

**The West Bengal University of Health Sciences**  
**MBBS 1<sup>st</sup> Professional Examination (New Regulation),**  
**October - November 2021**

Subject: Physiology  
 Paper: I

Full Marks: 100  
 Time: 3 hours

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

1. a) Describe the mechanism of neural regulation of respiration. Enumerate the role of carotid and aortic bodies in regulation of respiration. Add a note on sleep apnea syndrome. 7+5+3  
 b) What is cardiac cycle? How does cycle time vary with heart rate? Describe with diagram the pressure and volume changes in the left ventricle in different phases of cardiac cycle. What are the differences between 1<sup>st</sup> and 2<sup>nd</sup> heart sound? 2+2+7+4
2. a) Describe the changes in ionic channels that underlie the action potential in neurons. Enumerate the various types of glial cells and their functions. 7+3  
 b) With a suitable diagram write the mechanism of salivary secretion. What are the functions of salivary secretion. 7+3  
 c) Define haemostasis. List the steps of hemostasis. Describe the extrinsic and intrinsic pathways of coagulation of blood. 2+4+4
3. Write a short note on the following: 2x5  
 a) Role of doctors in the society.  
 b) Wallerian degeneration.
4. Explain the following statements: 5x4  
 a) Cyanosis does not occur in severe anaemia.  
 b) Bradycardia occurs with increased intracranial pressure.  
 c) Dextrose solution worsens diarrhoea.  
 d) Digitalis increases cardiac contractility.  
 e) Apnoea occurs after hyperventilation.
5. Choose the correct option in each of the following: 10x1  
 i) Vasocostriction produced by hypoxia occurs in  
 a) Kidney.  
 b) Brain.  
 c) Lungs.  
 d) Heart.

**P.T.O**

- ii) ECG is predominantly negative in:
- aVL.
  - aVF.
  - aVR.
  - Lead I.
- iii) Very tall and peaked T-wave in Electrocardiogram is found in-
- Hypokalemia.
  - Hyperkalemia.
  - Hypernatremia.
  - Hypercalcemia.
- iv) In metabolic acidosis, ventilation is increased. The effect occurs due to the receptors located at:
- Lung parenchyma.
  - Carotid bodies.
  - Medulla oblongata.
  - Pons.
- v) Normally the main function of colon is absorption of
- $\text{Na}^+$ ,  $\text{Cl}^-$  &  $\text{H}_2\text{O}$ .
  - Triacylglycerol.
  - Secondary bile acids.
  - Iron.
- vi) Which of the following is not found in denervation of skeletal muscles ?
- Atrophy of the muscle.
  - Flaccid paralysis.
  - Fibrillation.
  - Fasciculations.
- vii) Which one of the following is Secretory Antibody?
- Immunoglobulin G (IgG).
  - Immunoglobulin A (IgA).
  - Immunoglobulin M (IgM).
  - Immunoglobulin D (IgD).
- viii) Intrinsic factor is secreted by:
- Chief cells.
  - G- cells.
  - I- cells.
  - Parietal cells.
- ix) Index of Pulmonary Function is:
- Forced vital capacity.
  - Residual volume.
  - Maximal voluntary ventilation.
  - Functional residual capacity.
- x) Baroreceptor reflex results in
- Reflex hypertension and bradycardia.
  - Reflex tachypnea and tachycardia.
  - Reflex hypotension and tachycardia.
  - Reflex hypotension and bradycardia.