

MANIPAL UNIVERSITY

M. Sc. (PRELIMINARY) DEGREE EXAMINATION – DECEMBER 2007

PAPER I: ANATOMY

Monday, December 03, 2007

Time available: 3 Hours

Maximum Marks: 80

✍ **Answer ALL the questions.**

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

1. Describe the surfaces of the Heart. Add a note on the Right Atrium.

(4+6 = 10 marks)

2. Describe the Duodenum under:

2A. Parts.

2B. Relations and interior of second part.

2C. Blood supply.

(2+4+4 = 10 marks)

3. Describe the Urinary Bladder under:

3A. Surfaces and borders.

3B. Relations.

3C. Blood supply.

(3+4+3 = 10 marks)

4. Describe the Thyroid Gland under:

4A. Capsule.

4B. Parts and relations.

4C. Blood supply.

(2+5+3 = 10 marks)

5. Write short notes on:

5A. Histology of lymph node.

5B. Lesser sac.

5C. Implantation.

5D. Mediastinal surface of the right atrium.

5E. Synovial joints.

5F. Sternocleidomastoid muscle.

5G. Karyotyping.

5H. Styloid process.

5I. Portal vein.

5J. Dorsum of the tongue.

(4×10 = 40 marks)



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PAPER II: PHYSIOLOGY

Tuesday, December 04, 2007

Time available: 3 Hours

Maximum Marks: 80

✍ **Answer ALL the questions.**

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

1. Describe the mechanisms involved in short term regulation of arterial blood pressure. (8 marks)

- 2A. With the help of a diagram explain action potential in ventricular muscle fiber.
- 2B. Define a sensory receptor. Explain any two properties of sensory receptors.
- 2C. Draw a diagram of the cortico-spinal tract from origin to termination.
- 2D. List four functions of hypothalamus. Explain any one in detail. (4×4 = 16 marks)

- 3A. Explain cystometrogram.
- 3B. Explain heat gain mechanisms of body.
- 3C. Draw a labelled diagram of sarcomere.
- 3D. Draw a diagram to show the visual pathways. (4×4 = 16 marks)

4. Explain actions of insulin on:
 - i) Carbohydrate metabolism.
 - ii) Fat and Protein metabolism.Add a note on diabetes mellitus. (3+3+2 = 8 marks)

- 5A. Draw a schematic diagram to show blood clotting mechanism by extrinsic pathway.
- 5B. Explain erythroblastosis foetalis.
- 5C. Name the hormones of anterior pituitary. List two features of Gigantism.
- 5D. List all the contraceptive methods in the female and explain the physiological basis of any one method. (4×4 = 16 marks)

- 6A. Draw O₂ dissociation curve. Mention the factors shifting it to right.
- 6B. Define vital capacity. Give its normal value. Explain its significance.
- 6C. Name two gastrointestinal hormones and explain the actions of any one of them.
- 6D. Draw a diagram and explain 'defecation reflex'. (4×4 = 16 marks)



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PAPER III: BIOCHEMISTRY

Wednesday, December 05, 2007

Time: 3 Hrs.

Max. Marks: 80

Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate.

1. Describe the denovo synthesis of fatty acids. Discuss in detail its regulation. (12 marks)
2. What is a plasmid? What is its application in recombinant DNA technology? (4 marks)
3. Describe the digestion and absorption of proteins. (4 marks)
4. What are ketone bodies? How are they synthesized? Mention any two conditions when their levels are increased. (1+2+1 = 4 marks)
5. Describe the hormonal regulation of blood sugar level. (4 marks)
6. What is the role of kidney in acid base regulation? (4 marks)
7. Write the principles and applications of electrophoresis. (4 marks)
8. What is polymerase chain reaction? What are its applications? (4 marks)
9. Classify enzymes with one example for each class. Name any three coenzymes and give three examples for each coenzyme where they are required. (5+7 = 12 marks)
10. Write short notes on:
 - 10A. Anticancer drugs.
 - 10B. Glucose tolerance test.
 - 10C. Functions of prostaglandins.
 - 10D. Rapaport-Leubering cycle and its significance.
 - 10E. Splicing of hn RNA.
 - 10F. DNA finger printing and its application.
 - 10G. Metabolic changes during starvation.

(4×7 = 28 marks)

