Reg. No.										

MANIPAL UNIVERSITY

M.Sc. (MEDICAL) (PRELIMINARY) DEGREE EXAMINATION – SEPTEMBER 2012

PAPER I: ANATOMY

Monday, September 03, 2012

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

Answer ALL the questions. Draw diagrams wherever necessary.

1. Describe the lateral wall of nasal cavity under:

1A. Features

1B. Blood supply

1C. Nerve supply

(6+2+2 = 10 marks)

2. Describe the boundaries and contents of posterior triangle.

(5+5 = 10 marks)

3. Describe the vermiform appendix under

3A. Parts and location

3B. Types

3C. Arterial supply

3D. Applied aspects

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

4. Describe the boundaries and contents of posterior mediastinum. Add a note on oesophagus.

(2+5+3 = 10 marks)

5. Write short notes on:

5A. Microscopic structure large vein

5B. Second part of duodenum

5C. Auditory tube

5D. Morula

5E. Barr body

5F. Otic ganglion

5G. Perineal membrane

5H. Fibrous joints

5I. Pleural recesses

5J. Pouch of Douglas

(4 × 10 = 40 marks)

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M.Sc. (MEDICAL) (PRELIMINARY) DEGREE EXAMINATION – SEPTEMBER 2012

PAPER II: PHYSIOLOGY

Wednesday, September 05, 2012

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

1. Give the normal fasting blood glucose level. List any four hyperglycaemic hormones. Explain the actions of insulin.

(8 marks)

2A. Explain the effects of sectioning dorsal nerve roots.

2B. Outline the functions of thalamus.

2C. Draw a labelled diagram of corticospinal tract from origin to its termination.

2D. With the help of a diagram explain how secretion of thyroxine is controlled.

(4×4 = 16 marks)

3A. Define GFR. Give its normal value. Mention the substance used to determine GFR. Give the formula for effective filtration pressure.

3B. Explain the obligatory and facultative reabsorption of water in renal tubules.

3C. Explain how the action potentials are conducted in unmyelinated and myelinated nerve fiber.

3D. Draw a labelled diagram to show the pathway for light reflex.

(4×4 = 16 marks)

4. Describe in detail the uptake, transport and delivery of oxygen from lungs to tissues.

(8 marks)

5A. Draw a labelled diagram to show the nerve supply to the heart. Mention the effects of stimulation of these nerves on heart rate.

5B. What is peripheral resistance. Explain the factors which influence peripheral resistance.

5C. With the help of a graph explain the left ventricular pressure changes during a cardiac cycle.

5D. With the help of a diagram explain milk ejection reflex.

(4×4 = 16 marks)

6A. Outline the role of lymphocytes in immunity.

6B. In a tabular column give the differences between pre hepatic and post hepatic jaundice.

6C. Enumerate the functions of saliva and explain any one of them.

6D. Outline how presence of food in stomach causes gastric juice secretion.

(4×4 = 16 marks)

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M.Sc. (MEDICAL) (PRELIMINARY) DEGREE EXAMINATION – SEPTEMBER 2012

PAPER III: BIOCHEMISTRY

Friday, September 07, 2012

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

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

1. Discuss the reactions of glycolysis. Add a note on the energetics and significance of this pathway.

(6+2+2 = 10 marks)

2. Describe the following aspects of bilirubin metabolism

2A. Formation of bilirubin from heme

2B. Metabolism and excretion of bilirubin.

2C. Principle and clinical utility of Van den Bergh test.

(2+5+3 = 10 marks)

3. Explain the process of translation in prokaryotes. Add a note on post translational modifications.

(8+2 = 10 marks)

4. Answer the following with short essays:

4A. Schematically represent the components of electron transport chain in a sequential order indicating the sites of ATP synthesis. Why $FADH_2$ gives only two ATP's?

(3+1 = 4 marks)

4B. Write the sources, RDA and role of vitamin D in serum calcium homeostasis.

(1+1+2 = 4 marks)

4C. Write two reactions for synthesis of glycine. Add a note on the formation and clinical significance of creatinine

(2+2 = 4 marks)

4D. Describe the reactions of β-oxidation in mitochondria.

(4 marks)

4E. Write a note on proenzymes.

(4 marks)

5. Write short notes on the following:

5A. Polymerase chain reaction

5B. Purine salvage pathways

5C. Write the enzyme defect and the substance accumulating in the following disorders

i) Von Gierke's disease

ii) Niemann -Pick disease

iii) Alkaptanuria

5D. Write one function each and associated abnormality/disorder for the following minerals:

i) Copper

ii) Zinc

iii) Iron

5E. Absorption of glucose in gastro-intestinal tract.

5F. Write one coenzyme function and deficiency disorder associated with the following vitamins

i) Thiamine

ii) Folic acid

iii) Vitamin C

5G. Protein energy malnutrition (PEM)

5H. Southern blotting

5I. High density lipoprotein

5J. Transamination

(3×10 = 30 marks)