

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST MBBS DEGREE EXAMINATION – AUGUST/SEPTEMBER 2021

SUBJECT: PHYSIOLOGY – PAPER I (ESSAY)

Thursday, August 26, 2021

Time: 10:20 – 13:00 Hrs.

Maximum Marks: 80

✍ Answer ALL the questions.

✍ Essays:

1. Describe the stretch reflex with the help of a diagram. Add a note on the inverse stretch reflex. Describe the features of upper motor neuron lesion and lower motor neuron lesion.
(3+2+5 = 10 marks)
2. A 45 year old male comes to OPD with history of poor wound healing and easy bruisability. On examination, patient had reddish purple striae on abdomen. He had thin extremities and excessive deposition of fat in the abdominal wall, face and upper back. He was also found to have glucose intolerance. A tumour was found in the adrenal cortex that was responsible for hypersecretion of an adrenocortical hormone.
 - 2A. Name the above condition. Which hormonal hypersecretion is responsible for this condition?
 - 2B. Describe the actions of this hormone
 - 2C. In a figure, display the feedback control of the secretion of this hormone.
(1+6+3 = 10 marks)

3. Short answer questions:

- 3A. Physiological basis and examples of referred pain.
- 3B. Neural basis of: i) Non fluent aphasia ii) Phantom limb.
- 3C. Structure and functions of blood brain barrier.
- 3D. Stages of sleep.
- 3E. Labelled diagram of neural pathway which carries fine touch sensation from the right upper limb.
- 3F. Brief note on: i) Myopia ii) Presbyopia.
- 3G. Functions of middle ear.
- 3H. Taste pathway.
- 3I. Stages of spermatogenesis.
- 3J. Female contraceptive methods.
- 3K. Corpus luteum of pregnancy
- 3L. Drugs that inhibit thyroid hormone synthesis and their mechanism of action
- 3M. Drugs acting at the neuromuscular junction and their mechanism of action.
- 3N. Propagation of action potential along a myelinated nerve fiber.
- 3O. Properties of visceral smooth muscle.
(4 marks × 15 = 60 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST MBBS DEGREE EXAMINATION – AUGUST/SEPTEMBER 2021

SUBJECT: PHYSIOLOGY – PAPER II (ESSAY)

Friday, August 27, 2021

Time: 10:20 – 13:00 Hrs.

Maximum Marks: 80

☞ Answer ALL the questions.

Essays:

1. A 58 year old woman presents with severe precordial chest pain and shortness of breath. ECG findings were suggestive of a Myocardial infarction involving the left ventricle resulting in a left bundle branch block.
 - i) Draw a labeled diagram of conducting system of the heart and explain how cardiac impulse conduction occurs from SA node to ventricles in a normal heart.
 - ii) Discuss the different degrees of heart blocks.
2. Explain the role of peripheral and central chemoreceptors in regulation of respiration.

(10 × 2 = 20 marks)

3. Short answer questions:

- 3A. Mention the source, activation and actions of proteolytic enzymes of gastrointestinal tract.
- 3B. In a labeled diagram, show the cellular mechanism of gastric HCl secretion. Add a note on mechanisms to reduce gastric acid secretion.
- 3C. Mention the substances absorbed in the terminal ileum. Explain the effects of resection of terminal ileum on fat digestion.
- 3D. Explain the defecation reflex
- 3E. Mention the steps leading to phagocytosis by the neutrophil. Explain the mechanisms involved in intracellular digestion by the neutrophils.
- 3F. Write about formation and functions of lymph. What is lymphedema?
- 3G. State Landstainers law. In a tabular column represent the agglutination and agglutinins in ABO and Rh blood group system.
- 3H. Give the sequence of events leading to chloride shift during carbon dioxide transport. What is Haldane effect?
- 3I. Use a flow chart to depict the role of renin-angiotensin-aldosterone mechanism in regulation of mean arterial pressure. Explain the consequence of constriction of renal artery on blood pressure.
- 3J. Mention the conditions that lead to hypovolemic shock. List its clinical features
- 3K. Draw a labeled diagram of nerve supply to the heart. What is vagal tone?
- 3L. Explain micturition reflex.
- 3M. List the special features of renal circulation. Define filtration fraction.
- 3N. Explain the role of skin in temperature regulation.
- 3O. Explain how GFR can be estimated.

(4 marks × 15 = 60 marks)

