

Molecular Physiology

Question bank

Justify/explain the following (2-3 marks each)

- Action potentials are all-or-none events.
- The conduction of action potentials in a myelinated nerve fiber is saltatory.
- The only stomach function essential for life is the secretion of intrinsic factor.
- Ulcers of stomach are not due to excessive acid secretion.
- Peristalsis is much weaker in the small intestine than in the esophagus and stomach.
- In lactose intolerance, diarrhoea is produced by the increased osmolarity of the contents of the intestinal lumen.
- Liver plays an important role in enterohepatic circulation
- RBCs are biconcave disc
- Vitamin K plays important role in Blood coagulation
- Increasing alveolar ventilation increases the blood pH”
- Respiratory center activity is affected more by changes in blood carbon dioxide than by changes in blood hydrogen ions
- Surfactants helps to increase lung compliance

Illustrate with a well labelled diagram: (3-4 marks each)

- Structure of intestinal villus.
- Regulation of gastric acid secretion.
- Structure of neuron
- Different layers of GI tract
- Enterohepatic circulaion
- Juxtaglumerular apparatus
- Cardiac cycle
- Action potential of cardiac muscle

Long questions

Q. Explain why conduction in a myelinated axon is faster than in an unmyelinated axon. (4)

Q. Describe layers of GI tract and state functions of each. (5)

Q. Explain why the stomach does not digest itself. (3)

Q. Describe structure and function of enteric nervous system. (3)

Q. Explain the role of plates in stoppage of bleeding.

Q. What are the functions of the following parts of the brain: (2 each)

a. cerebral hemisphere

b. thalamus

c. hypothalamus

d. cerebellum

e. brainstem

Q. Give the flow chart to represent fibronytic system? (3)

Q. Briefly discuss the causes of different types of anemia? (5)

Q. The chemical composition of the extracellular fluid is different from that of blood. Explain how this difference is achieved? (4)

Q. Discuss the steps involved in the formation of concentrated urine. (5)

Q. How does kidney maintain the pH of body fluids.(5)

Q.What is Bohr's effect? Discuss the physiological significance of oxygen-haemoglobin dissociation curve. (5)

Q. Expand ECG. Relate the P, QRS and T waves to the atrial and ventricular action potential (5)

Q. Describe the sequence of events leading to the formation of sperms from spermatogonia. (5)

Q. Give the physiological significance of fetoplacental unit (4)