

**MANIPAL UNIVERSITY****FIRST MBBS DEGREE EXAMINATION – MAY/JUNE 2007****SUBJECT: PHYSIOLOGY– PAPER I (ESSAY)**

Thursday, May 31, 2007

Time: 10:20–13:00 Hours.

Maximum Marks: 40

- ✍ **Illustrate your answers with diagrams and flow charts wherever appropriate.**
- ✍ **Write brief, clear, relevant and legible answers.**

1. With the help of diagrams, explain the location and functions of motor, somatosensory and language areas of cerebral cortex. Describe the manifestations of interruption to corticospinal fibers at internal capsule level.

(6+4 = 10 marks)

2. Draw labeled diagrams to show the pathways leading to pupillary response to

2A. Light shone on one eye.

2B. Near object brought in front of eye.

(3+3 = 6 marks)

3. Describe the role of insulin in preventing the occurrence of diabetes mellitus.

(6 marks)

4A. Draw a diagram to show the components of muscle stretch reflex arc. Explain the effect of gamma motor neuron stimulation on this reflex.

(1+2 = 3 marks)

4B. Explain the role of hypothalamus in feeding behavior and thirst mechanism.

(3 marks)

4C. Explain why glucocorticoids are useful as therapeutic agents.

(3 marks)

4D. Explain the effects of estrogen on genital organs and mammary gland in adult female. Add a note on the regulation of secretion of estrogen.

(2+1 = 3 marks)

4E. Enumerate the functions of the following cells of testes:

i) Sertoli cells

ii) Leydig cells

(2+1 = 3 marks)

4F. Explain the propagation of nerve impulse in an unmyelinated fiber.

(3 marks)



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**FIRST MBBS DEGREE EXAMINATION – MAY/JUNE 2007**  
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Friday, June 01, 2007

Time: 10:20–13:00 Hours.

Maximum Marks: 40

- ✍ **Illustrate your answers with diagrams and flow charts wherever appropriate**  
 ✍ **Write brief, clear, relevant and legible answers**

1. Draw a neat labelled diagram of the conducting system of the heart. Draw a neat diagram of a normal ECG in limb lead II giving all the waves and intervals, the physiological basis of each and their normal durations. Show the relation of the action potential of a ventricular fibre with the ECG waves.  
(3+5+2 = 10 marks)
  
2. Draw a neat labelled diagram of Juxta Glomerular (JG) apparatus of the kidney. With the help of a flow chart explain the role of JG apparatus in the regulation of GFR when the mean arterial pressure is reduced.  
(2+4 = 6 marks)
  
3. Explain the chemical regulation of respiration, detailing the receptors involved, their appropriate stimuli and the response brought about.  
(2+2+2 = 6 marks)
  
- 4A. Give the normal concentration of the major plasma proteins. List six functions of plasma proteins.  
(1½+1½ = 3 marks)
- 4B. Classify leucocytes. Give the functions of T-Cells.  
(2+1 = 3 marks)
- 4C. Explain the role of bile salts in digestion and absorption.  
(3 marks)
- 4D. With the help of a diagram briefly explain the mechanism of acid secretion and its regulation in the oxyntic cells of the stomach.  
(3 marks)
- 4E. Briefly discuss the forces controlling the capillary fluid exchange at the arteriolar and venular end of a capillary. Explain any one mechanism by which edema occurs.  
(1+1+1 = 3 marks)
- 4F. Discuss briefly the heat conserving/generating mechanisms occurring in the body when exposed to cold environment  
(3 marks)

