001/23

The West Bengal University of Health Sciences
MBBS 1st Professional Examination (New Regulation), Feb-March 2024

Full Marks : 100
Time : 3 hours

Subject: Physiology
Paper : I

*Attempt **all** questions. The figures in the margin indicate full marks.*

1. a) A 60 year old male came to ER with history of frequent syncope. On examination his pulse rate was 42/min, irregularly irregular and BP was 110/60 mm Hg. Lead II ECG showed p waves that were not related to QRS complex. What is the probable diagnosis? Describe the mechanism explaining your probable diagnosis. How to treat this patient? What are the other probable diagnosis? What is "Re entry phenomena"? Explain with a neat diagram. 2+5+2+3+1+2

   b) A preterm baby born at before 37 weeks of gestation, presented with severe breathlessness. On examination, intercostals suction and coarse crepitations were found. A diagnosis of infant respiratory distress syndrome was made.
   What is the cause of infant respiratory distress syndrome? What is the composition of pulmonary surfactant? Explain, in detail, its various functions. What is interdependence? 2+3+8+2

2. a) Summarize the steps of Bilirubin production, metabolism, and excretion with diagram. Enumerate two congenital diseases affecting conjugation of bilirubin. What are the physical signs of chronic liver disease? How does Liver Function Tests help us to diagnose the cause of Jaundice? 4+2+2+2

   b) How are the Acetylcholine containing vesicles released at the Neuro-muscular junction? What is the mechanism of action of Botulinum Toxin as a neuro-muscular blocker? What is miniature end plate potential? 4+4+2

   c) What is Methyl-Tetrahydrofolate trap? How is it going to cause Megaloblastic anaemia? Why oral vitamin B12 is of no use in Pernicious Anaemia? 4+4+2

3. Write short notes on the following: 2x5
   a) Positive feedback mechanism.
   b) Goals to be achieved by an Indian Medical Graduate.

4. Explain the following statements: 5x4
   a) Cardiac muscle can't be tetanized.
   b) Liver disease may cause edema.
   c) Glucose and salt are used together to treat diarrhoea.
   d) Pulmonary Tuberculosis commonly affects the lung apices.
   e) Classical haemophilia is seen in only males.

5. Choose the correct option of each of the following: 10x1

i) Which of the following is not mediated through negative feedback mechanism?
a) BP regulation.
b) Growth hormone release.
c) Thrombus formation.
d) ACTH release.

ii) Transection at mid pons level results in:
a) Asphyxia.
b) Hyperventilation.
c) Rapid and shallow breathing.
d) Apneusis.

iii) Carotid and aortic bodies are markedly stimulated when Oxygen saturation decreases below:
a) 90%.
b) 80%
c) 70%
d) 60%

iv) Sickle cell anaemia causes:
a) Hypoxic hypoxia.
b) Anaemic hypoxia.
c) Histotoxic hypoxia.
d) Stagnant hypoxia.

v) Which of the following is responsible for cell motility?
a) Motilin
b) Tubulin
c) Laminin
d) Clathrin

vi) "Saturday night palsy" is an example of:
a) Neuropraxia.
b) Axonotmesis.
c) Neurotmesis.
d) Wallerian degeneration.

vii) The rhythmic contraction in GIT is highest in -
a) Stomach.
b) Duodenum.
c) Ileum.
d) Colon.

viii) Normal alveolar ventilation pressure on inspiration is:
a) -1cm water.
b) -1cm Hg.
c) +1 cm water.
d) +1 mm Hg.

ix) The defect in β chain of Haemoglobin E (Hb E) is -
a) Glutamic acid is replaced by Glycine at 67th position
b) Glutamic acid is replaced by Lysine at 67th position
c) Glutamic acid is replaced by Lysine at 26th position
d) Glutamic acid is replaced by Tyrosine at 26th position

x) Smooth muscle is characterized by absence of :
a) Actin
b) Troponin
c) Myosin
d) Tropomyosin