



MASTERS IN EMERGENCY MEDICINE (MEM)

2015 ADMISSION WRITTEN TEST

1. Which of the following is true regarding Cervical spine fractures –
- A. A Hangman's fracture is a fracture through the Odontoid process
 - B. A Hangman's fracture is almost associated with spinal injury
 - C. A Jefferson's fracture is caused by a hyperextension injury
 - D. In a Jefferson's fracture, the radiograph is characterized by bilateral displacement of the articular masses of C1
 - E. Type II Odontoid fracture occurs when the fracture line extends into the Axis

Ans: D

2. Regarding *Plasmodium falciparum*, which is false –
- A. The Anopheles gambiae mosquito is the principal vector
 - B. It is commonly a result of travel in the Indian subcontinent
 - C. It is a recognized cause of massive splenomegaly
 - D. There may be a continuous fever

Ans: B

3. When a wound heals by primary intention, which is false?
- A. The wound space fills with exudates and clot in the first 24 hours
 - B. Epithelial cells migrate over the surface skin and proliferate over the wound
 - C. Capillary sprouts are seen by the end of day 1
 - D. Vascularity of a scar will decrease with time

Ans: C

4. HIV affects
- A. B cells
 - B. Helper T cells
 - C. Suppressor T cells
 - D. Cytotoxic T cells

Ans: B



5. In Pelvic inflammatory disease, which is false?
- A. The most common organism is *N.gonorrhoeae*
 - B. It may be contracted after termination of pregnancy
 - C. It results in higher incidence of ectopic pregnancy
 - D. It may result in peritonitis

Ans: A

6. About Ipratropium bromide, which is false?
- A. Is an anticholinergic agent
 - B. It is a derivative of atropine and has a maximal effect between 30-60 minutes
 - C. Side effects include dry mouth, urinary retention, and tachycardia
 - D. It may interact with warfarin, and cause lengthening of INR

Ans: D

7. The SIRS(Systemic Inflammatory Response syndrome) criteria includes all of the following except:
- A. Heart rate > 90 bpm
 - B. WBC > 12000/mm³ or < 4000/mm³
 - C. RR > 20/min
 - D. BP < 90 mmHg systolic
 - E. Temp > 38 degrees or < 36 degrees

Ans: D

8. Absolute Contraindication to Thrombolytic therapy includes all of the following Except:
- A. Recent head trauma
 - B. Stroke within past 6 months or any history of hemorrhagic stroke
 - C. Suspected aortic dissection
 - D. Initial BP > 240/140
 - E. Suspected Pericarditis

Ans: E



9. A 27 year old man is brought to the emergency department by ambulance after he sustained injuries in a motor vehicle collision. Emergency medical technicians report that the patient was the unrestrained driver of a car that struck a telephone pole head-on. The patient is immobilized with a cervical collar and spine board. He is conscious and says he has chest pain.

His vitals are HR: 130/min, RR: 40/min, and systolic BP 80mmHg.

On physical examination, the neck veins are distended, the trachea is displaced to the right, and the left side of the chest is hyperresonant to percussion. Heart sounds are distant. On the basis of these findings, this patient has most likely sustained which of the following traumatic injuries?

- A. Flail chest
- B. Pneumomediastinum
- C. Pneumothorax
- D. Pulmonary contusion
- E. Rupture of the left main bronchus

Ans: C

10. A 44 year old man is brought to the emergency department by ambulance after he was found by police in an unconscious state. He had been sitting in his car with the engine running inside a garage with the door closed. The patient was intubated en route by emergency medical technicians and is currently unresponsive. His vitals are temperature: 38.0°C (100.4°F), HR: 130/min, RR: 12/min with Ambubag ventilation support, and BP: 140/100 mmHg. Oxygen saturation is 100%.

Which of the following tests is most appropriate to determine whether this patient has sustained carbon monoxide poisoning?

- A. Arterial blood gas analysis
- B. Chest x - ray study
- C. Measurement of carboxyhemoglobin level
- D. Pulse oximetry
- E. Ventilation - perfusion lung scan

Ans: C



11. An 18 year old man is brought to the emergency department by his mother because he has had elevated mood, irritability, and grandiosity during the past four hours. The mother says the patient was so depressed three days ago that he would not come out of his room. Results of drug and alcohol screening are negative.

Which of the following is the most likely diagnosis?

- A. Borderline personality disorder
- B. Generalized anxiety disorder
- C. Major depressive disorder
- D. Bipolar I disorder
- E. Schizophrenia

Ans: D

12. A 23 year old woman comes to the emergency department because she has had fever, pain in the lower abdomen, and vaginal discharge for the past two days. Temperature is 39.0°C (102.2°F). Physical examination of the abdomen shows tenderness of the lower quadrants. Pelvic examination shows creamy white vaginal discharge and cervical motion tenderness.

Which of the following is the most likely causative agent?

- A. Chlamydia trachomatis
- B. Gardnerella vaginalis
- C. Human papillomavirus
- D. Staphylococcus aureus
- E. Trichomonas vaginalis

Ans: A

13. Third nerve palsy with pupil sparing is seen in the following conditions:

- A. Diabetes Mellitus
- B. Aneurysm of posterior communicating artery
- C. Uncal herniation
- D. Internal carotid artery aneurysm within the cavernous sinus

Ans: A



14. Which of the following statements concerning the normal heart sounds is true?
- A. The first heart sound occurs just before the R wave of the ECG.
 - B. The first heart sound is split into two components during inspiration
 - C. The first heart sound corresponds with the closure of the mitral and tricuspid valves
 - D. The second heart sound occurs during the T-wave.

Ans: C

15. Which of the following is true,
- A. Ulnar nerve block provide anesthesia to little and ring finger along with medial part of hand
 - B. Radial nerve block provide anesthesia palmer lateral half of hand
 - C. Median nerve block provide anesthesia to medial dorsal part of hand.
 - D. While providing local anesthesia, Greater dose of lignocaine can be used if not combined with

ADR

Ans: A

16. Which of the following is true regarding dermatomes,
- A. T4 levels -umbilicus
 - B. T10- Midway between umbilicus and pubic symphysis
 - C. T 8- Little finger
 - D. C7- Middle finger

Ans: D

17. Which of the following statement is wrong-
- A. Cerebral Perfusion Pressure(CPP)= MAP-ICP
 - B. MAP=SBP (systolic Blood pressure)+ 1/3 Diastolic blood pressure
 - C. Transudative fluid consist of low protein and low specific gravity.
 - D. Normal capillary refill time < 2 seconds

Ans: B

18. All the followings are true except,
- A. Adrenaline is the drug of choice in PEA or Asystole
 - B. ACLS recomends 1 mg ADR 1:100 iv in cardiac arrest
 - C. Dopamine at low dose act on B1 and at high dose acts on alfa receptor.
 - D. Calcium gluconate in hyperkemia acts by stabilizing the membrane of the heart.

Ans: B



19. All the following true except-

- A. Spironolactone can cause hyperkalemia.
- B. Mannitol is a osmotic diuretic and should not be given in a hypotensive patient
- C. Anaphylaxis is a type 4 hypersensitivity reaction-----
- D. Rabies post exposure HDCV schedule is 0,3,7,14.

Ans: C

20. Which of the following is true regarding upper GI bleed,

- A. Negative Ryles tube aspiration always exclude upper GI bleed.
- B. By definition Upper GIT bleed include jejunum also
- C. Initial Pantoprazole dose is 40 mg iv
- D. Most common cause of bleed is peptic ulcer

Ans: D

21. The cavernous sinus contains the following structures, except:

- A. The internal carotid artery.
- B. The trochlear nerve.
- C. The mandibular nerve.
- D. The maxillary nerve.

Ans: C

22. T wave inversion on the 12 lead ECG can be normal in:

- A. Lead V1.
- B. Lead aVL.
- C. Lead I.
- D. Lead III.

Ans: A

23. The following are notifiable diseases , Except :

- A. Tetanus.
- B. Erysipelas.
- C. Hepatitis A.
- D. Anthrax.

Ans: B



24. The mechanism of action of heparin is :

- A. Heparin binds to and activates the enzyme inhibitor antithrombin III.
- B. Heparin binds to and activates the enzyme inhibitor antithrombin II
- C. Heparin binds to and activates the enzyme inhibitor antithrombin I
- D. Heparin binds to Thrombin and activates it

Ans: A

25. Regarding in the management of Shock in childhood the correct statement is :

- A. Early endotracheal intubation and mechanical ventilation should be considered for shocked children not responding to 2 fluid boluses.
- B. The IV dose of ceftriaxone for suspected meningococcal septicaemia is 20 mg/kg.
- C. The dose of the first crystalloid bolus is 10 ml/kg.
- D. A urine output of 0.5 ml/kg/hour indicates adequate renal perfusion.

Ans: A

26. Causes of bilateral fixed dilated pupils include all except:

- A. Hypothermia.
- B. Barbiturates.
- C. Third nerve palsy.
- D. Anticholinergic drugs.

Ans: C

27. J waves may be seen in between

- A. The QRS complex and the T wave
- B. P wave and QRS complex
- C. Between T wave and P wave
- D. All of the above

Ans: A

28. Which of the following bone forms the floor of anatomical snuff box?

- A. Lunate
- B. Trapezoid
- C. Hamate
- D. Scaphoid
- E. Pisiform

Ans: D



29. In a patient taking oral warfarin, which lab parameter has to be checked frequently?

- A. APTT
- B. PT
- C. Bleeding Time (BT)
- D. Clotting Time (CT)
- E. All of the above

Ans: B

30. A 24 year old male patient is brought to your emergency department with alleged history of road traffic-accident where he was thrown off the bike he was riding at high speed 30 minutes prior to arrival. on arrival he is conscious oriented , restless and diaphoretic. He is speaking in words as he is severely tachypnoic. On auscultation there is no breath sounds on right side of his chest and percussion reveals hyper resonance. Right side chest tenderness present. No other signs of bleeding. His vitals are as follows - HR-110/min, BP-86/60, RR-28/min, Spo2- 80% (Room air), Head to toe examination reveals trachea deviated to left and dilated neck veins on right side. What is your immediate next step?

- A. Intubate the patient.
- B. Ask for emergency chest X-ray in ED after connecting the patient to 15 Lit O2 with non-rebreathermask.
- C. Put a large bore needle to his right side of chest at 2nd intercostal space in mid-clavicular line.
- D. Put an intercostal drainage to right side of chest and connect to underwater seal.
- E. Start him on 15 liters oxygen, start IV crystalline boluses through 2large bore IV lines (Warmed fluids), stabilize his chest, take a chest X-ray (Portable) and manage as per the x-ray findings.

Ans: C

31. A 4- year-old male patient s brought to your ED at 2Am with complaints of pain in right scrotum since 30 mins. On examination boy is in severe pain. Vitals reveals tachycardia and other parameters are normal. On local examination you find swollen right scrotum and you find right testis lying in transverse plane. Cremastric reflex is absent. What is your next immediate step?

- A. Discharge the boy after pain management
- B. Observe for 6hrs after pain management
- C. Raise the scrotum to relieve pain along with IV analgesics
- D. Immediate general surgery consultation and apply ice till surgeon arrives and shift to OR.
- E. Immediately manually twist the right testis in counter clock wise direction till pain is relieved.

Ans: E



32. Which of the following is not found in the upper respiratory tract?

- a) Oropharynx
- b) Palatine tonsils
- c) Fauces
- d) Trachea

Ans: D

33. A 35 year old male patient comes to your ER with complaint of anorexia, nausea and vomiting and abdominal pain. His abdomen is tender in the epigastric area. Laboratory results reveal a raised serum amylase activity and a preliminary diagnosis is made of acute pancreatitis. Which of the following anti-retroviral drugs has the patient most likely been taking?

- a) Saquinavir
- b) Zidovudine
- c) Didanosine
- d) Efavirenz
- e) Enfuvirtide

Ans: A

34. A 45 year old female presents to your ER with mild pleuritic right sided chest pain. A Chest X ray reveals a small (<1cm) ring of air outside the lung at the apex. What is the correct management?

- a) Chest drain (Seldinger technique)
- b) Aspiration under ultrasound guidance
- c) Aspiration without ultrasound
- d) Observation initially
- e) Chest drain (trochar technique)

Ans: D

35. Which of the following increases heart rate

- A. Stimulation of pain fibres in the trigeminal nerve
- B. The increased activities of baroreceptors in the pulmonary circulation
- C. Raised intracranial pressure
- D. Increased activity of Atrial stretch receptors

Ans: D



36. True statement regarding Lung Volumes

- A. The vital capacity is the sum of inspiratory reserve volume and the tidal volume
- B. The residual volume is measured with the help of a Spirometer
- C. FEV1/FVC ratio increases in obstructive airways disease
- D. The tidal volume is usually about 6–8 mL/kg at rest

Ans: D

37. True statement regarding femoral triangle is

- A. Has the medial border of iliopsoas as the lateral boundary
- B. Contains the femoral nerve in its femoral sheath
- C. Has the femoral canal as its most medial structure
- D. Can have a femoral hernia which can be distinguished from an inguinal hernia because its neck is always medial to the pubic tubercle.

Ans: C

38. Regarding foot anatomy , FALSE statement is

- A. Inversion is mainly due to the action of tibialis anterior and tibialis posterior
- B. Inversion and eversion occur at the talocalcaneal joint
- C. The medial arch of the foot is supported by three tendons
- D. Calcaneal fractures are typically caused by severe eversion of the foot

Ans: D

39. Which is FALSE regarding Benzodiazepines ?

- A. They all undergo biotransformation in the liver before excretion
- B. Most are transformed to inactive metabolites
- C. Midazolam and lorazepam are short-acting
- D. Diazepam has an elimination half-life of between 50 and 150 hour

Ans: B

40. Which of the following is NOT used in chemoprophylaxis for contacts of meningococcal meningitis

- A. Rifampicin
- B. Ceftriaxone
- C. Ciprofloxacin
- D. Flucloxacillin

Ans: D



41. Regarding the immune system which is FALSE
- A. B lymphocytes are essential for humoral immunity
 - B. About 60–70% of lymphocytes in the blood are T lymphocytes
 - C. IgM is the most abundant of circulating immunoglobulins
 - D. IgG is the only immunoglobulin that crosses the placenta

Ans: C

42. Chlamydial infection
- A. Causes an increased risk of cervical cancer in women
 - B. May present as right upper quadrant pain in women due to perihepatitis and called Fitz-Hugh and Curtis syndrome
 - C. Is confirmed by cell culture and has a high sensitivity and rarely has false-negative results
 - D. Should be treated with azithromycin or doxycycline

Ans: C

43. TRUE Statement regarding Diabetic Keto Acidosis (DKA) is
- A. The whole body potassium is normal to high
 - B. It is a high anion gap acidosis
 - C. The severe metabolic acidosis is made worse by the increased respiratory rate
 - D. The insulin dose requirements are lower than in hyperosmolar non-ketotic coma

Ans: B

44. Which of the following is a decision making rule for imaging the cervical spine in trauma in the Emergency Department?
- A. TIMI
 - B. Ottawa Rules
 - C. NEXUS
 - D) WELLS

Ans: C

45. Initial fluid resuscitation in pediatric trauma is with Iv Crystalloids and the volume used is
- A. 10ml/kg
 - B. 15ml/kg
 - C. 20ml/kg
 - D. 25ml/kg

Ans: A



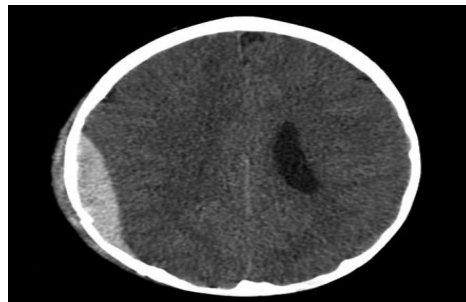
46. Identify the equipment



- A. Neonatal suction device
- B. Carbon dioxide detection device
- C. Esophageal detection device
- D. Orotracheal suction device

Ans: C

47. 27 year old bike rider brought to ED following a motor vehicle collision. There was no helmet. His GCS was 7/15, pupil unequal, Pulse 58/min, BP – 170/90mmHg, SPO2 – 92%, GRBS 120mg/dL. His CT scan given below -



Which of the following management is contraindicated

- A. Rapid sequence intubation to control airway
- B. Urgent Mannitol to reduce intracranial pressure
- C. Neurosurgical consultation and urgent OT shift
- D. All of the above

Ans: B



48. Which of the following statement is *false* regarding this device



- A. It is used for control oxygen therapy
- B. It is an high flow oxygen delivery system
- C. Contraindicated in COPD patients with acute exacerbation
- D. It works based on venturi principle

Ans: C

49. Which of the following statements is *false* regarding this device



- A. It is a patient control analgesia unit
- B. It can be controlled by Nurse or Physician
- C. It provide excellent patient satisfaction and good control over Acute and chronic pain
- D. It is effective only through Epidural route of administration

Ans: D



50. 37 year old Motor driver brought ED following Road Traffic accident, he is conscious & alert. Pulse 140/min, BP – 100/70mmHg, SPO2 – 94%, GRBS - 160mg/dL, Abdomen distended. His FAST scan is given below.



- A. Collection in Morrison Pouch
- B. Collection in Spleno renal pouch
- C. Collection in Pelvic cavity
- D. Pericardial collection
- E. Normal FAST

Ans: A