

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2024-2025)

FIRST PROFESSIONAL – (CBME)

PAPER II – PHYSIOLOGY

Q.P. Code: 527054

Time: 20 Minutes

Maximum : 20 Marks

Answer All Questions

Shade the correct answer with Black or Blue ink ball point pen

SET - A

IV. Multiple Choice Questions:

(20 x 1 = 20)

1. A 22 year old male was brought to the Ophthalmology department for medical examination for the post of train driver. He was found to have blindness for red colour. Identify the condition
A) Protanopia B) Deuteranopia C) Tritanopia D) Monochromatism
2. During inspiration
A) Intra-thoracic pressure increases B) Intra-thoracic volume increases
C) Intra-alveolar pressure increases D) Intra-alveolar volume decreases
3. Volume of air remaining in the lungs after normal expiration is
A) Residual volume B) Functional residual capacity
C) Vital capacity D) Total lung capacity
4. A 45 year old male had consumed cyanide and was brought to the tertiary care centre. He was treated with methylene blue because
A) Methylene blue destroys cyanide
B) Methylene blue forms methemoglobin
C) Methylene blue improves tissue oxygenation
D) Methylene blue causes reduction reaction in hemoglobin
5. Presence of Surfactant in the fluid lining the alveoli
A) Increases surface tension B) Increases work of breathing
C) Prevents pulmonary edema D) Causes collapse of alveoli
6. Visual acuity is greatest in
A) Fovea centralis B) Optic disc C) Ora serrata D) Optic nerve
7. Increase in the force of cardiac contraction without change in muscle length occurs by
A) Catecholamines B) Increase in end-diastolic volume
C) Infusion of isotonic saline D) Venoconstriction
8. T system in the cardiac muscle is located in
A) A-I junction B) Z-line C) M-line D) H-zone

9. A 30 year old male was advised sleep study by his physician. Which of the following finding will be present in stage II non-rapid eye movement sleep?
A) Alpha wave B) Theta rhythm C) K-complexes D) Delta wave
10. Fungiform papilla are most numerous near
A) Tip of tongue B) Side of tongue C) Posterior part of tongue D) Pharynx
11. Optic nerve leaving the eye is visible in Ophthalmoscope as
A) Macula lutea B) Fovea centralis C) Optic disk D) Ora serrata
12. First order neurons of dorsal column pathway synapse in
A) Spinal cord B) Medulla C) Pons D) Sensory cortex
13. Emotional response to olfactory stimuli is due to olfactory information reaching
A) Orbitofrontal cortex B) Amygdala
C) Entorhinal cortex D) Olfactory bulb
14. Tracking movements of the eyes as they follow moving objects are called
A) Saccadic movements B) Smooth pursuit movements
C) Vestibular movements D) Convergence movements
15. A 21 year old male fell from bike and suffered spinal injury. Imaging study revealed transection of left half of spinal cord in lumbar region. Which of the following sensation would be lost on the right lower limb?
A) Touch B) Pain C) Vibration D) Position sense
16. A 40 year old male complaining of Palpitation. If the R-R interval of this patient is 0.60 seconds in ECG, then his heart rate would be
A) 60/min B) 75/min C) 100/min D) 120/min
17. Which of the following is not a cause of neurogenic shock?
A) Septic shock B) Deep general anesthesia
C) High spinal anesthesia D) Brain damage
18. Direct effect of γ -motor discharge is
A) Contraction of extrafusal fibres
B) Contraction of ends of intrafusal fibres
C) Contraction of middle portion of intrafusal fibres
D) Relaxation of extrafusal fibres
19. A 55 year old male was diagnosed as having congestive cardiac failure with a left ventricular ejection fraction of 30%. He was advised digoxin for increasing cardiac contractility because of its ability to increase intracellular stores of
A) Sodium B) Potassium C) Calcium D) Magnesium
20. Parallel fibres in cerebellar cortex is formed by axons of _____ cells
A) Purkinje cells B) Granule cells C) Basket cells D) Stellate cells

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SET - B

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SET - C

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1. T system in the cardiac muscle is located in
A) A-I junction B) Z-line C) M-line D) H-zone
2. A 30 year old male was advised sleep study by his physician. Which of the following finding will be present in stage II non-rapid eye movement sleep?
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SET - D

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SET - A

IV. Multiple Choice Questions:

(20 x 1 = 20)

- Homonymous hemianopia occurs due to lesion in
A) Retina B) Optic nerve C) Optic chiasma D) Optic tract
- A 25 year old male went for mountain trekking and he started to experience breathlessness and hyperventilation during his journey. Which of the following acid-base abnormality will occur in this person due to hyperventilation?
A) Metabolic acidosis B) Metabolic alkalosis
C) Respiratory acidosis D) Respiratory alkalosis
- Which of the following structure does not contain gap junctions?
A) Single unit smooth muscle B) Multi unit smooth muscle
C) Contractile cardiac muscle D) Electrical synapse
- 'Funny current' in the sinus node is due to
A) Na^+ influx B) Ca^{2+} influx C) Na^+ efflux D) K^+ efflux
- In lead II of electrocardiogram, positive electrode is connected to ____ and negative electrode is connected to ____
A) Left arm, right arm B) Left leg, left arm
C) Left leg, right arm D) Right arm, left leg
- A 48 year old male presented to the hospital with dizziness and fainting due to cerebral ischemia. ECG reveals third degree heart block. This condition is called
A) Stokes-Adams syndrome B) Wenckebach phenomenon
C) Wolff-Parkinson-White syndrome D) Torsades de pointes
- Bohr effect is decrease in O_2 affinity of hemoglobin when
A) pH of blood falls B) Hyperthermia occurs
C) pCO_2 falls D) H^+ ion concentration falls
- A 30 year old male was diagnosed to have an aberrant muscular conducting tissue connection called Bundle of Kent. Diagnosis is
A) Long QT syndrome B) Wolff-Parkinson-White syndrome
C) Stokes-Adams syndrome D) Cardiac failure

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SET – B

IV. Multiple Choice Questions:

(20 x 1 = 20)

1. 'Funny current' in the sinus node is due to
A) Na^+ influx B) Ca^{2+} influx C) Na^+ efflux D) K^+ efflux
2. In lead II of electrocardiogram, positive electrode is connected to ____ and negative electrode is connected to ____
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5. A 30 year old male was diagnosed to have an aberrant muscular conducting tissue connection called Bundle of Kent. Diagnosis is
A) Long QT syndrome B) Wolff-Parkinson-White syndrome
C) Stokes-Adams syndrome D) Cardiac failure
6. Chloride shift occurs through _____ protein in the RBC membrane
A) Band 1 B) Band 3 C) Band 4.1 D) Band 4.2
7. In a 3 month old baby with congenital heart disease in which large amounts of blood are shunted from the venous to arterial side, ____ occurs
A) Hypoxic hypoxia B) Anemic hypoxia
C) Stagnant hypoxia D) Histotoxic hypoxia
8. An athlete comes for cardiac fitness examination. Choose the maximum cardiac efficiency in normal heart
A) 5 to 10% B) 20 to 25% C) 60 to 70% D) >90%

9. Which of the following is not involved in the descending pathway concerned with inhibition of pain transmission?
A) Periaqueductal gray in midbrain B) Nucleus raphe magnus in medulla
C) Rostral ventromedial medulla D) Sensory association cortex
10. A Physician examined a head injury patient's eye. If he observed uneven size of pupil between both eyes, then such pattern of pupil called as
A) Miosis B) Mydriasis C) Anisocoria D) Ptosis
11. Axons of _____ cells are the only output from cerebellar cortex
A) Purkinje cells B) Granule cells C) Basket cells D) Stellate cells
12. Which of the following cranial nerves does not have parasympathetic fibres?
A) Oculomotor nerve B) Trigeminal nerve
C) Facial nerve D) Glossopharyngeal nerve
13. Which of the following descending pathways controls distal muscles?
A) Rubrospinal tract B) Vestibulospinal tract
C) Reticulospinal tract D) Tectospinal tract
14. Crista ampullaris is located in
A) Utricle B) Sacculle C) Semicircular canals D) Cochlea
15. Word blindness is due to lesion in
A) Broca's area B) Wernicke's area
C) Arcuate fasciculus D) Angular gyrus
16. Diffusion coefficient of each gas passing through respiratory membrane depends on
A) Surface area B) Thickness
C) Partial pressure difference D) Solubility
17. A 72 year old male was brought to the hospital with symptoms of resting tremor, expressionless face and abnormal walking pattern with short steps. His condition is due to degeneration of
A) Cholinergic neurons B) Adrenergic neurons
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18. Homonymous hemianopia occurs due to lesion in
A) Retina B) Optic nerve C) Optic chiasma D) Optic tract
19. A 25 year old male went for mountain trekking and he started to experience breathlessness and hyperventilation during his journey. Which of the following acid-base abnormality will occur in this person due to hyperventilation?
A) Metabolic acidosis B) Metabolic alkalosis
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SET - C

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A) Miosis B) Mydriasis C) Anisocoria D) Ptosis
- Axons of _____ cells are the only output from cerebellar cortex
A) Purkinje cells B) Granule cells C) Basket cells D) Stellate cells
- Which of the following cranial nerves does not have parasympathetic fibres?
A) Oculomotor nerve B) Trigeminal nerve
C) Facial nerve D) Glossopharyngeal nerve
- Which of the following descending pathways controls distal muscles?
A) Rubrospinal tract B) Vestibulospinal tract
C) Reticulospinal tract D) Tectospinal tract
- Crista ampullaris is located in
A) Utricle B) Saccule C) Semicircular canals D) Cochlea
- Word blindness is due to lesion in
A) Broca's area B) Wernicke's area
C) Arcuate fasciculus D) Angular gyrus
- Diffusion coefficient of each gas passing through respiratory membrane depends on
A) Surface area B) Thickness
C) Partial pressure difference D) Solubility
- A 72 year old male was brought to the hospital with symptoms of resting tremor, expressionless face and abnormal walking pattern with short steps. His condition is due to degeneration of
A) Cholinergic neurons B) Adrenergic neurons
C) Dopaminergic neurons D) Serotonergic neurons

10. Homonymous hemianopia occurs due to lesion in
A) Retina B) Optic nerve C) Optic chiasma D) Optic tract
11. A 25 year old male went for mountain trekking and he started to experience breathlessness and hyperventilation during his journey. Which of the following acid-base abnormality will occur in this person due to hyperventilation?
A) Metabolic acidosis B) Metabolic alkalosis
C) Respiratory acidosis D) Respiratory alkalosis
12. Which of the following structure does not contain gap junctions?
A) Single unit smooth muscle B) Multi unit smooth muscle
C) Contractile cardiac muscle D) Electrical synapse
13. 'Funny current' in the sinus node is due to
A) Na^+ influx B) Ca^{2+} influx C) Na^+ efflux D) K^+ efflux
14. In lead II of electrocardiogram, positive electrode is connected to ____ and negative electrode is connected to ____
A) Left arm, right arm B) Left leg, left arm
C) Left leg, right arm D) Right arm, left leg
15. A 48 year old male presented to the hospital with dizziness and fainting due to cerebral ischemia. ECG reveals third degree heart block. This condition is called
A) Stokes-Adams syndrome B) Wenckebach phenomenon
C) Wolff-Parkinson-White syndrome D) Torsades de pointes
16. Bohr effect is decrease in O_2 affinity of hemoglobin when
A) pH of blood falls B) Hyperthermia occurs
C) pCO_2 falls D) H^+ ion concentration falls
17. A 30 year old male was diagnosed to have an aberrant muscular conducting tissue connection called Bundle of Kent. Diagnosis is
A) Long QT syndrome B) Wolff-Parkinson-White syndrome
C) Stokes-Adams syndrome D) Cardiac failure
18. Chloride shift occurs through _____ protein in the RBC membrane
A) Band 1 B) Band 3 C) Band 4.1 D) Band 4.2
19. In a 3 month old baby with congenital heart disease in which large amounts of blood are shunted from the venous to arterial side, ____ occurs
A) Hypoxic hypoxia B) Anemic hypoxia
C) Stagnant hypoxia D) Histotoxic hypoxia
20. An athlete comes for cardiac fitness examination. Choose the maximum cardiac efficiency in normal heart
A) 5 to 10% B) 20 to 25% C) 60 to 70% D) >90%
