pharmacologic differences between a child and an adult in terms of protein binding, distribution, and elimination of drugs. When compared to adults, the volume of distribution of local anaesthetics in a child is:

- A. Twice
- B. Three times
- C. Four times
- D. Five times

ANS: B

TEST BANK – I

For the following questions, choose one correct answer.

Q710: Dorsal root entry zone lesions are indicated for patients with:

- A. Deafferentation pain syndrome
- B. Cancer pain
- C. Benign chronic pain
- D. Reflex sympathetic dystrophy syndrome

ANS: A

Q711. In the first month after amputation, the percentage of patients who experience phantom limb pain is:

- A. 9 to 23
- B. 40 to 63
- C. 70 to 75
- D. 85 to 97

ANS: B

Q712. A terminal patient is experiencing intractable cancer pain that is well localized to one side of the pelvis. Which of the following invasive procedures would be most appropriate for treating the pain?

- A. Percutaneous cordotomy
- B. Midline myelotomy
- C. Epidural block
- D. Subarachnoid phenol saddle block

ANS: A

Q713. The mechanism of action of intravenous regional bretylium is:

- a. Accumulation and blockade of norepinephrine release from adrenergic nerves
- b. Depletion and release of norepinephrine from adrenergic nerves
- c. Blockade of the action of prostaglandins
- d. Reduction in the accumulation of substance P

ANS: A

Q714. The femoral nerve originates from which of the following roots?

- a. T₁₂, L₁, L₂
- b. L₁, L₂, L₃
- c. L₂, L₃, L₄
- d. L₃, L₄, L₅

ANS: B

Q715. If symptoms persist after appropriate management of acute cervical disk herniation, the next step is to perform:

- a. Cervical laminectomy and fusion
- b. Cervical epidural injection
- c. Chemonucleolysis
- d. Cervical facet injection

ANS: B

Q716. A 45-year-old patient with a history of chronic low back, left hip, and left thigh pain who is status post multiple lumbar laminectomy received a differential epidural block of 3% 2-chloroprocaine. Some pain resumed with return of full sensation and motor

**function in the lower extremities; all pain returned with return of sympathetic function.
The pain was transmitted via which fibers?**

- a. A alpha
- b. A delta
- c. C
- d. A delta and C

ANS: D

Q717. The cell body of the neospinothalamic tract is located in which lamina?

- a. II
- b. III
- c. IV
- d. V

ANS: D

Q718. Which of the following statements is true regarding acute systemic toxic reactions to neurolytic agents?

- a. They may involve both the central nervous system (CNS) and cardiovascular system
- b. They are benign
- c. They primarily involve the liver and kidneys
- d. They are usually avoided by adding epinephrine 2.5 µg/ml to the solution

ANS: A

Q719. The best candidates for peripheral nerve stimulation are patients with:

- a. Multiple nerve pathology
- b. Single nerve pathology
- c. Nonspecific pathology
- d. Central pain

ANS: B

Q720. The changes seen in thermographic evaluation of Postherpetic neuralgia may be due to increase in the activity of what type of fiber:

- a. A alpha
- b. A delta
- c. B
- d. C

ANS: A

Q721. Second-order neurons of the nociceptive afferents are located in the:

- a. Afferent axons
- b. Dorsal root ganglion
- c. Dorsal horn of the spinal cord
- d. Sympathetic ganglion

ANS: C

Q722. Primary myofascial pain is defined as:

- a. Pain with distinct histologic evidence of hyaline formation in the muscle
- b. Deposition of nonspecific inflammatory residue in skeletal muscle
- c. Pain caused by traumatic disease of the muscle
- d. Any disorder arising outside of the muscle tissue

ANS: C

Q723. A commonly used drug for epidural steroid injection has the following ingredients EXCEPT:

- a. Methylprednisolone acetate
- b. PEG 3350
- c. Myristyl-gamma picolinium chloride
- d. Benzyl alcohol

ANS: D

Q724. The drug in question above is known commercially as:

- a. Depo-Medrol (methylprednisolone acetate suspension)
- b. Aristocort (triamcinolone diacetate suspension)
- c. Prednisone
- d. Solu-Medrol

ANS: A

Q725. In peripheral vascular disease, spinal cord stimulation has demonstrated which of the following physiologic responses?

- a. Unchanged tissue-oxygen pressure while tissue carbon dioxide rises
- b. Unchanges tissue carbon dioxide while tissue oxygen declines
- c. Increase in tissue oxygen pressures and decrease in tissue carbon dioxide
- d. Decrease in tissue oxygen and decrease in tissue oxygen and decrease in tissue carbon dioxide

ANS: C

Q726. The α_1 acid glycoprotein is different from albumin in drug binding in that it:

- a. Has low affinity for basic drugs
- b. Has high capacity
- c. Is an acute phase reactant protein
- d. Is not present during trauma

ANS: C

Q727. Which of the following symptoms is associated with pain and should be documented in the medical history?

- a. Paresthesias
- b. Hypesthesia
- c. Weakness
- d. Loss of vibration sense

ANS: A

Q728. At what age do the spinal cord and dorsal sac rise from the newborn level to the adult level?

- a. 1 month
- b. 3 months
- c. 6 months
- d. 12 months

ANS: D

Q729. Nociceptive impulse from the periphery can be inhibited by:

- a. Increased sensitization of nociceptors
- b. Decreased threshold of nociceptors
- c. Increased segmental spinal reflex
- d. Increased counterirritation (e.g., rubbing, vibration)

ANS: D

Q730. Spinal cord lesions that produce central pain are most commonly caused by:

- a. Vascular incidents
- b. Trauma
- c. Multiple sclerosis
- d. Neoplasm

ANS: B

Q731. Baclofen acts on what type of receptor?

- a. Opiate
- b. GABA-B
- c. A-Adrenergic
- d. Benzodiazepine

ANS: B

Q732. Once a cryoprobe has frozen to equilibrium, which of the following procedures can be used to increase the size of the “freeze zone”?

- a. Increase duration of freezing
- b. Increase nitrous oxide pressure in the cryoprobe
- c. Repeat freeze / thaw cycles of the tissue.
- d. Rapidly cool the tissue.

ANS: C

Q733. Classic hemophilia A is associated with a deficiency of which factor?

- a. V
- b. VIII
- c. IX
- d. X

ANS: A

Q734. The mechanism of antipsychotic action of neuroleptics is due to the blockade of which type of receptor?

- a. Adrenergic
- b. Dopamine
- c. Opiate
- d. Serotonin

ANS: B

Q735. An epidural opioid infusion is preferred over patient controlled analgesia (PCA) after major surgical procedures because:

- a. The incidence of gastrointestinal ileus is less with an infusion
- b. It provides superior analgesia with less sedation than PCA
- c. The patient cannot tamper with the infusion device
- d. Respiratory depression problems are eliminated after titration

ANS: B

Q736. Examination of a patient with neck and shoulder pain reveals referred pain in the lateral aspect of the fore-arm, with weakness and dysfunction of the biceps and brachioradialis, and hypoesthesia in the lateral aspect of the forearm and thumb. The patient most likely has a lesion of which nerve root?

- a. C₄
- b. C₅
- c. C₆
- d. C₇

ANS: C

Q737. The most appropriate diagnostic nerve block for pain in the upper abdominal viscera is:

- a. Intercostals block
- b. Lumbar sympathetic block
- c. Celiac plexus block
- d. Hypogastric plexus block

ANS: A

Q738. Sympathetic innervation to the upper extremity is carried by which fibers of the brachial plexus?

- a. T₁-T₂ preganglionic fibers
- b. T₃-T₅ preganglionic fibers
- c. T₁-T₂ postganglionic fibers
- d. T₃-T₅ postganglionic fibers

ANS: A

Q739. When using bupivacaine for a lumbar epidural block, what concentration is most effective for production a sympathetic block?

- a. 0.25%
- b. 0.50%
- c. 0.75%
- d. 0.125%

ANS: B

Q740. A facet joint injection of local anesthetic and steroids results in prolonged pain relief of 6 months or more in what percentage of patients?

- a. 30
- b. 50
- c. 70
- d. 90

ANS: A

Q741. Seizures produced by local anesthetics appear to arise from what area of the brain?

- a. Thalamus
- b. Geniculate bodies
- c. Reticular activating system
- d. Amygdale

ANS: D

Q742. When cervical spinal cord compression is suspected and physical examination shows radicular signs in the upper limb, the most appropriate next step in the investigation is:

- a. Surgical exploration
- b. Myelography
- c. Electromyography
- d. Magnetic resonance imaging (MRI)

ANS: A

Q743. Attempts by patients to influence the evaluation of physical abnormalities during the examination may be indicated by which of the following?

- a. Hyperactivity of patellar reflexes
- b. Increased blood pressure and heart rate
- c. Symmetric by broad-based, ataxic gait
- d. Fluctuations in eye-blink rate

ANS: B

Q744. Intense whiteness of fingers with subsequent blue coloration when cold and red coloration on rewarming is most likely due to:

- a. Frostbite
- b. Raynaud's disease
- c. Reflex sympathetic dystrophy
- d. Cranial nerves V and IX section

ANS: A

Q745. Appropriate treatment of atypical facial pain includes which of the following?

- a. Antidepressants
- b. Anticonvulsants
- c. Antiemetics
- d. Cranial nerves V And IX section

ANS: A

Q746. The hypogastric plexus is composed of what type of fibers?

- a. Postganglionic sympathetic
- b. Postganglionic parasympathetic
- c. Visceral efferent
- d. A delta

ANS: A

Q747. A poorly localized, steady, dull, or boring epigastric or left upper quadrant pain that radiates to the back is most likely due to:

- A. Cholecystitis
- B. Pancreatitis
- C. Renal colic
- D. Subphrenic abscess

ANS: B

Q748. Laminectomy is indicated for a patient who complains of pain in the neck and right arm and has which of the following conditions?

- a. Facet arthropathy
- b. Arachnoiditis
- c. Spinal cord compression
- d. Brachial plexus entrapment

ANS: C

Q749. Prohormone dynorphin (Pro enk B) is a natural ligand of which receptor type?

- a. μ
- b. κ
- c. δ
- d. ϵ

ANS: B

Q750. Indications for lumbar epidural steroid injections include all of the following EXCEPT:

- A. Radicular pain with corresponding sensory change
- B. Radiculopathy due to herniated disk with failed conservative treatment
- C. Acute herpes zoster in the lumbar dermatomes
- D. Postlaminectomy (failed back) syndrome without radiculopathy

ANS: D

Q751. Which of the following is NOT a guiding principle of physical medicine and rehabilitation?

- a. Pain control
- b. Functional restoration
- c. Return to work and leisure activities
- d. Patient dependence on prolonged physical therapy

ANS: D

Q752. All of the following characteristic of trigeminal neuralgia EXCEPT:

- a. Paroxysmal pains with pain-free intervals
- b. Presence of trigger zones
- c. Pain restricted to the trigeminal distribution
- d. Absence of structural or pathologic findings

ANS: D

Q753. Areas innervated by the maxillary nerve include all of the following EXCEPT the:

- a. Maxilla
- b. Skin over the middle third of the face
- c. Teeth of the upper jaw
- d. Tongue

ANS: D

Q754. Which of the following nerve blocks is LEAST helpful in diagnosing sympathetically mediated pelvic pain?

- a. Differential spinal
- b. Pudendal nerve
- c. Superior hypogastric plexus
- d. Differential epidural

ANS: B

Q755. All of the following statements regarding the anatomy of the superior hypogastric plexus are true EXCEPT:

- a. It lies anterior to the L₅ vertebra
- b. It lies just inferior to the aortic bifurcation
- c. It lies right of the midline
- d. It branches left and right and descends to form the inferior hypogastric plexus

ANS: C

Q756. All of the following statements are true of red blood cell (RBC) indexes EXCEPT:

- a. they define the size and hemoglobin content of the RBCs
- b. They have replaced the need for examination of the peripheral blood smear in the diagnosis of anemia
- c. Microcytic indexes with anemia may result from iron deficiency
- d. Macrocytic indexes may result from folate deficiency

ANS: B

Q757. Which of the following statements concerning skeletal pain is NOT true?

- a. Neoplasms in bone are usually metastatic
- b. The pain fibers are of A delta and C fiber origin
- c. Pain fibers accompany epiphysial vessels
- d. It is accompanied by effusion if joints are involved

ANS: B

Q758. All of the following are indications for a stellate ganglion block EXCEPT:

- a. RSD
- b. Acute herpes zoster (ophthalmic division)
- c. Hyperhidrosis
- d. Pancreatitis

ANS: D

Q759. The acute phase of RSD includes all of the following characteristics EXCEPT:

- a. Burning pain
- b. Minimal functional impairment
- c. Increased blood flow
- d. Severe trophic changes

ANS: D

Q760. Which of the following regional anaesthesia techniques is NOT commonly used with children because of its side effects?

- a. Epidural block
- b. Subarachnoid block
- c. Caudal block
- d. Brachial plexus block

ANS: B

Q761. Which of the following is NOT a characteristic of central pain?

- a. Hyperesthesia
- b. Spontaneous pain
- c. Hypertrophy
- d. Hyperpathia

ANS: D

Q762. All of the following statements are true regarding serologic testing for cancer EXCEPT:

- a. CEA (carcinoembryonic antigen) is an excellent screening test for colon cancer
- b. Multiple myeloma may be diagnosed with the serum protein immunoelectrophoresis
- c. Cigarette smokers may have an elevated CEA
- d. CA 19-9 may be a useful marker for following the course of treatment in pancreatic cancer

ANS: A

Q763. Which of the following statements is NOT true of renal cell carcinoma?

- a. The etiology is unknown
- b. Metastases are widespread
- c. Erythrocythemia can provide useful diagnostic information
- d. Neuroablative procedures are rarely indicated for pain management

ANS: D

Q764. The goals of treatment for rheumatoid arthritis include all of the following EXCEPT:

- a. Relief of pain
- b. Reduction of inflammation
- c. Preservation of function
- d. Immobilization and bed rest

ANS: D

Q765. A brachial plexus block is indicated for all of the following conditions EXCEPT:

- a. Sympathetic independent pain resulting from RSD
- b. Brachial plexalgia
- c. Angina pectoris
- d. Raynaud's disease

ANS: C

Q766. Which of the following statements regarding endometriosis is NOT true?

- a. It is a common cause of pelvic pain
- b. It is hormonally maintained and hormonally responsive
- c. A diagnosis can only be made with laparoscopic histopathologic confirmation
- d. A moderate to severe condition may be associated with an absence of painful sequelae

ANS: C

Q767. A celiac plexus block is effective in reducing pain originating from all of the following organs EXCEPT:

- a. Pancreas
- b. Transverse portion of the large colon
- c. Gall bladder
- d. Descending portion of the pelvic colon

ANS: D

For questions 768-784, choose from the following:

- A. 1, 2 and 3
- B. 1 and 3
- C. 2 and 4
- D. 4
- E. All of the above

Q768: In the comparison of biofeedback with relaxation training, which of the following statements apply?

- 1. Patients usually favor the instrumentations and technology associated with biofeedback
- 2. Biofeedback and relaxation training are equally effective in the management of chronic pain
- 3. Research shows that relaxation training is more cost effective and practical than biofeedback
- 4. Biofeedback and relaxation are usually used as conjunctive treatments

ANS: C

Q769: Which of the following neurolytic processes is (are) associated with neuritis or neuroma function?

- 1. Radiofrequency thermocoagulation
- 2. Phenol neurolysis
- 3. Alcohol neurolysis
- 4. Cryoneurolysis

ANS: A

Q770: Which of the following complications is (are) associated with tunneled epidural catheters?

- 1. Infection
- 2. Dislodged catheter
- 3. Broken catheter
- 4. Low pressure headache

ANS: A

Q771: The presence of positive sharp waves during needle electromyography of a patient who describes debilitating pain and weakness of the limb while being tested is significant because:

1. This waveform is only found in patients with muscular dystrophy and never in pain syndromes
2. This type of activity is an objective sign of denervation or reinnervation
3. This pattern is an integral component of Waddell's signs of nonorganic pain behavior
4. This pattern cannot be created fictitiously, even during reduced voluntary motor effort

ANS: C

Q772: Which of the following patients would respond best to an epidural steroid injection?

1. A patient with back pain of less than three months duration
2. A patient with neurologic findings that correlate with the level of the involved nerve root
3. A patient who does not exhibit any Waddell's signs
4. A patient who exhibits discrepancy in sitting and supine straight leg raising

ANS: A

Q773: Which of the following statements regarding local anaesthetics is (are) true?

1. The neurotoxic effects of 2-chloroprocaine are related to the substitution of a hydrogen ion with a chloride ion on its ring structure
2. Warming local anaesthetics to 100° C has been shown to reduce the onset of epidural block
3. The effects of bicarbonation and carbonation of local anaesthetics on the onset of nerve block are produced by the same mechanism
4. True allergic reaction to local anaesthetics with an amino amide structure is rare and is most likely related to the preservative methylparaben

ANS: C

Q774: When implanting a drug delivery system, the patient should be placed in which of the following positions?

1. Lateral
2. Sitting
3. Prone
4. Supine

ANS: B

Q775: Which of the following electrodiagnostic studies is typically used to assess radicular pain involving the spine and related extremities?

1. Selective tissue conductance tests
2. Nerve conduction velocity studies
3. Somatosensory evoked potentials
4. Needle electromyographic recordings

ANS: C

Q776: A patient with renal failure on hemodialysis undergoes a small bowel resection. Postoperatively, the patient received intramuscular morphine every 3 to 4 hours for pain. The patient did well for 2 days but now is very sedated and ventilation is slow. The patient arouses quickly after receiving naloxone 0.4 mg. The most likely explanation is that:

1. Morphine's elimination half life is greatly prolonged in renal failure
2. Morphine 6-glucuronide is a highly lipid soluble metabolite of morphine that accumulates quickly and easily enters the CNS
3. Morphine 3-glucuronide is a highly lipid soluble metabolite of morphine that quickly accumulates and easily enters the CNS
4. Even though both morphine 6-glucuronide and morphine 3-glucuronide are less lipophilic than morphine, a sufficient amount of these metabolites is now acting on the CNS

ANS: D

Q777: Which of the following factors affect the measurement of oncologic pain?

1. Type of pain
2. Age of patient
3. Physical strength of patient
4. Pain rating scale used

ANS: B

Q778: Which of the following complications is (are) associated with percutaneous cryoneurolysis?

1. Motor nerve damage
2. Frostbite of the skin
3. Vascular damage
4. Neuroma formation

ANS: A

Q779: The McGill Pain Questionnaire is designed to measure which of the following components of pain?

1. Societal
2. Sensory
3. Quantitative
4. Evaluative

ANS: C

Q780: Data from which of the following pain assessments can be analyzed using parametric statistics?

1. 11-point visual analogue scale
2. Pain behavior assessment
3. Category scale
4. Visual analogue scale (VAS)

ANS: D

Q781: Benefits of using the Minnesota Multiphasic Personality Inventory (MMPI) with pain patients include:

1. Assessment of emotional disorders that occur secondary to the pain experience
2. Determination as to whether the pain is psychogenic or organic
3. Assessment of preexisting personality factors that can adversely affect response to treatment
4. Determination of patient's ability to go back to work

ANS: A

Q782: Which of the following complications is (are) associated with radiofrequency thermocoagulation?

1. Neuropathic pain
2. Carcinogenesis at lesion site
3. Nociceptive pain
4. Infection at lesion site

ANS: B

Q783: If stimulation at 75Hz produces no pain during a lumbar facet radiofrequency procedure, which of the following actions should be taken?

1. Form a lesion

2. Stimulate at 4 Hz
3. Inject 2% lidocaine
4. Reposition the probe

ANS: D

Q784: Fibromyalgia differs from myofascial syndrome in that it is characterized by:

1. Tender points that do not necessarily exhibit the “jump sign”
2. A greater number of tender points than myofascial syndrome
3. Frequent depression with a disturbed sleep pattern
4. Lack of response to trigger point injections and/or antidepressants

ANS: A

TEST BANK II

Q785: Neurogenic pain originating from the neck and shoulder region is most likely due to which of the following conditions?

- A. Degenerative disk disease
- B. Myofascial pain
- C. Fibromyalgia
- D. Herpetic neuralgia

ANS: D

Q786: Which of the following tests is confirmatory in the diagnosis of carpal tunnel syndrome?

- A. Thermography
- B. Somatosensory evoked potentials
- C. Electromyography
- D. Magnetic resonance imaging (MRI)

ANS: C

Q787: A patient complains of morning stiffness and pain in multiple joints, including the joints of the hand. Subcutaneous nodules are present over the extensor surfaces, and diagnostic tests indicate abnormal amounts of HLA-DR4. The most likely diagnosis is:

- A. Osteoarthritis
- B. Rheumatoid arthritis
- C. Gout
- D. Degenerative arthritis

ANS: D

Q788: A patient is positioned prone on the fluoroscopic table the T₁-T₄ spinous processes are identified on the ipsilateral side, and a skin wheal is raised 4 to 5 cm lateral to the spinous process. A spinal needle is directed to the lamina and “walked” laterally until there is loss of resistance. These procedures are consistent with which type of block?

- A. Stellate ganglion
- B. Thoracic sympathetic
- C. Intercostal
- D. Thoracic epidural

ANS: B

Q789: Skeletal pain generally emanates primarily from:

- A. C fibers
- B. Joints
- C. Bones
- D. Surrounding soft tissue

ANS: B

Q790: Antidepressants exert their action by:

- A. Inhibiting prostaglandin synthesis
- B. Altering synaptic monoamine transmitter activity
- C. Releasing enkephalins from opiate receptors
- D. Reducing the level of substance P at nerve terminals

ANS: B

Q791: Which of the following statements is true concerning pain emanating from ureteric calculi?

- A. It is conveyed via sensory afferents from thoracic spinal nerves T₁₀-T₁₂
- B. It is followed by nausea and vomiting
- C. Midureteric pain radiates to the contralateral testicle
- D. The referral pattern is independent of stone position

ANS: A

Q792: The most common side effect from a lumbar sympathetic block is:

- A. Dizziness
- B. Backache
- C. Nausea
- D. Hypotension

ANS: B

Q793: Which of the following local anaesthetics has a low potency and short duration of effect?

- A. Mepivacaine
- B. Procaine
- C. Prilocaine
- D. Lidocaine

ANS: B

Q794: The most accurate pain assessment tools for preverbal children are:

- A. Spatial scales
- B. Facial scales
- C. Numerical scales
- D. Physiologic measurements

ANS: D

Q795: The brachial plexus is formed by which rami?

- A. C₅-T₁ anterior primary
- B. C₃-T₂ anterior primary
- C. C₅-T₁ anterior and posterior
- D. C₃-T₂ anterior and posterior

ANS: A

Q796: When reflex spasm of the collateral vessels occurs because of acute vascular insufficiency, it can be promptly reversed by:

- A. Local anaesthetic infiltration of the painful region
- B. A sympathetic block
- C. Administration of IV narcotics
- D. Oral administration of phenoxybenzamine

ANS: B

Q797: Cell bodies of preganglionic fibers of the lumbar sympathetic chain arise at which of the following sites?

- A. T₅-T₉
- B. T₁₁-L₂
- C. L₃-L₅
- D. S₁-S₄

ANS: B

Q798: Which of the following conditions mimics thalamic pain syndrome?

- A. Wallenberg's syndrome
- B. Syringomyelia
- C. Lateral medullary syndrome
- D. Parietal cortical lesion

ANS: B

Q799: The most commonly used route of administration for postoperative pain relief in children is:

- A. Subcutaneous
- B. Intramuscular
- C. Intravenous
- D. Rectal

ANS: C

Q800: Posterior rhizotomy is most effective in treating which of the following conditions?

- A. Intractable chest wall pain
- B. Sciatica after laminectomy
- C. Pelvic pain and dyspareunia
- D. Lumbar plexalgia secondary to metastatic lumbar vertebral lesion

ANS: D

Q801: The long term effects of peripheral nerve stimulation are enhanced when the lead is in what relationship to the nerve?

- A. Wrapped directly around the nerve
- B. At least 1 cm away from the nerve
- C. Separated by muscle fascia from the nerve
- D. Placed directly against the nerve

ANS: C

Q802: Which of the following nociceptors is activated by chemical stimuli?

- A. A delta mechanoreceptor (HTM)
- B. A delta mechanothermal nociceptor (MMTN)
- C. C polymodal nociceptor (CPN)
- D. C mechanonociceptor

ANS: C

Q803: A lateral femoral cutaneous block is indicated for which of the following conditions?

- A. Meralgia paresthetica
- B. Femoral neuralgia
- C. Saphenous neuralgia
- D. Groin pain

ANS: A

Q804: Computed tomography of the head is preferred over an MRI when evaluating which of the following conditions?

- A. Multiple sclerosis
- B. Meningioma
- C. Stroke
- D. Glioma

ANS: B

Q805: When used as an IV contrast in MRI, gadolinium penetrates into:

- A. Edematous tissue
- B. Areas with disrupted blood brain barriers
- C. The cerebrospinal fluid
- D. The intervertebral disks

ANS: B

Q806: Lesions producing central pain occur most commonly in the:

- A. Spinal cord
- B. Brainstem
- C. Brain
- D. Frontal cortex

ANS: B

Q807: Which of the following statements is true regarding neurolytic concentrations of less than 2% phenol?

- A. They have no effect
- B. They selectively destroy A delta and C fibers
- C. They have reversible local anaesthetic action when applied to nerve bundles
- D. They destroy nerves but have no effect on blood vessels

ANS: C

Q808: A steady state of blood drug concentration is achieved only after how many half lives?

- A. 1
- B. 3
- C. 5
- D. 7

ANS: C

Q809: Which of the following is a clinical characteristic of peripheral neuropathy?

- A. Proximal muscle weakness
- B. Absent distal deep tendon reflexes
- C. Sensory changes in a dermatomal pattern
- D. Increased muscle tone distally

ANS: B

Q810: Posttraumatic facial neuralgia is characterized by

- A. Absence of sensory deficits
- B. Trigger zones
- C. Symptoms outside the trigeminal nerve distribution
- D. Burning discomfort

ANS: A

Q811: Mydriasis, tachypnea, tachycardia, delirium, and a modest decrease in pain can be produced by agonists of which receptor type?

- A. μ
- B. κ
- C. δ
- D. σ

ANS: D

Q812: Which of the following statements regarding platelets is true?

- A. Their life span is approximately 14 days
- B. Their function in coagulation is reversibly inhibited by acetylated salicylates
- C. Platelet count is diminished in the postsplenectomy patient
- D. The inhibition of platelets in coagulation by most nonsteroidal anti-inflammatory drugs (NSAIDs) is related to elimination half life

ANS: D

Q813: The sciatic nerve block originally described by Labat is performed via which approach?

- A. Posterior
- B. Anterior
- C. Lateral
- D. Supine sciatic

ANS: A

Q814: A patient who sustained trauma to the right leg 6 weeks ago complains of burning pain, hyperesthesia in the leg. Vasomotor and sudomotor disturbances are present, and there is increased muscular tone. The most likely diagnosis is:

- A. Glutamate
- B. Somatostatin
- C. Leu-enkephalin
- D. Dynorphin

ANS: C

Q815: The neurotransmitter most responsible for transmission of nociceptive impulse at the central terminals of primary afferent is:

- A. Glutamate
- B. Somatostatin
- C. Leu-enkephalin
- D. Dynor

ANS: A

Q816: Transcutaneous electrical nerve stimulation relieves pain by:

- A. Depleting neurotransmitters in nociceptors
- B. Stimulating C fibers directly
- C. Activating inhibitory neurons
- D. Destroying nociceptors

ANS: C

Q817: Peripheral neurectomy is most appropriate for which of the following pain syndromes?

- A. "Tic" pain
- B. Sciatica
- C. Headache
- D. Neuroma

ANS: D

Q818: Which of the following is used to assess reduction of range of motion associated with painful neuromuscular disorders?

- A. Goniometry
- B. Electromyography
- C. Posturography
- D. Inclination

ANS: D

Q819: What is the function of the periaqueductal gray (PAG) periventricular gray (PVG) nucleus raphe magnus (NRM) and dorsolateral funiculus (DLF) of the descending pathway?

- A. Facilitation of pain transmission to the periphery
- B. Modulation of pain transmission to the central nervous system (CNS)
- C. Communication with the reticular formation
- D. Transmission of information from the sensory cortex to the thalamus

ANS: B

Q820: A diminished triceps jerk indicates a lesion of which nerve root?

- A. C₄
- B. C₅
- C. C₆
- D. C₇

ANS: D

Q821: The peripheral theory of phantom limb pain suggests that pain is caused by:

- A. Spontaneous firings of neuromas
- B. Early discharges from C fibers
- C. Decreased sympathetic afferent activity
- D. Decreased sympathetic afferent activity

ANS: D

Q822: Excess stimulation of A delta fibers will result in a patient report of:

- A. Motor movement in the affected area
- B. Numbness in the sclerotome of the affected area
- C. Contracture in the affected area
- D. Unpleasant paresthesias

ANS: D

Q823: Lumbar sympathetic block has been extensively used in the diagnosis and treatment of:

- A. Visceral pain of the abdomen
- B. Visceral pain of the pelvis
- C. Sympathetically mediated pain caused by RSD
- D. Acute herpes zoster of T₆-T₈

ANS: C

Q824: Stump pain occurs in what percentage of amputees?

- A. 10
- B. 25
- C. 50
- D. 75

ANS: C

Q825: What is the medium diameter efferent fiber to the muscle spindles?

- A. A alpha
- B. A beta
- C. A delta
- D. C

ANS: C

Q826: Transdermal fentanyl is rarely used in the management of postoperative pain because?

- A. Clinically available doses are too high for the intensity of postoperative pain
- B. The analgesic effect is abruptly terminated when the patch is discontinued
- C. There is usually a delay of 8 to 10 hours before blood analgesic concentration is reached
- D. Ileus and tolerance develop faster than with morphine

ANS: C

Q827: In most studies, the incidence of chronic pain without obvious pathology is:

- A. Less than 25%
- B. 33% to 50%
- C. 55% to 75%
- D. 80% to 95%

ANS: B

Q828: To achieve sympathetic denervation of the head and neck, the best site of blocking is the:

- A. Middle cervical ganglion
- B. Superior cervical ganglion
- C. Stellate ganglion
- D. Sphenopalatine ganglion

ANS: C

Q829: The lesser splanchnic nerve is formed by which of the following sympathetic nerves?

- A. T₅-T₇
- B. T₈-T₉
- C. T₁₀-T₁₁
- D. T₁₂

ANS: C

Q830: Which of the following statements does NOT describe a characteristic of the gas expansion cryoprobe?

- A. It can cause proximal freezing if improperly insulated
- B. It is very durable and resistant to malfunction by mechanical manipulation
- C. It can use a variety of gases that are easily stored in pressurized tanks
- D. It creates a freeze zone approximately two to three times the size of the probe's diameter

ANS: B

Q831: Which of the following medications does NOT relieve central pain?

- A. Phenobarbital
- B. Morphine sulphate
- C. Carbamazepine
- D. Amitriptyline

ANS: C

Q832: Major indications for facet injection include all of the following EXCEPT:

- A. Focal tenderness over a facet joint
- B. Chronic low back pain
- C. Normal radiographic workup
- D. Arachnoiditis

ANS: D

Q833: All of the following medications are anticonvulsants:

- A. Phenytoin
- B. Carbamazepine
- C. Clonazepam
- D. Diazepam

ANS: D

Q834: Chronic pancreatitis is associated with all of the following features EXCEPT:

- A. History of alcohol abuse
- B. Recurrent or persistent abdominal pain
- C. Epigastric pain in underweight and malnourished individuals
- D. Back pain with radiation to T₁₀ bilaterally

ANS: D

Q835: The hypogastric plexus innervates all of the following organs EXCEPT the:

- A. Vagina
- B. Bladder
- C. Prostate
- D. Descending colon

ANS: D

Q836: All of the following are contraindications to performing an MRI EXCEPT:

- A. Cerebral aneurysm clips
- B. Cardiac pacemakers
- C. Mechanical ventilation
- D. Lack of patient cooperation

ANS: C

Q837: Complications associated with a continuous epidural technique include all of the following EXCEPT:

- A. Intrathecal administration of the drug
- B. Infection
- C. Epidural hematoma
- D. Hypertension

ANS: D

Q838: All of the following statements are true of eosinophilia EXCEPT:

- A. It is defined as an eosinophil count greater than 2% of the total leukocyte count
- B. It may be indicative of neoplasm
- C. It may be indicative of collagen vascular disease
- D. It may be indicative of allergy

ANS: A

Q839: The zygapophyseal joint syndrome is characterized by all of the following features EXCEPT:

- A. Unilateral back pain
- B. Radiation of midlumbar pain to the buttocks and back of the thigh
- C. Aggravation of pain with flexion
- D. Tenderness over the facet joint

ANS: C

Q840: A work hardening program is different from a work conditioning program in that a work hardening program aims to do all of the following EXCEPT:

- A. Return an injured worker to a particular job

- B. Provide a 2 to 6 week period of specific simulated work activities
- C. Facilitate both emotional and physical reactivation
- D. Promote a gym based personal exercise program

ANS: D

Q841: Radiofrequency thermocoagulation is NOT likely to produce ventricular arrhythmias because:

- A. Properly placed electrodes maximize transmission of cardiac current
- B. The frequency of current is very different from an electrocardiogram (ECG)
- C. Pain increases the threshold for arrhythmias
- D. No net current flows through the patient

ANS: B

Q842: Which of the following statements regarding the superior hypogastric plexus block is NOT true?

- A. It is most appropriate for pelvic pain of visceral origin
- B. It is associated with few side effects
- C. It must be performed with the assistance of fluoroscopy
- D. It is most appropriate for upper abdominal pain

ANS: B

Q843: Which of the following does NOT generally provoke visceral pain?

- A. Ischemia of visceral muscle
- B. Dividing the transverse colon
- C. Stretching of Glisson's capsule
- D. Distention of hollow viscera

ANS: B

Q844: Which of the following relationships between local anaesthetics and their chemical profiles is NOT true?

- A. Prilocaine metabolites create methemoglobin
- B. Ropivacaine racemic mixture exists almost as a pure solution of one isomer
- C. Etidocaine creates a profound motor block that limits its usefulness for obstetric and postoperative analgesia
- D. Mepivacaine is associated with vasodilative activity

ANS: D

Q845: Which of the following interventions is NOT appropriate for treating acute disk herniation?

- A. Muscle relaxation by cyclobenzapine
- B. NSAIDs
- C. Gentle limbering exercises
- D. Cervical laminectomy and fusion

ANS: D

For Questions 846-859, choose from the following:

- A. 1, 2 and 3
- B. 1 and 3
- C. 2 and 4
- D. 4
- E. All of the above

Q846: Which of the following is (are) characteristic of myofascial trigger points?

1. A firm tense band in the involved muscle
2. A “jump sign” when the muscle band is snapped briskly
3. A predictable referred pain pattern
4. A pain reference zone that may exhibit autonomic changes

ANS: E

Q847: Selective tissue conductance is most appropriate in the assessment of which of the following conditions?

1. Sudomotor dysfunction
2. Sympathetically mediated pain
3. Postherpetic neuralgia
4. Ulnar neuropathy

ANS: A

Q848: Which of the following describes the process(es) by which epidural steroid injections relieve back and radicular leg pain?

1. Inflammation in the affected nerve roots is reduced
2. Scar tissue surrounding the nerve roots is dissolved
3. Transmission of nociceptive input in C fibers is blocked
4. The herniated disk is realigned

ANS: B

Q849: Which of the following electrophysiologic techniques is most appropriate for assessing chronic ocular or periorbital pain?

1. Electrooculography
2. Electronystagmography
3. Electroretinography
4. Needle electromyography

ANS: B

Q850: Which of the following opioids are partial agonists?

1. Heroin
2. Nalbuphine
3. Oxycodone
4. Buprenorphine

ANS: D

Q851: Which of the following statements regarding the Numerical Pain Scale is (are) true?

1. It is an ordinal method of assessing pain
2. It requires no specialized training to administer
3. It can easily be adapted for use by children
4. It is not appropriate for assessing remembered pain

ANS: A

Q852: Which of the following solutions is (are) used for neurolysis?

1. Hypertonic saline
2. Phenol
3. Ethanol
4. Distilled water

ANS: E

Q853: Which of the following advantages is (are) associated with a Type II (tunneled epidural catheter) drug delivery system?

1. Ease of insertion
2. Ability to implant in outpatient settings
3. Ease of removal
4. Decreased risk of infection relative to Type I delivery systems

ANS: E

Q854: Which of the following statements is (are) correct regarding the use of hypnosis with chronic pain?

1. The hypnotic analgesia received is mediated by the endorphine system
2. It can provide a cure for chronic pain
3. It is beneficial in treating psychogenic pain of organic pathology
4. It focuses on the subjective component of pain

ANS: D

Q855: Which of the following implantable drug delivery systems would be appropriate for a patient with a life expectancy of a few days to several weeks?

1. Simple epidural catheter
2. Reservoir/port
3. Tunneled epidural catheter
4. Implantable continuous infusion

ANS: B

Q856: When a pain patient is referred to a psychologist for evaluation, a standard assessment battery generally includes:

1. A clinical interview
2. A structured pain inventory
3. Objective psychometric testing
4. Projective techniques

ANS: A

Q857: The Faces pain diagrams are appropriate for use with which of the following types of patients?

1. The elderly
2. Children
3. Individuals with mental retardation
4. Postoperative patients on a ventilator

ANS: E

Q858: Which of the following statements is (are) true regarding medications that either prevent or treat NSAID gastropathy?

1. Sucralfate works in part by reducing gastric acid secretion
2. Enteric coating has proven highly effective in reducing gastrointestinal toxicity
3. Misoprostol is an inhibitor of prostaglandin E₁ and therefore reduces its damaging effect on the gastric mucosa
4. Sucralfate promotes gastric mucous secretion via a prostaglandin independent mechanism

ANS: D

Q859: Which of the following procedures is (are) important when performing a cryolesion?

1. Assuring close proximity of the cryoprobe to the site to be frozen by creating motor stimulation
2. Infiltrating the nerve or site to be frozen with local anaesthetic before lesioning
3. Bending the cryoprobe to achieve the proper angle and proximity to the site to be frozen
4. Using an intravenous cannula to help position the cryoprobe and provide extra insulation against inadvertent tissue freezing

ANS: D

Chose One Best:

Q860: Which one of the following statements about articular cartilage is true

- A. Composed of chondrocytes
- B. Extremely vascular
- C. Dependent on constant chondrocyte cell division for its repair
- D. Highly innervated
- E. Rich in the proteoglycans.

ANS: A

Q861: Which one of the following statements about synovial membrane is TRUE?

- A. Is composed principally of epithelial cells
- B. Secretes synovial fluid from the stellate cells of the intercellular matrix
- C. Receives its rich blood supply from adjacent cartilage
- D. Is rich in unmyelinated nerve fibers
- E. Has an intercellular matrix containing hyaluronan, chondroitin sulphate and tenascin.

ANS: E

Q862: Which one of the following statements about the structure of bone is TRUE?

- A. Bone remodeling involves 50% of the bone surface in healthy adults each day.
- B. Cortical bone predominates in the epiphyses.
- C. Bone matrix is mainly composed of type I collagen.
- D. Trabecular bone is composed of Haversian systems.
- E. The lamellae of cortical bone run parallel to the surface of the bone.

Ans: C

Q863: In measuring the bone density which one of the following statement is TRUE.

- A. Conventional X-rays of the skeleton will detect early changes in bone mineral density.
- B. DEXA bone densitometry is associated with a radiation dose similar to that of a chest X-ray
- C. Bone mineral densitometry (BMD) is measured in grams of calcium per centimeter²
- D. The T-Score expresses the number of standard deviations by which a patient's measurement differs from age and sex matched control subjects
- E. The Z-score expresses the number of standard deviations by which a patient's measurement differs from healthy young control subject.

Ans: B

Q864: Which ONE of the following auto antibodies is associated with the following diseases?

- A. Antinuclear antibodies – enteropathic arthritis
- B. Anti - topoisomerase 1 antibodies –progressive systemic sclerosis (PSS)
- C. Anti - SSA (anti – Ro) antibodies – systemic inflammatory response syndrome
- D. Anti - centromere antibodies – Sneddon's syndrome
- E. Antinuclear cytoplasmic antibodies--dermatomyositis

Ans: B

Q865: Which one of the following statement about antinuclear antibodies (ANA) is TRUE

- A. ANA are present in 50% of patients with systemic lupus erythematosus (SLE)
- B. Single – stranded anti-DNA antibodies are specific to systemic lupus erythematosus
- C. ANA persist at titres which are unrelated to clinical diseases activity
- D. Low titres of ANA are found in healthy subjects
- E. ANA are characteristically present in high titers in patients with polyarteritis nodosa.

Ans: D

Q866: A 25-year old presents with an acute swelling of the right knee joint, pyrexia and night sweats of several days duration. Which ONE of the following statements is MOST consistent with the diagnosis of gonococcaemia?

- A. Clinical features are more likely to occur in males than females
- B. Tenosynovitis is likely to occur.
- C. Joint involvement is fitting rather than additive
- D. Culture of the synovial fluid is likely to grow gonococci
- E. The development of erythema nodosum is likely

Ans: B

Q867: In the investigation of a 50-year old man with recent- onset low back pain, which ONE of the following statements is TRUE?

- A. X-Ray changes of spina bifida occulta would explain the symptom
- B. Loss of lumbar lordosis suggests neoplastic vertebral infiltration.
- C. Exacerbation of pain with exercise suggests sacroiliitis
- D. Myelography is the preferred investigation if neurological features develop
- E. Spontaneous resolution within 12 week of onset occurs in the minority.

Ans: D

Q868: Which one of the following statements about patients with shoulder pain is TRUE?

- A. Unlike infraspinatus tendonitis, supraspinatus tendonitis is associated with a 'painful arc'
- B. Bicipital tendinitis is associated with a painful arc.
- C. Shoulder pain developing beyond 90⁰ abductions suggests infraspinatus tendinitis
- D. Shoulder pain in all directions of movement suggests capsulitis.
- E. Subscapularis tendinitis is suggested by pain worsening on resisted abduction.

Ans: D

Q869: Which one of the following statements about diffuse idiopathic skeletal hyperostosis (DISH) is TRUE.

- A. Ossification along the anterolateral aspects of at least four contiguous vertebrae is likely.
- B. The condition has peak prevalence in adolescents.
- C. Excessive vitamin D intake is thought to be responsible for the condition
- D. There is an association with HLA B-27
- E. Pain in the axial skeleton is characteristic.

Ans: A

Q870: In a 24-year- old presenting with polyarthralgia, the subsequent developments of joint swelling is MOST consistent with which ONE of the following diagnoses.

- A. Rubella
- B. Depression
- C. Hypothyroidism
- D. Osteomalacia
- E. Diabetes insipidus

Ans: A

Q871: In which ONE of the following diagnoses would the development of joint pain and swelling merit investigation to exclude an additional and unrelated diagnosis responsible for the arthritis.

- A. Lyme disease
- B. Acromegaly
- C. Chondrocalcinosis
- D. Chronic sarcoidosis
- E. Tularemia

Ans: E

Q872: Which one of the following statements about osteoarthritis is TRUE?

- A. It is present radiologically in at least 80% of patient aged 65 year or more.
- B. It is more likely to be more generalized and more severe in male than females
- C. It is best characterized by degenerations of cartilage and synovial inflammation
- D. It is associated with decreased collagen synthesis in the affected cartilage
- E. It is best managed with anti-inflammatory doses of NSAIDs

Ans: A

Q873: A 29-year old women presents with a 6-month history of progressive arthritis of the knee and the PIP joints of the fingers. Rheumatoid and antinuclear antibody tests are negative. Which ONE of the following clinical features suggests that the diagnosis is more likely to be rheumatoid arthritis than psoriatic arthritis?

- A. Pitting of the nails
- B. Acute anterior uveitis
- C. Association with HLA DR4
- D. Symmetrical joint involvement
- E. Involvements of the sacro-iliac joints

Ans: C

Q874: Which one of the following extra-articular manifestations suggests a diagnosis of seronegative spondyloarthritis rather than rheumatoid arthritis,

- A. Cutaneous ulceration
- B. Pleural effusion
- C. Enthesitis
- D. Peripheral neuropathy
- E. Hypersplenism

Ans: C

Q875: Which ONE of the following pathological changes is MOST consistent with the diagnosis of rheumatoid arthritis?

- A. Diffuse synovial infiltration with neutrophils
- B. Increased synovial fluid complement concentration
- C. Subcutaneous nodules with numerous giant cells
- D. Generalized lymph node hypoplasia
- E. Progression to bony or fibrous ankylosis

Ans: E

Q876: Which ONE of the following statements about juvenile idiopathic arthritis is TRUE?

- A. Still's disease typically presents with an acute polyarthritis
- B. Seropositive polyarthritis typically resembles adult rheumatoid arthritis.
- C. Oligoarthritis typically affects boys in whom chronic iritis is common
- D. Enthesitis-related arthritis typically affects girls.
- E. Polyarthritis rather than oligoarthritis is the commoner pattern of involvement.

Ans: B

Q877: Which one of the following hematological findings is MOST consistent with the diagnosis of systemic lupus erythematosus?

- A. Leucocytosis and thrombocytosis
- B. Prolongation of the clotting time
- C. Circulating anti-DNA and rheumatoid factor antibodies in high titer.
- D. Elevated CH₅₀, C₃ and C₄ complements level in peripheral blood
- E. Elevated C-reactive protein levels

Ans: C

Q878: Which one of the following clinical features suggests an alternative diagnosis to that of mixed connective tissue diseases?

- A. Raynaud's phenomenon
- B. Diffuse interstitial pulmonary fibrosis
- C. Anti RNA antibodies in high titres
- D. Involvement of the central nervous system
- E. Increased serum creatine kinase concentration.

Ans: D

Q879: A 48-year old man presents with an acutely painful and swollen pinna of the ear sparing the tragus. The past medical history includes deafness and episodes of peripheral polyarthritis. Which ONE of the following clinical features suggests an alternative diagnosis to relapsing polychondritis?

- A. Conductive deafness
- B. Episcleritis
- C. Second – degree heart block
- D. Proliferative glomerulonephritis
- E. Autoimmune hepatitis

Ans: E

Q880: A 30 year old man presents with low back pain associated with stiffness, particularly noticeable in the mornings. With ONE of the following features MOST suggests a mechanical rather than inflammatory cause of low backache?

- A. Radiation of pain down the back of one leg to the ankle.
- B. An elevated C reactive protein
- C. Tenderness on lateral compression of the pelvis
- D. Absence of any abnormal physical sign
- E. Stiffness which persists on exercise

Ans: E

Q881: Which one of the following features is MOST typical of the fibromyalgia syndrome?

- A. Elevation of the ESR
- B. Coexistent symptoms of nocturnal diarrhoea.
- C. Symptoms of insomnia and tiredness
- D. Rapid, Spontaneous resolution
- E. Musculoskeletal pain without local tenderness

Ans: C

Q882: Which one of the following statements about musculoskeletal pain is TRUE?

- A. In inflammatory arthritis, pain typically worsens throughout the day
- B. Ligamentous strain produces pain which is usually only felt on movement
- C. The pain of impacted fractures is invariably worse on movements.
- D. Muscle pain is typically unaffected by isometric contraction
- E. In osteoarthritis, pain is improved on resting.

Ans: E

Q883: In a 50-year old woman presenting with neck pain, which ONE of the following statements is true.

- A. Aggravation by sneezing suggests cervical spondylosis
- B. Radiation to the occiput suggests cranial arthritis
- C. Bilateral arm paraesthesiae suggests angina pectoris is a likely diagnosis
- D. Absence of other joint pains excludes a diagnosis of the rheumatoid arthritis
- E. History of syncopal episodes suggest cervical spondylosis.

Ans: E

Q884: Which ONE of the following statements about the thoracic spine is TRUE

- It is the commonest site of symptomatic disc protrusion
- It is more mobile in rotation than flexion and extension
- Lordosis of the thoracic spine is normal finding in health
- Straightening of the thoracic spine is common in spinal osteoporosis
- Scoliotic deformity is common in patients with a history of poliomyelitis

Ans: E

Q885: Which ONE of the following statements about rheumatoid arthritis is TRUE?

- A. Onset characteristically occurs before the age of 30 years
- B. The female –male ratio is about 3:1
- C. There is a strong association with HLA-B8 status
- D. Progression to bone and cartilage destruction is rare
- E. Sparing of joints of the pelvic and shoulder girdle is typical

Ans: B

Q886: Which ONE of the following features would be the LEAST LIKE finding in a patient presenting with active rheumatoid arthritis

- A. Fever and weight loss
- B. Normocytic anemia
- C. Anterior uveitis
- D. Thrombocythaemia
- E. Generalized lymphadenopathy

Ans : C

Q887: Which one of the following statements about the treatment of rheumatoid arthritis is TRUE.

- A. Bed rest should be avoided because of the risk of bony ankylosis
- B. Splinting of the affected joints reduces pain and swelling
- C. Associated anaemia responds promptly to oral iron therapy
- D. Systemic corticosteroids contraindicated
- E. Non – steroidal anti – inflammatory drugs retard diseases progression.

Ans: B

Q888: Which one of the following features confers the BEST prognosis in the functional outcome of patients presenting with rheumatoid arthritis.

- A. An insidious rather than acute onset of rheumatoid arthritis
- B. A positive rheumatoid factor antibody test
- C. The presence of subcutaneous nodules
- D. The presence of extra – articular manifestations
- E. Onset with palindromic rheumatism.

Ans: E

Q889: A 50 year old woman presents with recurrent conjunctivitis and dry mouth. Which ONE of the following features is LEAST CONSISTENT with the diagnosis of primary Sjogren's disease?

- A. An increased incidence of lymphoma
- B. Dryness of the eyes mouth and vagina
- C. Reduced lacrimal secretion rate
- D. A good response to gold therapy
- E. A positive IgM rheumatoid factor

Ans: D

Q890: A 27 year old man presenting with back pain and stiffness has a strong family history of back pain in the male members of his family. On investigation, he has elevation of the ESR and serum C-reactive protein with negative ANA and rheumatoid factor antibody tests. Which ONE of the following features is LEAST CONSISTENT with a diagnosis of seronegative spondyloarthritis?

- A. The presence of an asymmetrical oligoarthritis
- B. Involvement of the cartilaginous joints
- C. Enthesitis of tendinous insertions
- D. Evidence of episcleritis
- E. The presence of a soft diastolic murmur at the left sternal edge.

Ans: D

Q891: Which ONE of the following statements about the treatment of ankylosing spondylitis is TRUE.

- A. Systemic corticosteroid therapy is contraindicated
- B. Prolonged bed rest accelerated functional recovery
- C. Spinal radiotherapy modifies the course of the disease
- D. Spinal deformity usually progresses despite intensive physiotherapy.
- E. The presence of hip involvement confers a poorer prognosis.

Ans: E

Q892: Which one of the following statements about Reiter's disease is TRUE.

- A. Anterior uveitis develops more often than conjunctivitis
- B. Sacro-iliitis and spondylitis develops in most patients
- C. Small joint polyarthritis is typically symmetrical
- D. Onset 1-3 weeks following bacterial dysentery
- E. Arthritis typically resolves within 3-6 months of onset

Ans: D

Q893: A 33 year old man presents with pain and stiffness of the ankles and toes which is most marked on rising from bed in the morning .Clinical examination reveals the presence of scaly plaques suggesting psoriasis in the scalp.Which ONE of the following statements about psoriatic arthritis is true.

- A. Joint involvement typically precedes the onset of psoriasis
- B. Arthritis is likely to effect 25% of patients with psoriasis
- C. Absence of psoriatic nail changes suggests that arthritis may not be due to psoriasis.
- D. The arthritis is likely to be very different to rheumatoid arthritis in its distribution
- E. A good response to hydroxochloroquine is likely.

Ans: c

Q894: A 42 year old woman, resident in the Lahore for the previous 3 years, is referred to the outpatient clinic with tiredness malaise and non –specific aches and pain. Clinical examination is unremarkable except for muscle weakness demonstrable as the patient rises from her chair. Biochemical investigations reveal a serum calcium 1.7 mmol/l. serum phosphate 0.7 mmol/l and normal liver function values other than and elevation of the serum alkaline phosphates 210 iu/l. Which ONE of the following statements is TRUE?

- A. The proximal myopathy suggests that the likeliest diagnosis is thyrotoxicosis
- B. Metabolic bone disease is characteristically painless
- C. The plasma parathyroid hormone level is likely to be low
- D. If renal disease is present, 25 –hydroxycholecalciferol therapy is advisable
- E. Pseudofractures are best detected using isotope bone scanning

Ans: E

Q895: A 65 year old woman reports difficulty walking. She can walk for one block, but pain in both knees forces her to stop and sit, which relieves the pain. Her doctor thought she had osteoarthritis of the knee and he ordered radiographs of the knee. Which one of the following is NOT a characteristic radiographic finding of osteoarthritis?

- A. Osteophytes
- B. Asymmetrical joint-space narrowing
- C. Subchondral cysts
- D. Marginal erosions
- E. Subchondral bone sclerosis

Ans: D

Q896: A 64 year old smoker present to the Accident and Emergency Department with sudden onset of flaccid weakness of both legs and urinary incontinence, associated with thoracic back pain. On examination there is bilateral leg weakness, decreased sensation to pinprick below T7, but preserved joint-position sense in the lower limbs. What is the most likely diagnosis ?

- A. Anterior spinal artery occlusion.
- B. Acute transverse myelitis
- C. Intramedullary glioma
- D. Vertebral collapse secondary to metastasis
- E. Syringomyelia

Ans: A

Q897: A 46 year old woman presents with loss of sensation in her little finger. On examination she has weak dorsal interossei. What is the most likely site of her lesion?

- A. Anterior interosseous nerve
- B. Median nerve
- C. Ulnar nerve
- D. Radial nerve
- E. Lower cord of brachial plexus.

Ans: C

Q898: A 58 year old woman is diagnosed with angina, and several new treatments have been commenced. Which one of the following drugs has NOT been proved to reduce future cardiovascular morbidity or mortality.

- A. Aspirin
- B. Atenolol
- C. Nifedipine
- D. Ramipril
- E. Simvastatin

Ans: C

Q899: A 57 year old woman with rheumatoid arthritis is commenced on hydroxychloroquine. Which statement is correct regarding this treatment.?

- A. There is substantial risk of toxicity.
- B. Fundoscopic changes can be used to predict progression to visual loss.
- C. Colour vision should be monitored
- D. Toxicity is idiosyncratic and not dose related.
- E. Changes are reversible on cessation of Hydroxychloroquine.

Ans: C

Q900: A 45 year old woman presents with a six week history of an expanding leg ulcer. She originally noticed a small pustule which then seemed to break down and become painful. She also suffers from ulcerative colitis, which has not been well controlled

- recently. On examination, there is a 5-cm ulcer on her right shin which has a raised purple edge with a necrotic center. What is the most likely diagnosis ?
- A. Pyogenic granuloma
 - B. Venous ulcer
 - C. Erythema nodosum
 - D. Pyoderma gangrenosum
 - E. Bowen's disease

Ans: D

Q901: A 45 year old woman presents with an eight month history of erythematous rash cover the knuckles, elbows and eyelids, with no response to topical steroids. She subsequently noticed stiffness and soreness of her shoulders and proximal legs. She has weakness with difficulty lifting heavy subject or rising from a squatting position. The creatinine kinase (CK) was elevated at 5133 U/l. What is the most likely diagnosis?

- A. Polymyositis (PM)
- B. Fasiocapulohymeral muscular dystrophy
- C. Dermatomyositis (DM)
- D. Cervical myelopathy
- E. Guillain Barre syndrome

Ans: C

Q902: A 57 year old man presents with numbness in the legs and unsteadiness. On examination there is bilateral nystagmus and there is marked ataxia. Sensation to pinprick is impaired bilaterally in the lower limbs, and reflexes are generally depressed, with flexor plantars. Routine biochemical and hematological studies are normal, as are a CT scan of the head and routine CSF examination. Four months later he is unable to walk and has developed progressive cognitive impairment. An MRI scan shows cerebellar atrophy and diffuse white matter lesions. What is the most likely diagnosis?

- A. Paraneoplastic syndrome
- B. Acute disseminated encephalomyelitis
- C. Spinocerebellar ataxia
- D. Creutzfeldt-Jakob disease
- E. Wilson's disease

Ans: A

Q903: A 76 year old farmer is known to have rheumatoid arthritis affecting the hand, both knees and the right shoulder. He presents to the hospital with fever, chills, and painful swelling of the left knee. His symptoms began the day before and worsened to the point that he now cannot walk. He has no history of recent trauma or a fall. His temperature is 39°C. His disease was well controlled with oral NSAIDs, prednisolone 5 mg orally and methotrexate 10 mg weekly. At this point, which one of the following actions is the most appropriate in the management of his illness?

- A. Aspirate the synovial from the left knee
- B. Double the steroid dose
- C. Order radiographs of the knee
- D. Increase the methotrexate dose to 15 mg weekly
- E. Arrange for full blood count and ESR

Ans: A

Q904: A 56 year old man with type 2 diabetes presents with right –sided foot drop immediately after tripping and falling over while playing golf. On examination there is weakness of dorsiflexion, inversion and eversion of the right foot. There is no sensory disturbance, which structure is most likely to have been damaged?

- A. Sciatic nerve
- B. L5 nerve foot
- C. Tibial nerve
- D. Femoral nerve
- E. Common peroneal nerve

Ans: E

Q905: Which one of the fallowing bone disorder is associated with defective osteoclast function, leading to obliteration of the medullary cavity in all the bones?

- A. Paget's disease
- B. Osteoporosis
- C. Osteomalacia
- D. Osteogenesis imperfecta
- E. Osteopetrosis

Ans: E

Q906: A 64 year old man has suffered from recurrent episodes of acute gout. His general practitioner has prescribed allopurinol 100mg daily. Which one of the following statements regarding the pharmacological effects or allopurinol is correct ?

- A. Acute gout is a recognised adverse effect.
- B. Combination with non-steroidal anti-inflammatory drugs is often hazardous
- C. Increases renal tubular secretion of urate
- D. Reduce the effectiveness of warfarin
- E. Should not be used in asymptomatic hyperuricaemia

Ans: A

Q907: A 42 year old woman with rheumatoid arthritis (RA), previously well controlled with sulfasalazine, presents with deep red, necrotic ulcers with undermined, violaceous, oedematous borders. The ulcers are 10 x 5 cm in diameter, covering the anterior border of the right leg. Trials with systemic and local steroid therapy over the last two-months did not help to improve the ulcers. Which one of the following is the most likely diagnosis?

- A. Ulcerated rheumatoid nodule
- B. Erythema nodosum
- C. Pyoderma gangrenosum
- D. Fixed drugs rash
- E. Vaculitic skin rash

Ans: C

Q908: A 48 year old man presents to the accident and Emergency Department with difficulty walking, which has progressed over a period of six weeks. He has no back pain but has noticed disturbance of sensation in both legs. On examination he has pyramidal weakness of his leg, with exaggerated reflexes and an up going plantar on that side. Joint position is impaired at the right big toe. There are no other signs. What is the most likely diagnosis?

- A. Lumbosacral disc prolapse
- B. Syringomyelia
- C. Guillain- Bare syndrome
- D. Brown Sequard syndrome
- E. Anterior spinal artery occlusion

Ans: D

Q909: A 48 year old woman consults her doctor because of two- year history of excessive fatigue and easy tiredness. She reports non-specific joints pain around the elbows and knees with early morning stiffness lasting two hours. The patient also reports that she takes

frequent sips of water when eating and could not wear contact lenses because they were uncomfortable. She is not on any medications and the past medical history is unremarkable. Examination revealed red eyes and mild tenderness at the joint lines in both knees but no active synovitis. The ESR was elevated at 78 mm/h and the rheumatoid factor was positive at 1/1024.

What is the most likely diagnosis?

- A. Fibromalgia
- B. Polymyalgia rheumatica
- C. Systemic lupus erythematosus
- D. Sjogren's syndrome
- E. Rheumatoid arthritis.

Ans: D

Q910: A 43 year old man is taking omeprazole 20 mg daily to treat reflux oesophagitis. He is symptom free and has not noticed any side effects. Which one of the following is recognized as a characteristic effect of regular omeprazole treatment?

- A. 80-85% reduction in gastric acid secretion
- B. Constipation
- C. Increased absorption of ferrous sulphate
- D. Increased risk of gastric carcinoma
- E. Increased risk of salmonella gastroenteritis

Ans: E

Q911: A 34 year old school teacher presents with a two month history of swelling and discomfort in the right knee and the left ankle. She walks with a limp. The patient's past history significantly revealed recurrent episodes of bilateral uveitis over past ten years, treated with topical corticosteroids. She was referred for further assessment. Which one of the following disorders is the least likely cause of this patient's illness?

- A. Psoriatic arthritis
- B. Rheumatoid arthritis
- C. Behcet's disease
- D. Sarcoidosis
- E. Syphilis

Ans: B

Q912: A 60 year old man has had type 2 diabetes for five years. He had been diet controlled until six months ago when his GP started metformin. He now sees his GP complaining of diarrhoea. Which one of the following is the most likely cause of his diarrhoea?

- A. Diabetic autonomic neuropathy
- B. Coeliac disease
- C. Metformin therapy
- D. Irritable bowel syndrome
- E. Colon cancer

Ans: C

Q913: A 42 year old guitarist presents with a three month history of pain and weakness in the right thumb of gradual onset. He describes altered sensation in the thumb and difficulty opening bottles and jars. There are no problems in the other limbs and no history of trauma. On examination there is weakness of right forearm pronation and flexion of the distal phalanges of thumb and right index finger; sensation is normal. Which structure is most likely to be damaged?

- A. Anterior interosseous nerve
- B. Median nerve
- C. Ulnar nerve

- D. Lower cord of the brachial plexus
- E. C4 nerve root

Ans: A

Q914: A 21 year old lady presents with, fever and arthralgia. She also complains of painful hot lumps on her legs. She is not on any medication. On examination there are tender, erythematous nodules present on both anterior shins. Skin biopsy demonstrates inflammation in the subcutaneous fat. Which is the most important investigation to perform?

- A. Chest X-ray
- B. Serum glucose
- C. Urinalysis
- D. Arterial blood gases
- E. ESR

Ans: A

Q915: An A- 39 year old male decorator complains of hand pain. Radiographic of both hands are notable degenerative changes in the second and third metacarpophalangeal joints. Which one of the following is the most helpful diagnostic test?

- A. Erythrocyte sedimentation rate(ESR)
- B. Uric acid levels
- C. Ferritin level
- D. Antinuclear antibody
- E. Rheumatoid factor

Ans: C

Q.916: A patient presented with fracture neck of humerus after a road traffic accident which of the following nerves may be injured.

- A. Musculocutaneous nerve
- B. Axillary nerve
- C. Long thoracic nerve
- D. Radial nerve
- E. Ulnar nerve

Ans: B

Q. 917: The trigeminal ganglion lays

- A. At the apex of the petrous part to temporal bone
- B. At the medial side of cavernous sinus
- C. In the anterior cranial fossa on sphenoid bone
- D. In the middle cranial fossa
- E. Above the hippocampal gyros

Ans: A

Q.918: Trapezius muscle

- A. Supplied by C3 and C4
- B. Acts on clavicle
- C. Arises from superior nuchal line to C7 vertebra
- D. Supplied by Ansa cervicalis
- E. Inserted into the medial third of the clavicle

Ans: C

Q.919: During physical examination of a patient with severe facial ache an otolaryngologist notes drainage of purulent discharge into the left middle meatus when the patient is Lying on the infection is the

- A. Anterior
- B. Frontal sinus
- C. Maxillary sinus
- D. Masolacirmal duct
- E. Sphenoid sinus.

Ans: C

Q.920: The foramen ovale transmits

- A. Vagus nerve
- B. Accessory nerve
- C. Mandibular nerve
- D. Hypoglossal nerve
- E. Ophthalmic nerve

Ans: C

Q.921: A dentist presented to the orthopedic surgeon with severe backache and was diagnosed to have sciatica with is the level of nerve compression?

- A. T9-T11
- B. L3-L4
- C. L4-L5
- D. L5-S1
- E. S1-S2

Ans: D

Q.922: A patient has severe headache due to overwork of record-keeping and recounting of old patient. He has a peptic ulcer from last 2 year which can be aggravated by which one of the following analgesics?

- A. Flurbiprofen
- B. Naproxen sodium
- C. Meferamic acid
- D. Acetaminophen
- E. Aspirin

Ans: E

Q.923: What is the advantage of pethidine over morphine?

- A. More potent
- B. Suppresses cough
- C. Longer duration of analgesia
- D. Less constipating
- E. Stronger hypnotic effect.

Ans: D

Q.924: A female patient complains of tingling sensation and numbness of her right hand she also experiences signs and symptoms of vascular obstruction in the right arm: the likely diagnosis is

- A. Ulnar nerve lesion
- B. Lesion at the level of C4 C5
- C. Lesion at the level of C8 T1
- D. Right cervical rib
- E. Left cervical rib

Ans: D

Q.925. Winging of scapula is due to injury to

- A. Pectoralis major
- B. Teres major
- C. Latissimus dorsi
- D. Serratus anterior
- E. External oblique muscle

Ans: D

Q.926: A patient presented to the emergency department with a history of stroke. On examination the patient has weakness of right of the body and right-sided facial

- A. Internal capsule
- B. Cerebellum
- C. Medulla oblongata
- D. Pons
- E. Cerebral cortex

Ans: D

Q.927: A patient is having severe pain in the epigastrium nerve transferring this pain is

- A. T-9
- B. T-10
- C. Lesser splanchnic
- D. Greater splanchnic
- E. Least splanchnic

Ans: D

Q.928: A 30 year old patient presents with a slight weakness in the lateral arch of the foot on one side and cannot dorsiflex the foot. These signs probably indicate damage to the

- A. Posterior tibial nerve
- B. Deep peroneal nerve
- C. Lateral plantar nerve
- D. Sural nerve
- E. Superficial peroneal nerve

Ans: - B

Q.929: Regarding the popliteus muscle it is true that it

- A. Tendon is intracapsular
- B. Expansion strengthens the capsule of knee joint
- C. Is responsible for locking of knee joint
- D. Is supplied by femoral nerve
- E. Has femoral attachment on the medial condyle

Ans: - A

Q.930: On a routine clinical examination of a patient extension of big toe is tested. This test provided information about the followings

- A. A, B, and D
- B. Deep peroneal nerve
- C. Extensor hallucis longus
- D. Superficial peroneal nerve
- E. 5th lumbar spinal nerve

Ans: - A

Q.931: A 35 year old woman who works as a seamstress has a 3-month history of pain, weakness, and numbness of the right hand that is worse at night. Examination shows hypoesthesia and atrophy of the thenar eminence. These findings are most likely caused by compression of which of the following nerves?

- A. Median
- B. Brachial cutaneous
- C. Axillary
- D. Radial
- E. Ulnar

Ans: - A

Q.932: A 30 year old woman seeking assistance for apparent infertility has been unable to conceive in spite of repeated attempts in 5 years of marriage. She revealed that her husband had fathered a child in a prior marriage. Although the patient's menstrual periods are fairly regular, they are accompanied by extreme low back pain. The low back pain during menstruation experienced by the woman described probably is referred from the pelvic region. The pathways that convey this pain sensation to the central nervous system involve.

- A. The pudendal nerve to S2 – S4
- B. The lumbosacral trunk to L4 –L5
- C. The pelvic splanchnic nerves to S3-S4
- D. The hypogastric nerve to L1-L2
- E. None of the above

Ans: - D

Q.933: A 38 year old healthy man sustained spinal injury due to a motorbike accident. Subsequent CT Scan revealed a left sided damage of spinal cord at C 8 level. This is likely to result in

- A. Loss of pain on right side
- B. Loss of position sense of right side
- C. + ve babinski's sign
- D. Right hemiplegia
- E. Loss of discriminative touch on right side.

Ans: - A

Q.934: A 2nd year medical student is studying the 1st rib. He has noted the following typical feature about this rib.

- A. Has no intercostals groove
- B. Does not articulate with T1
- C. Form secondary cartilaginous joint, anteriorly
- D. Has only one circular facet
- E. Has scalene tubercle present on its outer border

Ans: - A

Q.935: In road traffic accident a 30 year old woman develops massive hemothorax. A chest drain is passed through the 6th interocostal space at the upper border of 7th rib. This is to protect the interocostals neurovascular bundle because

- A. It lies behind the superior border of the 7th rib
- B. The artery is the upper most

- C. It is situated between internal and innermost intercostals muscles
- D. All the veins drain into azygos vein
- E. It lies beneath the inferior border of the 6th rib

Ans: - E

Q.936: A neurologist examines a patient who complains a pain and paresthesia in the left leg. The distribution of the pain running down to the medial aspect of the leg medical side of the foot and including and great toe-is suggestive of a herniated disc. The physician links the distribution of symptoms with nerve L4 and concludes herniation has occurred at which location?

- A. Insufficient data to determine
- B. L4 – L5 intervertebral disc
- C. L5 – S1 intervertebral disc
- D. S1-S2 intervertebral disc
- E. L3-L4 intervertebral disc

Ans: - E

Q.937: An 8 year old boy was seen in emergency deptt with temperature of 102 F a furred tongue and pain in the right iliac region. At right lower quadrant was hyperesthetic and tender to touch, and the abdominal muscle showed rigidity and guarding. A diagnosis of acute appendicitis was made the skin in the right lower quadrant was tender to touch because which of the following nerve was (where) stimulated by the inflamed appendix?

- A. The subcostal and the first lumbar nerves
- B. The tenth right intercostals nerve
- C. The eighth right intercostals nerve
- D. The sympathetic autonomic afferent nerve from the appendix
- E. The seventh right thoracic nerve.

Ans: - A

Q.938: All of the following are true about the thoracic sympathetic trunk

- A. It supplies sympathetic fibers to the heart
- B. Section of the 1st thoracic ganglion causes Horner's syndrome
- C. It consists of 12 ganglia
- D. It lies on the neck of the rib just lateral to their heads
- E. It has the intercostals nerves and vessels lying in front

Ans: - E

Q.939: In a surgical patient the infusion of which of the following solutions would produce the greatest increase in the interstitial fluid volume after 1 hour?

- A. 1 L plasma
- B. 1 L Blood
- C. 1 L isotonic saline containing 6% dextran
- D. 6% albumin in 1L of saline
- E. 1 L isotonic saline

Ans: - E

Q.940: 1. A two month old infant has undergone a major surgical procedure. Regarding post operative pain relief which one of the following is recommended:

- A. No medication is needed as infant does not feel pain after surgery due to immaturity of nervous system
- B. Only paracetamol suppository is adequate

- C. Spinal narcotics via intrathecal route
- D. Intravenous narcotic infusion in lower dosage

Answer: D

Q.941: Which of the following is not a sign of stellate ganglion block?

- A. Meiosis
- B. exophthalmus
- C. Nasal congestion
- D. Conjunctival redness

Answer: B

Q.942: Referred pain from all of the following conditions may be felt along the inner side of right thigh, except:

- A. Inflamed pelvic appendix
- B. Inflamed ovaries
- C. Stone in pelvic Ureter
- D. Pelvic abscess

Answer: D

Q.943: In adults, the spinal cord normally ends at:

- A. Lower border of L1.
- B. Lower border of L3.
- C. Lower border of S1.
- D. Lower border of L5.

Answer: A

Q.944: Afferent component of corneal reflex is mediated by:

- A. Vagus nerve.
- B. Facial nerve.
- C. Trigeminal nerve.
- D. Glossopharyngeal nerve.

Answer: A

Q.945: A 74 year old patient attends your GP surgery 10 days after experiencing an episode of shingles. She now complains of persistent pain in that area. You make a diagnosis of post-hepatic neuralgia. Which of the following is the single best treatment?

- A: Oral Acyclovir
- B: Gabapentin
- C: Oral hydrocortisone
- D: Topical Acyclovir (cream)
- E: Topical Non-steroidal anti-inflammatory gel

Answer: B

Q.946: A 38 yr old teacher presents with back pain. Which one of the following symptoms would indicate a serious pathology and hence require immediate referral/further assessment?

- A: Pain made worse by movement
- B; Perineal anaesthesia
- C: Aged between 20 to 55yrs at initial presentation
- D: Pain radiating to a leg
- E; Numbness in one leg

Answer: B

Q.947: A 52 yr old secretary presents to her GP with right elbow pain. A diagnosis of "tennis elbow" is made. Which of the following statements is the most correct in "tennis elbow" ?

- A: Tenderness can be elicited over the lateral epicondyle
- B; Pain is experienced on the lateral aspect of the elbow during forced wrist flexion
- C: Periarticular injection of corticosteroid is the first line treatment for tennis elbow
- D; Usually presents bilaterally
- E; Is an uncommon condition of the elbow

Answer: A

Q.948: Actions of opiates in man are all except

- A: Constipation
- B; Mydriasis
- C; Vomiting
- D: Analgesia

Answer : B

Q.949: Preganglionic fibres of Otic Ganglion travels in

- A: Lesser Petrosal nerve
- B: Auriculotemporal nerve
- C: Greater Superficial Petrosal Nerve
- D: None of the above

Answer : A

Q.950: Disc Prolapse is Common in

- A; L4, L5,
- B: L5, S1
- C: T12, L1
- D; S1, S2

Answer : A

Q.951: Osteoporosis Seen in all Except-

- A: After Menarchae
- B; Treatment with Steroids
- C: Phenobarbitone therapy
- D: After menopause

Answer : A

Q.952: A 45 year old lady presents after a 6 week history of a painful neck. The pain is described as shooting in nature and 10/10 on a severity score. Now she describes a 3 day history of right arm weakness. Examination reveals weakness on right shoulder abduction (4/5) and right elbow flexion (4/5). Reflexes in her right arm are all absent apart from triceps. There are no sensory findings. The remainder of the examination is normal. What is the most likely diagnosis?

- A: CVA
- B: Cervical myelopathy
- C: Brachial neuritis
- D: Radial nerve palsy
- E: Frozen shoulder

Answer: C

Q.953: A potent and Long Acting LA is

- A: Bupivacaine
- B: Procaine
- C: Lignocaine
- D: None of the above

Answer: A

Q.954: All of the following are used for Surface Anaesthesia Except

- A: Cocaine
- B: Prilocaine
- C: Lidocaine
- D: Bupivacaine

Answer: A

Q.955: Parotid Gland is transversed by branches of

- A: VII Nerve
- B: IX Nerve
- C: X Nerve
- D: XI Nerve

Answer : A

Q.956: All are characteristic features of Gout except

- A: Due to problems in Pyrimidine Degradation
- B: Heberden's node
- C: Bouchard's nodes
- D: Metatarsophalangeal joint of the first toe is often involved

Answer : A

Q.957: A 63 year old male presents to his GP with an acutely painful right toe, following a drinking binge. On examination the toe is swollen, erythematous with red and shiny overlying skin, and is extremely tender to touch. The patient is currently taking furosemide, atenolol, ramipril and aspirin. Which of the following would be the most useful investigation to obtain a diagnosis?

- A; Serum uric acid
- B: Plain radiograph
- C; Synovial fluid aspirate
- D: Full blood count
- E: Blood cultures

Answer: C

Q.958: This 71 year-old lady suffers from a chronic rheumatological condition

Choose the correct combination of hand joints affected and the likely disease that would be in keeping with the above picture.

- A; Psoriatic arthritis of the mutilans subtype with onycholysis and pitting of the nails
- B; Enteropathic arthritis involving the DIP and PIP joints
- C; Ankylosing spondylitis involving the MCP joints with 'Z'-shaped deformity of the thumb
- D; Rheumatoid arthritis with Swan neck and Boutonniere deformities of the fingers
- E; Rheumatoid arthritis involving the MCP joints and a 'Z'-shaped thumb

Answer: E



Q.959: This 64 year-old man has been suffering from osteoarthritis in both knees for several years. Which joint in the hand is he most likely to have similar problems with?

- A: Radio-ulnar
- B; Scapho-lunate
- C; 1st carpometacarpal joint
- D; 1st interphalangeal joint
- E; 2nd interphalangeal joint

Answer: C

Q.960: A 74 year old man presents to A&E with a suspected fracture of his femur. He has experienced aching bone pain for approximately 6 months. He is also hard of hearing. He has a raised serum alkaline phosphatase and normal serum calcium. PSA is normal. His x-ray shows an expansile sclerotic process. What is the most likely diagnosis?

- A; Osteomyelitis
- B: Hyperparathyroidism
- C; Paget's disease
- D: Bony metastases
- E: Primary bone tumour

Answer: C

Q.961: A 42 year old man presented to his GP with troublesome headaches mainly occurring at night. He describes them as excruciating, and during an attack his wife states that he becomes aggressive, noisy and has been known to kick furniture and walls. The headaches usually last about 60 minutes and occasionally his left eye becomes red and injected. It sometimes droops, making his wife think that he is having a stroke. He can sometimes have up to 6 attacks per night. Bad bouts occur every 3-4 months. He is well in between these episodes. What is the diagnosis?

- A: Chronic migraine
- B: Paroxysmal hemicrania
- C: Short lasting unilateral neuralgiform headache with conjunctival injection and tearing
- D: Cluster headache
- E: Herald bleeds

Answer: D

Q.962: Which of the following conditions is paired incorrectly with the corresponding gait disturbance?

- A; Parkinson's disease - shuffling gait
- B: C5/C6 myelopathy - high stepping gait
- C: Common peroneal nerve palsy - foot drop
- D: Right cerebral hemisphere infarct - left hemiplegic gait
- E: Polymyositis - waddling gait

Answer: B

Q.963: Which one of the following conditions could not cause this appearance?

- A: Pancoast's tumour
- B: Carpal tunnel syndrome
- C: Motor neurone disease
- D: Monomelic amyotrophy
- E; Syringomyelia

Answer: B



REFERRING TO QUES 964-965;

Q.964: Look at this photograph and answer the following questions..

Which of the following muscle weakness causes this appearance?

- A; Trapezius
- B; Serratus anterior
- C; Deltoid
- D; Levator scapula
- E; Pectoralis major

Answer: B



Q.965: Damage to which of the following nerves could cause this appearance (as shown in the picture in question 961 above)?

- A; Spinal accessory nerve
- B; Musculocutaneous nerve
- C; Axillary nerve
- D; Long thoracic nerve
- E; Lower subscapular nerve

Answer: D

Q.966: A 43 year-old carpet fitter presented to A & E with an acutely swollen tender red, hot right knee. On examination he is unable to fully extend the right knee. The patellar tap test is positive. Aspiration of his right knee was performed. The aspirate is thick, yellow in colour. What is the most likely diagnosis?

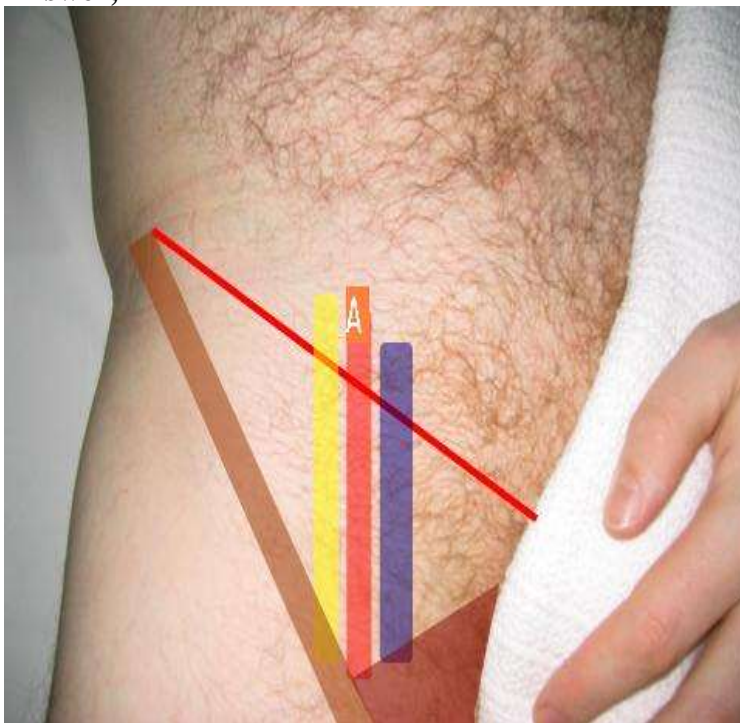
- A; Gout
- B; Bursitis
- C; Pseudogout
- D; Septic arthritis
- E; Ruptured Baker's cyst

Answer; D

Q.967: Which of the following structures is labeled A on the photograph?

- A; Femoral artery
- B; Femoral Vein
- C; Femoral Nerve
- D; Inguinal Ligament
- E; External Iliac Vein

Answer; A



Q.968: John is a 50 year old car mechanic. He presents to his GP with an 8 week history of pains in his hands, elbows, shoulders, knees and feet. He has remarked that his joints have become quite 'swollen'. They are stiff in the morning time and take more than 30 minutes to 'warm up'. On examination you notice that his MCP joints are symmetrically swollen, red and tender. Clinically the GP diagnoses early Rheumatoid Arthritis (RA). What would be the recommended course of action that the GP should take?

- A; Refer to a rheumatologist only when his pains become quite severe.
- B; GP should commence Methotrexate
- C; Routine referral to a rheumatologist
- D; Urgent referral to a rheumatologist
- E; X-ray his hands

Answer: D

Q.969: A 71 year-old man complains to his GP of bony aches and pains. He is otherwise well. Bone profile sent.

AST, ALT, GGT are normal.

What is the most likely diagnosis?

- A; Prostatic carcinoma with bony metastases
- B; Osteoporosis
- C; Primary sclerosing Cholangitis
- D; Paget's disease
- E; Osteomalacia

Answer: D

Bone Profile
Ca = 2.31 mmol/l
ALP = 198 U/L
ALB = 41 g/l
Phosphate = 0.89 mmol/l
PSA = 2.1 µg/l

Q.970: Mary is a 68 year old retired cleaner. She presents to her GP with pains in her 'hand joints'. She is finding simple tasks like opening buttons increasingly difficult. Her pains tend to get worse as the day progresses. Her hands do get stiff particularly after use. She has never noticed her hands to be swollen but has noticed little 'swellings on the ends of her fingers'. Clinically you do not detect any signs of synovitis. What would be recommended first line pharmacological treatment for this patient?

- A; High dose NSAIDs
- B; Paracetamol
- C; Methotrexate
- D; Topical NSAIDs
- E; Sulfasalazine

Answer: B

Q.971: Endogenous opioid receptors for Endorphin and enkephalin are present in all of the following thereby blunting the pain except

- A: hypothalamus
- B: large intestine
- C: liver
- D: Substantia gelatinosa Rolando

Answer : C

Q.972: Actions of opiates in man are all except

- A: Constipation
- B: Mydriasis
- C: Vomiting
- D: Analgesia

Answer : B

Q.973: Following are Criteria for Rheumatoid arthritis except

- A: morning stiffness for half hour
- B: simultaneous 3 joints involved
- C: asymmetrical joint involvement
- D; small joints are affected

Answer; C

Q.974: Which one of the following is a recognized X-Ray feature of rheumatoid arthritis?

- A: Juxta-articular osteosclerosis.
- B: Sacroilitis.
- C: Bone erosions.
- D; Peri-articular calcification.

Answer; C

Q.975: Paget's disease of bone

- A;May present with neurological complications or a pathological fracture
- B;Causes an increase in both serum calcium and phosphate
- C; Causes an decrease in serum alkaline phosphatase
- D; Malignant change occurs in 10% of patients
- E; The commonest malignant tumour in patients with Paget's disease is a chondrosarcoma

Answer: A

Q.976: Regarding osteomalacia

- A; Is due to vitamin A deficiency
- B; Can cause a distal myopathy
- C; May present with pseudo-fractures
- D; Serum calcium is increased
- E; A bone biopsy would show an increase in mineralised osteoid

Answer: C

Q.977:Regarding upper limb peripheral nerve injuries

- A; Injury to the median nerve results in a wrist drop
- B; Injury to the median nerve results in loss of sensation over the dorsal aspect of the index finger
- C; Injury to the radial nerve results in loss of sensation in the anatomical snuffbox
- D; Injury to the median nerve results in a claw hand
- E; Injury to the ulnar nerve results in loss of sensation over the thumb

ANSWER : C

Q.978: Regarding osteomyelitis

- A; Is most commonly due to a staphylococcus aureus infection
- B; Can be due to shigella infection in patients with sickle cell anaemia
- C; Infection usually involves the metaphysis of small bones
- D; Dead bone within the medullary canal is known as the involucrum
- E; New bone forming beneath the periosteum is known a the sequestrum

Answer: A

Q.979: Regarding rheumatoid arthritis

- A; Is a disease primarily of the articular cartilage
- B; Is associated with the HLA antigens DR4 and DW4
- C; Occurs more often in men
- D; The hand, elbows, knees and cervical spine are the uncommon joints involved
- E; Extra-articular manifestations occur in 80% of patients

Answer: B

Q.980: A 37 year old female teacher presents with a 2 week history of small joint pain and stiffness in her hands and feet. Which of the differential diagnoses listed is the least likely explanation for her symptoms?

- a. Rheumatoid arthritis
- b. Viral arthritis
- c. Fibromyalgia

- d. Connective tissue disease
- e. Psoriatic arthritis

Answer: C

Q.981: Which of the following is not a recognized risk factor for osteoporosis?

- (a) Early menarche
- (b) Smoking
- (c) Low dietary calcium intake
- (d) Sedentary lifestyle
- (e) Slender body habitus

Answer: A

Q.982 In which of the following conditions may treatment include a stellate ganglion block?

- A. Causalgia.
- B. Herpes zoster.
- C. Skin graft to the face.
- D. Raynaud's Disease.
- E. All of the above.

Answer: E

Q.983: Which of the following are true of causalgic pain?

- A. It is mediated by the sympathetic nervous system.
- B. It only occurs in association with injury to major nerve trunks.
- C. It is most successfully treated with neurolytic sympathetic denervation.
- D. All of the above.
- E. None of the above.

Answer: D

Q.984: The incidence of chronic groin pain 1 year after inguinal herniorrhaphy is approximately:

- A. 1%.
- B. 5%
- C. 10%
- D. 15%
- E. 25%

Answer: E

Q.985: Which of the following forms of therapy is the LEAST LIKELY to be effective in the management of reflex sympathetic dystrophy (Complex Regional Pain Syndrome Type 1) of the upper limb?

- A. IV guanethidine.
- B. Stellate ganglion blockade
- C. IV reserpine.
- D. IV lidoflazine.
- E. IM calcitonin.

Answer: D

Q.986: A patient with a complex regional pain syndrome experiences pain when the affected limb is lightly touched. This symptom is most accurately described as:

- A. Allodynia.
- B. Causalgia.
- C. Hyperalgesia.
- D. Neuralgia.
- E. Dysaesthesia.

Answer: A

Q.987: The incidence of chronic pain (more than 6 months duration) complicating median sternotomy for coronary artery grafting is approximately:

- A. 5%.
- B. 10%.
- C. 20%.
- D. 33%.
- E. 66%.

Answer: D

Q.988: Which of the following are true of a cervical rib?

- A. It occurs commonly.
- B. It is apparent on palpation in the supraclavicular region.
- C. It originates from the 7th cervical vertebra.
- D. It commonly causes compression of the subclavian artery and brachial plexus.
- E. All of the above.

Answer: C

Q.989: The musculocutaneous nerve:

- A. Is a branch of the lateral cord of the brachial plexus.
- B. Leaves the plexus at the point at which it crosses the first rib.
- C. Receives fibres from the 8th cervical spinal root.
- D. Only contains sensory fibres.
- E. None of the above.

Answer: A

Q.990: Which of the following structures accompany the median nerve in the carpal tunnel?

- A. Flexor carpi ulnaris.
- B. Flexor digitorum profundus.
- C. The ulnar artery.
- D. All of the above.
- E. None of the above.

Answer: B

Q.991: Which of the following statements are true?

- A. The most prominent spinous process palpable represents T1.
- B. The tip of the spine of T9 is opposite the inferior angle of the scapula.
- C. The dimples overlying the posterior superior iliac spines are on a line crossing the termination of the dural sac in the spinal canal at S2.
- D. The lower end of the spinal cord is opposite the lower border of the body of L2 and sometimes extends a little below this.
- E. All of the above.

Answer: C

Q.992: A patient who has suffered a penetrating wound above the clavicle and who has evidence of degeneration in the axillary, musculocutaneous and long thoracic nerves will may have severed which ventral ramus?

- A. C4
- B. C6
- C. C8
- D. T1
- E. None of the above.

Answer: B

Q.993: The dorsal scapular nerve innervates:

- A. trapezius
- B. levator scapulae
- C. latissimus dorsi
- D. splenius cervicis
- E. None of the above

Answer: B

Q.994: The nerve which is most closely associated with the radial artery in the forearm is the :

- A. Median nerve.
- B. Superficial radial nerve.
- C. Deep radial nerve.
- D. Anterior interosseous nerve.
- E. None of the above.

Answer: B

Note: Instruction for Question NO. 995 to Question NO.1000

MARK

A: 1,2,3 Correct

B: 1,3 Correct

C: 2,4 Correct

D: 4 Correct

E: All Correct

Q.995: With regard to Phantom Limb Pain (PLP):

1. Over 50% of amputees will suffer PLP at some stage.
2. Acute PLP can be precipitated by spinal anaesthesia.
3. Ketamine may be more efficacious than Morphine in treatment of PLP.
4. Long-term PLP can usually be satisfactorily treated.

Answer: A

Q.996: Which of the following are true of neuropathic pain?

1. It is associated with damage to neurological structures.
2. It may be responsive to treatment with antiinflammatory agents.
3. It may be responsive to treatment with antidepressants agents.
4. It has well defined nociceptive mechanisms.

Answer: B

Q.997: With reference to Complex Regional Pain Syndrome (CRPS):

1. Type I was formerly known as 'Causalgia'.
2. It is more likely to be severe when caused by a severe injury.
3. It is more likely to complicate a fracture than a peripheral nerve injury.
4. The presence of motor impairment is not essential for the diagnosis.

Answer: D

Q.998: Which routes of administration of clonidine may be useful in the treatment of Complex Regional Pain Syndromes:

1. Epidural.
2. Topical.
3. Intrathecal.
4. Oral.

Answer: A

Q.999: Complications of a coeliac plexus block with a neurolytic solution include:

1. Postural hypotension.
2. Diarrhoea.
3. Paraplegia.
4. Horner's Syndrome.

Answer: A

Q.1000: With regard to norpethidine:

1. Myoclonic jerks may be a feature of toxicity.
2. It has a half-life of 15-21 hours.
3. It is largely eliminated by renal excretion.
4. Toxicity does not occur within 48 hours of exposure to pethidine.

Answer: A