MANIPAL UNIVERSITY

FIRST MBBS DEGREE EXAMINATION – JUNE 2010

SUBJECT: PHYSIOLOGY– PAPER I (ESSAY)

Friday, June 04, 2010

Time: 10:20 – 13:00 Hrs.   Maximum Marks: 40

✍ **All questions are compulsory. Write brief, clear and legible answers.**

✍ **Illustrate your answers with diagrams and flow charts wherever appropriate.**

1. Draw a labeled diagram to show the origin, course and termination of the motor pathway involved in the execution of voluntary movement. Explain the features of "Motor homunculus".

(6+4 = 10 marks)

2. Name the posterior pituitary hormones. Explain the actions and regulation of secretion of any one hormone of posterior pituitary gland.

(2+2+2 = 6 marks)

3. Draw a labeled diagram of visual pathway and explain. Add a note on right homonymous hemianopia.

(4+2 = 6 marks)

4A. Define refractory period. Explain its basis.

4B. Name the neuroglial cells. Explain their function.

4C. Define ovulation. List two reliable tests of ovulation and give their physiological basis.

4D. Name the four features of Cretinism. Explain their basis.

4E. List three functions of middle ear. Explain any one.

4F. Describe the endocrine function of the testis.

(3×6 = 18 marks)

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Saturday, June 05, 2010

Time: 10:20 – 13:00 Hrs.   Maximum Marks: 40

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1.   Discuss the salient features and regulation of:

1A.   Coronary blood flow

1B.   Cutaneous blood flow

1C.   Renal blood flow

(4+3+3 = 10 marks)

2A.   Explain any three dangers associated with blood transfusion. Mention steps to prevent them.

2B.   Calculate the Mean Corpuscular Volume (MCV) and Mean Corpuscular
      Concentration (MCHC) of a patient, whose RBC count is 4 million/mm^3,
      Hemoglobin concentration is 7.2 g% and PCV, 32%. Comment on the values.

(3+3 = 6 marks)

3.   Describe the process of gas exchange in the lungs. Add a note on 'Diffusion capacity' for
      oxygen.

(6 marks)

4A.   Briefly describe the mechanism and regulation of peristalsis in small intestine.

4B.   Name the different gastrointestinal hormones. Describe the role of any one.

4C   Compare the water reabsorption in the distal and proximal convoluted tubules of kidney.

4D.   Explain the process of micturition in adults.

4E.   List the factors that influence venous return. Explain how venous return influences cardiac
      function.

4F.   Based on 'Poiseuille-Hagen' formula, explain how neural factors regulate blood flow to an
      organ.

(3×6 = 18 marks)

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