Reg. No.										

MANIPAL UNIVERSITY

M.Sc. (PRELIMINARY) DEGREE EXAMINATION – JULY 2010

PAPER I: ANATOMY

Saturday, July 03, 2010

Time: 14:00 – 17:00 Hrs. Maximum Marks: 80

✍ **Answer ALL the questions. Draw diagrams wherever necessary.**

1. Describe the right atrium of the heart under:
1A. External features
1B. Internal features
1C. Arterial supply

(2+6+2 = 10 marks)

2. Describe the inguinal canal under:
2A. Extent
2B. Openings
2C. Boundaries and contents

(2+2+6 = 10 marks)

3. Describe the anal canal under:
3A. Extent
3B. Internal features
3C. Relations
3D. Arterial supply

(2+4+2+2 = 10 marks)

4. Name and classify the dural venous sinuses. Describe the cavernous sinus under:
4A. Position and Extent
4B. Relations
4C. Tributaries

(2+4+2+2 = 10 marks)

5. Write short notes on:
5A. Transitional epithelium
5B. Gall bladder
5C. Sinuses of pericardium
5D. Blastocyst
5E. Cartilaginous joints
5F. Sex chromosomes
5G. Nasal septum
5H. Styloid process
5I. Fallopian tube
5J. Layers of scalp

(4×10 = 40 marks)

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M.Sc. (PRELIMINARY) DEGREE EXAMINATION – JULY 2010

PAPER II: PHYSIOLOGY

Monday, July 05, 2010

Time: 14:00 – 17:00 Hrs. Maximum Marks: 80

✍ **Answer ALL the questions.**

1. Classify sensory receptors and give examples for each type. Explain the functions and properties of sensory receptors.

(3+5 = 8 marks)

2. Explain the regulation of cardiac output in exercise.

(8 marks)

3. **Write briefly on:**

3A. Functions of cerebellum
3B. Organ of Corti
3C. Regulation of menstrual cycle
3D. Actions of testosterone

(4×4 = 16 marks)

4A. Explain the cause and features of Cushing's syndrome.
4B Explain the actions of insulin.
4C. Draw diagram to illustrate the endocrine connection between Hypothalamus and Pituitary. Name the releasing hormones that influence adenohypophysis.
4D. Draw diagrams of action potentials recorded from as single nerve fiber and from a mixed nerve trunk.

(4×4 = 16 marks)

5. **Write briefly on:**

5A. Arterial baroreceptors
5B. Functions of glomerulus of kidney
5C. Micturition reflex
5D. Classification of leucocytes

(4×4 = 16 marks)

6A. Outline the mechanism of gastric secretion when food enters stomach.
6B. Explain the pharyngeal phase of deglutition.
6C. Name the forms of oxygen and carbon dioxide transport. Give the normal quantities of these gases in arterial and venous blood.
6D. Explain the importance of measuring vital capacity and timed vital capacity.

(4×4 = 16 marks)

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M.Sc. (PRELIMINARY) DEGREE EXAMINATION – JULY 2010

PAPER III: BIOCHEMISTRY

Wednesday, July 07, 2010

Time: 14:00 – 17:00 Hrs. Maximum Marks: 80

✍ **Illustrate your answers with neatly drawn and correctly labeled diagrams wherever appropriate.**

1. Describe the structural organization of proteins. What are the forces involved in the maintenance of these structures?

(8+4 = 12 marks)

2. **Write short notes on:**

2A. Competitive inhibition
2B. Transport of glucose across membrane
2C. Bile salts
2D. Compounds synthesized from glycine
2E. Energetics and inhibitors of TCA cycle
2F. Arrangement of the components of the electron transport chain
2G. Digestion of proteins

(4×7 = 28 marks)

3. Describe aerobic and anaerobic glycolysis. Write notes on their energetics and significance.

(8+2+2 = 12 marks)

4. Write purine ring structure, sources of carbon and nitrogen in purine.

(4 marks)

5. What are porphyrias? Briefly explain the hepatic porphyrias.

(4 marks)

6. Name the coenzyme forms of niacin giving examples of reactions requiring them. What are the symptoms of niacin deficiency?

(4 marks)

7. Compare Kwashiorkor and Marasmus.

(4 marks)

8. Explain structure of t-RNA and its function.

(4 marks)

9. Write a note on post-translational modifications of proteins.

(4 marks)

10. What are restriction endoneucleases? Explain their features and uses.

(4 marks)