

# Anaesthesia quiz preliminary questions

## (True or False)

1. The following are natural precursors of adrenaline

- A. Nordrenaline
- B. Glycine
- C. Tyrosine
- D. Dihydroxyphenylalanine
- E. Dobutamine

2. Tramadol

- A. Is a controlled drug
- B. Has an analgesic property equal to that of morphine, without respiratory depression
- C. Produces action solely via mu receptors
- D. Has an active metabolite O-desmethyl tramadol
- E. Can be safely given to patients receiving MAO inhibitors

3. Definitions

A. A fluid is a substance that expands to occupy the space in which it is confined

B. Heat represents the average kinetic energy of a substance

C. Absolute zero is a point at which all molecular motion ceases

D. A vapour is a gas below its boiling point

E. 1 calorie is the energy provided by 1 mg of sugar

4. Nitrous oxide

A. Is principally produced as a by product in the nylon industry

B. Inhibits methionine reductase

C. Causes an increase in sympathetic outflow

D. Is associated with post-operative nausea and vomiting

E. Has no effect on pulmonary vascular resistance

5. A capacitor

A. Is central to the function of a defibrillator

B. Is a way of storing current

- C. Has a resistance to AC current flow that is independent of the frequency of the current
- D. Has a capacitance measured in Farads
- E. May be thought of as two conductors separated by an insulator

6. Blood flow in right coronary artery

- A. Is reduced by vagal stimulation
- B. Is increased by adenosine
- C. Is reduced to zero during ventricular systole
- D. Is increased by intra coronary potassium
- E. Can be measured by applying the Kety method

7. Recommended standards of monitoring

- A. The most important monitor is the pulse oximeter
- B. It is not necessary to have a capnograph
- C. BP measurements necessary only if surgery lasts more than 10 minutes
- D. Only an ECG and NIBP are required for RA cases

E. The main cause of anaesthetic mortality is equipment failure

## 8. Concerning sleep

A. REM sleep is divided into 4 stages

B. REM sleep makes up to 60% of total sleep

C. REM sleep is associated with slow irregular low amplitude waves on the EEG

D. NREM sleep is associated with tachypnea

E. REM sleep is associated with penile erection.

## 9. Venous air embolism

A. Is common in the sitting position than supine at craniotomy

B. Presents with a sudden onset

C. May be detected early by ECG changes

D. Trend display of ETco<sub>2</sub> is not reliable

E. The air can be retrieved by aspiration through a CVP catheter

## 10. Progesterone

- A. Delays gastric emptying
- B. Stimulates ventilation
- C. Increases SVR
- D. Levels take 6 weeks to return to pre pregnant levels
- E. Is thermogenic

11. The following pharmacological definitions are correct

- A. A ligand is a molecule that interacts with a receptor
- B. Tachyphylaxis is a type 1 immediate hypersensitivity reaction
- C. Positive co-operativity means receptor occupancy at low concentrations increases apparent receptor affinity at high concentrations
- D. Volume of distribution is the plasma volume into which the drug is administered
- E. At steady state, infusion rate equals elimination rate

12. The following are true

- A. Disinfection must be preceded by decontamination
- B. Sterilization must be preceded by disinfection

C .Pausteurisation is a method of sterilization

D. Hot steam sterilization requires temperatures of 100 degree C or more

E. Dry heat alone is ineffective for sterilization

13. Concerning transdermal drug administration

A. First pass metabolism is avoided

B. Uptake will depend on skin thickness and temperature

C .Passage across subcutaneous fat is the rate limiting step for drug uptake

D. Suitable drugs include hyoscine, NTG and fentanyl

E. Fentanyl and Morphine have similar rates of transfer

14. Anaesthetic breathing circuits

A .Lack and Bain circuits have similar flow characteristics

B. Mapleson E circuit is effective for spontaneous breathing patients

C. Jackson-Rees modified circuit has a valve with a release pressure of 2 cm of H<sub>2</sub>O

D. Coaxial Lack circuit has the expired gases passing in the outer tubing

E. The tubing is corrugated to improve flow characteristics

#### 15. Concerning pain pathways

A. A-delta and C fibres have cell bodies within the dorsal root ganglion

B. A-delta fibres synapse with cells of the substantia gelatinosa of the spinal cord

C. C fibres synapse with cells in laminae II and III in the dorsal horn

D. Most ascending neurons are in the anterolateral columns

E. The substantia gelatinosa does not project directly to higher levels

#### 16. Biological signals

A. Signal voltage from EEG is much larger than that from an EMG

B. Auditory evoked potentials are measured by summation of many individual signals

C. An ECG electrode contains aluminium as its base

D. Amplifiers used in displaying the ECG rely on common mode rejection to improve the signal to noise ratio

E. The P wave of the ECG is normally positive in all leads because it is a depolarization wave

## 17. Smooth muscle

A. Has a longer action potential than cardiac muscle

B. Can be tetanized

C. Is a syncytium

D. Has pace maker cells

E. Has no sarcomeres

## 18. In rapid sequence induction



- A. Cricoid pressure is applied with a force of 40 Newtons
- B. Cricoid pressure should never be released until the tracheal tube is correctly placed and cuff inflated
- C. Misting in the catheter mount is an indicator of correct placement of the tube
- D. The lungs should be manually inflated with 100% oxygen till intubation is achieved
- E. Pretreatment with Alfentanil is used to reduce the pressor response to intubation

## 19. Organophosphorous compounds

- A. Are readily absorbed through the skin
- B. Inhibit acetylcholinesterases by phosphorylation of the anionic site of the enzyme.
- C. Also inhibit plasma cholinesterase
- D. Can cause autonomic instability
- E. Can have their action reversed by Pralidoxime which reactivates cholinesterase

## 20. Mannitol

- A. Readily absorbed from GI tract
- B. Is a six carbon sugar
- C. Enters cells by an active transport mechanism
- D. Completely filtered by glomeruli and not reabsorbed from the tubules
- E. Increases urinary excretion of water, sodium, chloride and bicarbonate

#### 21. Sinus arrhythmia

- A. Occurs in the elderly
- B. Is rarely present in athletes
- C. Causes an increase in R-R interval
- D. Involves the stellate ganglion
- E. Is more marked during exercise

#### 22. The basic SI units include

- A. The metre
- B. The second
- C. The volt

D. The gram

E. The curie

23. Drugs causing prolongation of Q-T interval include

A. Sotalol

B. Quinidine

C. Verapamil

D. Flecainide

E. Disopyramide

24. During a Valsalva

A. An initial reduction in blood pressure on glottis opening is normal

B. Prolonged reduction in blood pressure during glottis closure may indicate autonomic dysfunction

C. Bradycardia on glottis opening is abnormal

D. Tachycardia during glottis closure is normal

E. A decrease in middle ear pressure occurs

25. The following hormones are secreted by placenta

- A. Renin
- B. Prolactin
- C. Cortisol
- D. Progesterone
- E. Vasopressin

26. Intravenous regional anaesthesia (Bier's block)

- A. Can be safely performed using 0.25% bupivacaine
- B. Provides good post operative analgesia
- C. Depends on the use of double tourniquet inflated to 50 mm more than systolic pressure
- D. The tourniquet can be safely deflated after 20 minutes
- E. Advantage of this technique is it can be performed by para medical staff

27. Considering post operative complications

- A. DVT is common after lower limb surgery
- B. Common cause of chest pain on 3<sup>rd</sup> post op day is PE

C. Wound infection is suggested by fever and elevated white cell count on the 6<sup>th</sup> post op day

D. Post op MI occurs in at least 5% of patients who had MI in the previous 3 months

E. Post op MI carries mortality of 25%

## 28. Statistical definitions

A. T represents the mean difference divided by the standard error

B. Variance is the sum of the differences divided by the degree of freedom

C. Standard error of the mean is the square root of the variance

D. Standard deviation is the Standard error of the mean divided by the square root of the number observed

E. A normal distribution is one where the mean, mode and median are the same

## 29. Concerning paediatric airway

A. Valveless breathing circuits offer advantage because room air will not be entrained

B. Appropriate tracheal tube size can be calculated using age in years

C. The expiratory limb of the Jackson-Rees modification of Ayre's T piece should exceed minute volume

D. Fresh gas flow should be two to three times the minute volume

E. The right main bronchus is more easily intubated inadvertently in the neonate than in adult

30. The oxygen failure warning device

A. Is only required on anaesthesia machine if there is no oxygen concentration analyser

B. Must last for at least 15 seconds

C. Should be powered by a battery or gas supply

D. Should cut off the fresh gas supply as soon as the oxygen pressure starts to fall

E. May only be switched off temporarily before the oxygen supply is reconnected

# KEY TO QUESTIONS

1. TFTTF 2. FFFTF 3. FFTFF 4. FFTTF 5. TTFTT 6. FTFTT  
7. FFFFF 8. FFFFT 9. TFFFT 10. TTFFT 11. TFTFT  
12. TFFTF 13. TTFTF 14. FFFFF 15. TFTTT 16. FTFTF  
17. FTTTT 18. TFFFF 19. TFTTT 20. FFFTT 21. TFFFF  
22. TTFFF 23. TTFFF 24. TTFTF 25. TFFTF 26. FFFTF  
27. TFTTF 28. TTFFT 29. FTFTF 30. FFFFF