

## MANIPAL UNIVERSITY

M.Sc. (MEDICAL) (PRELIMINARY) DEGREE EXAMINATION – JULY 2011

PAPER I: ANATOMY

Tuesday, July 05, 2011

Time: 14:00 – 17:00 Hrs.

Maximum Marks: 80

✍ Answer ALL the questions. Draw diagrams wherever necessary.

1. Describe the heart under the following headings:

- 1A. External features
- 1B. Internal features of right atrium
- 1C. Right coronary artery

(3+4+3 = 10 marks)

2. Describe the thyroid gland under the following headings:

- 2A. Surfaces and borders
- 2B. Relations
- 2C. Blood supply

(2+4+4 = 10 marks)

3. Describe the stomach under the following headings:

- 3A. Parts
- 3B. Relations
- 3C. Lymphatic drainage

(2+5+3 = 10 marks)

4. Describe the urinary bladder under the following headings:

- 4A. Surfaces and borders
- 4B. Relations
- 4C. Internal trigone

(3+4+3 = 10 marks)

5. Write short notes on:

- 5A. Microscopic structure of cardiac muscle
- 5B. Yolk Sac
- 5C. Facial artery
- 5D. Nerve supply of scalp
- 5E. Mediastinal surface of left lung
- 5F. Sternocleidomastoid
- 5G. Karyotyping
- 5H. Piriform fossa
- 5I. Greater omentum
- 5J. Blood supply of long bone

(4×10 = 40 marks)



# MANIPAL UNIVERSITY

## M.Sc. (PRELIMINARY) DEGREE EXAMINATION – JULY 2011

### PAPER II: PHYSIOLOGY

Thursday, July 07, 2011

Time: 14:00 – 17:00 Hrs.

Maximum Marks: 80

✍ **Answer ALL the questions.**

1. Trace the pathway for proprioceptive impulses from the receptors to their termination with the help of labelled diagram. (6+2 = 8 marks)
  
2. Describe:
  - 2A. The functions of platelets
  - 2B. The functions of lymphocytes. (4+4 = 8 marks)
  
- 3A. Enumerate the source and functions of CSF.
- 3B. Explain briefly the functions of visual receptors.
- 3C. Describe steps involved in transmission of impulse across the NMJ.
- 3D. Briefly describe the regulation of cardiac output. (4×4 = 16 marks)
  
4. Draw a diagram to show the conducting system of the heart. Give the velocity of impulse Transmission along the Purkinje fiber and explain its importance. (2+2 = 4 marks)
  
- 5A. With the help of a diagram explain the mechanism of chloride shift.
- 5B. Define hypoxia. Compare hypoxic hypoxia with anemic hypoxia with respect to the following
 

i) $pO_2$	ii) % saturation	iii) $O_2$ content	iv) cyanosis
-----------	------------------	--------------------	--------------
- 5C. Describe the hormonal regulation of pancreatic secretion.
- 5D. Describe the functions of bile salts. (4×4 = 16 marks)
  
6. Explain the mechanism of obligatory water reabsorption by the renal tubules. How much of  $H_2O$  is reabsorbed by this mechanism? (3+1 = 4 marks)
  
- 7A. Draw and explain a cystometrogram.
- 7B. Describe the steps involved in the synthesis of thyroxine. (4×2 = 8 marks)
  
8. Name the hormone of the posterior pituitary gland and explain the action of any one of them. (1+3 = 4 marks)
  
9. Describe the changes that occur in the myometrium during the proliferative phase of the menstrual cycle. Name the hormonal basis for the above changes. (3+1 = 4 marks)
  
- 10A. Briefly explain the effect of sympathetic nerve stimulation of heart.
- 10B. Write briefly on the actions of glucagon. (4×2 = 8 marks)



**MANIPAL UNIVERSITY****M.Sc. (MEDICAL) (PRELIMINARY) DEGREE EXAMINATION – JULY 2011****PAPER III: BIOCHEMISTRY**

Saturday, July 09, 2011

Time: 14:00 – 17:00 Hrs.

Maximum Marks: 80

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

1. How lactate is converted into glucose? Explain significance of this pathway. (12 marks)
2. Enumerate the source of carbon and nitrogen atoms in the purine ring. Add a note on regulation of purine biosynthesis. (4 marks)
3. With examples describe the significance of serum enzyme estimation in the diagnosis of:
  - 3A. Myocardial infarction
  - 3B. Liver diseases
  - 3C. Pancreatitis(2×3 = 6 marks)
4. How proteins are digested and absorbed? (4 marks)
5. Give biochemical explanations/significance of the following:
  - 5A. Breath of uncontrolled diabetic patient smells of acetone
  - 5B. Acute intermittent porphyria is triggered by administration of drugs
  - 5C. Energy charge (ATP/ADP ratio) of the cell affect fatty acid synthesis
  - 5D. Amino acid composition of protein may be different from that deduced from nucleotide sequence of mRNA(10 marks)
6. How fatty acid is activated and transported? Explain the reactions of beta oxidation. Add a note on energetics. (2+4+1 = 7 marks)