

MANIPAL UNIVERSITY**FIRST MBBS DEGREE EXAMINATION – JUNE/JULY 2016****SUBJECT: PHYSIOLOGY– PAPER I (ESSAY)**

Friday, July 01, 2016

Time: 10:20 – 13:00 Hrs.

Maximum Marks: 80

- ✍ **All questions are compulsory. Write brief, clear and legible answers.**
- ✍ **Illustrate your answers with diagrams and flow charts wherever appropriate.**

✍ **Essay Questions:**

1. Describe the role of hormones in glucose homeostasis. Add a note on diabetes mellitus.
2. Explain the pain pathway with a neat labeled diagram. Add a note on referred pain.

(10 marks × 2 = 20 marks)

3. **Short answer questions:**

- 3A. Clinical features and physiological basis for Brown Sequard syndrome
- 3B. Somatosensory cortex
- 3C. Genesis of action potential in post synaptic neuron
- 3D. Functions of hypothalamus
- 3E. Tests for ovulation
- 3F. Mechanism of action of oral contraceptive pills
- 3G. Functions of sertoli cells
- 3H. Ionic basis of resting membrane potential
- 3I. Role of calcium in muscle contraction
- 3J. Drugs acting at neuromuscular junction and mechanism of action
- 3K. Mechanism of dark adaptation
- 3L. Explain taste pathway
- 3M. Name the receptor for hearing and explain its structure
- 3N. Olfactory receptors and physiological basis of olfaction
- 3O. Clinical features of Acromegaly and its physiological basis

(4 marks × 15 = 60 marks)



MANIPAL UNIVERSITY

FIRST MBBS DEGREE EXAMINATION – JUNE/JULY 2016

SUBJECT: PHYSIOLOGY– PAPER II (ESSAY)

Saturday, July 02, 2016

Time: 10:20 – 13:00 Hrs.

Max. Marks: 80

- ✍ All questions are compulsory. Write brief, clear and legible answers.
- ✍ Illustrate your answers with diagrams and flow charts wherever appropriate.

✍ Essay Questions:

1. Describe in detail the carbon dioxide uptake, transport and release. Highlight the role of *Haldane effect* in this process. (10 marks)
2. Describe the mechanism of peristalsis in different parts of gastrointestinal tract. Add a note on *paralytic ileus*. (10 marks)

3. Short answer questions:

- 3A. Based on *Poiseuille* equation, explain briefly the mechanism of changes in blood flow in the coronary arteries with the phases of cardiac cycle.
- 3B. Explain the autorhythmicity of cardiac muscles. Show the effect of parasympathetic stimulation on this property using graphs.
- 3C. Draw diagrams to show the location and nerve supply to arterial baroreceptors. Mention the effects of increased baroreceptor activity on vagal tone.
- 3D. Name the different intervals of electrocardiogram. Mention how they are affected in first degree heart block and complete heart block.
- 3E. Name the different phases of cardiac cycle. Mention the changes in ventricular volume in different phases.
- 3F. How is hemolytic jaundice caused? What laboratory investigations confirm the diagnosis of this condition?
- 3G. Explain the role of plasma albumin in preventing edema.
- 3H. Explain the mechanism and significance of fibrinolysis.
- 3I. Draw a labeled diagram of the spirogram. Show therein FEV_1
- 3J. Define ventilation-perfusion ratio. Mention the cause and consequences of decreased V_A/Q .
- 3K. Explain the mechanism and significance of water reabsorption in loops of Henle.
- 3L. Explain inulin clearance.
- 3M. Explain the blood flow through glomerulus.
- 3N. List the thermoregulatory responses to cold weather. Add a note on brown adipose tissue.
- 3O. Draw a labeled diagram of salivary reflex.

(4 marks × 15 = 60 marks)

