Primary Master of Medicine (Emergency Medicine)
PART A – MCQ exam

2 hrs

SAMPLE QUESTION BOOKLET
1. A 49-year-old lady presents with right hypochondrial pain, fever and vomiting. She also complains of right shoulder pain. Ultrasound of the gallbladder shows gallstones with a thickened gallbladder wall.

Which of the following dermatome is most likely involved in her right shoulder pain?

A. C3 – C5  
B. C6 – C8  
C. T1 – T3  
D. T4 – T6  
E. T8 – T10

2. A 57-year-old man with end-stage renal disease presents with drowsiness. He missed haemodialysis for one week. His serum potassium level is 8.2mmol/L.

How does hyperkalaemia destabilize the cardiac membrane?

A. Decreases calcium availability from the sarcoplasmic reticulum  
B. Inactivation of sodium channels  
C. Increases the efficiency of the Na-K-ATPase pump  
D. Potentiates the action of the sodium-calcium exchanger  
E. Prolongs repolarization of the myocardium
3. A 35-year-old HIV-positive man presents with a lump on his right forearm for the past three weeks that has increased in size. The lesion on his forearm is as shown.

![Image of a lump on the forearm]

What is the most likely cellular origin of this lesion?
A. Basal layer of skin  
B. Dendritic cells of skin  
C. Melanocytes of skin  
D. Venular endothelium  
E. Macrophages of skin

4. A man plans to travel from Singapore (sea-level) to a city 4000m above sea-level. He seeks your opinion on acetazolamide.

What is the mechanism of action of this drug that helps with acclimatization?
A. Decreases bicarbonate loss  
B. Increases sodium resorption and improves hydration  
C. Increases reaction between carbon dioxide and water  
D. Induction of a high anion-gap metabolic acidosis  
E. Reduces hydrogen ion secretion
5. A man presents with a submersion injury.
What is the first pathophysiological event that occurs?
A. Water entering the airways preventing O2 access leading to cardiac arrest
B. Laryngospasm leading to hypoxia and CO2 retention.
C. Hyperventilation with water actively inhaled by drowning victim leading to asphyxiation
D. Loss of pulmonary auto-regulation when water comes into contact with the upper airway
E. Water absorbed through the upper airway mucosa resulting in flooding of the alveoli

6. A 2-year-old boy presents with three days of fever and irritability. Physical examination reveals a hyperaemic tympanic membrane.
What is the most likely causative bacteria?
A. Streptococcus pneumoniae
B. Moraxella catarrhalis
C. Staphylococcal aureus
D. Mycoplasma pneumoniae
E. Haemophilus influenza

7. A 70-year-old diabetic man presents with right facial pain and swelling for one week. Examination reveals right maxillary region erythema which is warm and tender to palpation. Gentle massage of the right cheek expresses purulent discharge from the Stensen duct.
What is the most appropriate antimicrobial therapy for his condition?
A. Ampicillin
B. Amoxicillin and clavulanic acid
C. Clindamycin
D. Gentamicin
E. Vancomycin
8. A 33-year-old pregnant woman in her second trimester, is being investigated for right upper quadrant abdominal pain.

Which of the following laboratory tests is most useful in the diagnosis of cholestasis?

A. Alanine aminotransferase  
B. Alkaline phosphatase  
C. Serum albumin  
D. Total white blood cell count  
E. Unconjugated bilirubin

9. A 30-year-old man with known sickle cell anaemia presents with a persistent painful erection.

Which of the following is the most likely explanation for his symptoms?

A. Blockage of draining venules  
B. Coagulopathy causing engorgement of dorsal corpora cavernosa  
C. Loss of sympathetic input from pelvic vasculature  
D. Prolonged relaxation of intra-cavernous smooth muscles  
E. Rupture of cavernous artery

10. A 30-year-old smoker presents with sudden onset of chest pain and dyspnea at rest. Lung examination shows decreased breath sounds and decreased fremitus on the right, with hyper-resonance to percussion.

Which of the following enzyme deficiency is associated with his underlying condition?

A. Alpha-1 antitrypsin deficiency  
B. Alpha galactosidase A deficiency  
C. Branched-chain alpha-ketoacid dehydrogenase deficiency  
D. Galactose-1-phosphate uridyl transferase deficiency  
E. Ornithine transcarbamylase deficiency
ANSWERS

1. A, C3 – C5
2. B, Inactivation of sodium channels
3. D, Venular endothelium
4. E, Reduces hydrogen ion secretion
5. B, Laryngospasm leading to hypoxia and CO₂ retention.
6. A, *Streptococcus pneumoniae*
7. B, Amoxicillin and clavulanic acid
8. B, Alkaline phosphatase
9. A, Blockage of draining venules
10. A, Alpha-1 antitrypsin deficiency