Reg. No.										

MANIPAL UNIVERSITY

M.Sc. (MEDICAL) (PRELIMINARY) DEGREE EXAMINATION – JULY 2014

SUBJECT: PAPER I: ANATOMY

Tuesday, July 01, 2014

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

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

1. Describe the right atrium under the following headings:

1A. External features

1B. Internal features

1C. Openings of right atrium

(3+4+3 = 10 marks)

2. Describe the parotid gland under the following headings:

2A. Surfaces and borders

2B. Relations

2C. Parotid duct

(3+4+3 = 10 marks)

3. Describe the pancreas under the following headings:

3A. Parts

3B. Relations

3C. Duct system

3D. Blood supply

(2+3+2+3 = 10 marks)

4. Describe the uterus under the following headings:

4A. Parts

4B. Relations

4C. Supports

(2+4+4 = 10 marks)

5. **Write short notes on:**

5A. Microscopic structure of hyaline cartilage

5B. Chorionic villi

5C. Facial artery

5D. Temporalis muscle

5E. Down syndrome

5F. Superior mediastinum

5G. Tympanic membrane

5H. Nasopharynx

5I. Epiploic foramen

5J. Fallopian tube

(4 marks × 10 = 40 marks)

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MANIPAL UNIVERSITY

M.Sc. (MEDICAL) (PRELIMINARY) DEGREE EXAMINATION – JULY 2014

SUBJECT: PAPER II: PHYSIOLOGY

Thursday, July 03, 2014

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

1. Draw a diagram to illustrate the location, innervation and central connections of baroreceptors. Explain the role of baroreceptors in blood pressure regulation.

(3+5 = 8 marks)

2A. Define Fick's principle. Explain how it is applied to measure cardiac output.

2B. Define timed vital capacity and give its normal value. Explain how it is useful as a lung function test.

2C. Explain the role of peripheral and central chemoreceptors in regulation of respiration.

2D. Name four hormones produced by GIT and describe the actions of any two.

(4 marks × 4 = 16 marks)

3A. Define clearance value of substance and give two examples with their normal values. What is the significance of knowing these clearance values?

3B. Explain how glucose is handled by kidney in normal and in a diabetic individual.

3C. Schematically represent the steps involved in intrinsic pathway of coagulation.

3D. Explain heat loss mechanisms that occur when exposed to a hot environment.

(4 marks × 4 = 16 marks)

4. Name the layers of adrenal cortex and the hormones produced by each. Describe the actions of the hormone produced from the outer most layer and its regulation of secretion.

(8 marks)

5A. Explain the mechanism of deglutition.

5B. Draw a diagram to show neuromuscular junction and list the steps of transmission.

5C. Draw a diagram of compound action potential from a mixed peripheral nerve and explain the components in it.

5D. Briefly describe any two thyroid function tests and indicate their significance.

(4 marks × 4 = 16 marks)

6A. Name the structures in the middle ear and explain the mechanism of impedance matching.

6B. Enumerate any four functions of hypothalamus and describe any one in detail.

6C. Trace the pathway for conscious kinesthetic sensations from upper and lower extremities.

6D. Enumerate the features of Parkinsonism and give their physiological basis.

(4 marks × 4 = 16 marks)

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MANIPAL UNIVERSITY

M.Sc. (MEDICAL) (PRELIMINARY) DEGREE EXAMINATION – JULY 2014

SUBJECT: PAPER III: BIOCHEMISTRY

Saturday, July 05, 2014

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

1. Describe glycine metabolism under the following headings.

1A. Synthesis

1B. Catabolism

1C. Biological compounds formed

1D. Disorders

(2+2+6+2 = 12 marks)

2. **Write short notes on**:

2A. Isoenzymes

2B. Mucopolysaccharides

2C. Essential fatty acids

2D. Van den Bergh test

2E. Salient features of Genetic code

2F. High energy compounds

2G. Ketosis

(4 marks × 7 = 28 marks)

3. Describe the process of transcription. Add a note on post transcriptional modifications.

(8+4 = 12 marks)

4. What are tumor markers? Name any three and give their significance.

(1+3 = 4 marks)

5. Explain Wald's visual cycle.

(4 marks)

6. What is the normal serum calcium level? How is it maintained?

(1+3 = 4 marks)

7. Explain the coenzymic role of vitamin B_{12}.

(4 marks)

8. Give the biochemical defects in the following disorders:

8A. Lesch – Nyhan Syndrome

8B. Crigler – Najjar Syndrome

8C. Hemosiderosis

8D. Mc Ardle's disease

(4 marks)

9. Define BMR. What are the factors affecting BMR?

(4 marks)

10. Give one example for the following:

10A. Antivitamin

10B. Zymogen

10C. Ribozyme

10D. Phospholipid

(4 marks)