

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER M.Sc. MEDICAL (ANATOMY, PHYSIOLOGY, BIOCHEMISTRY, PHARMACOLOGY, MICROBIOLOGY) DEGREE EXAMINATION – JANUARY 2020

SUBJECT: BASIC SCIENCES – COMMON CORE 1 (MCC 601)

Monday, January 13, 2020

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

- ✍ Answer Section “A”, Section “B” and Section “C” in THREE separate answer books.
- ✍ All questions are compulsory.
- ✍ Illustrate your answers with neatly drawn and correctly labeled diagrams wherever necessary.

SECTION “A” (ANATOMY) : 20 MARKS

1. Enumerate the parts of gastrointestinal tract. Describe the stomach in detail.
(4+6 = 10 marks)
2. Write briefly on:
 - 2A. Name the arteries of upper and lower limb.
 - 2B. Name the parts of long bone. Describe its blood supply.(5 marks × 2 = 10 marks)

SECTION “B” (PHYSIOLOGY) : 15 MARKS

- 1A. Name the hormones produced from posterior pituitary. List the actions of each
- 1B. Explain how oxygen is transported from lungs to tissues? List the factors which shift the oxygen haemoglobin dissociation curve to right. Add a note on hypoxic hypoxia.
(5+5 = 10 marks)
2. With a diagram explain the changes occurring in the endometrium during menstrual cycle.
(5 marks)

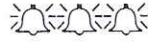
SECTION “C” (BIOCHEMISTRY) : 15 MARKS

✍ Answer the following:

1. Explain competitive inhibition of enzymes giving suitable examples
(5 marks)
- 2A. Describe structure and function of tRNA.
- 2B. Classify proteins based on their functions
(2½ marks × 2 = 5 marks)

- 3A. Define essential fatty acids and give two examples.
- 3B. Name the deficiency diseases of vitamin C and niacin
- 3C. Explain the cause for oedema in kwashiorkor
- 3D. Write the normal serum calcium level. Name 2 hormones that regulate calcium level
- 3E. Write an example of mucopolysaccharide and mention its function

(1 mark × 5 = 5 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION**FIRST SEMESTER M.Sc. (MEDICAL BIOCHEMISTRY) DEGREE EXAMINATION – JANUARY 2020****SUBJECT: CARBOHYDRATES AND PROTEIN – CHEMISTRY AND METABOLISM (MBC 603)**

Tuesday, January 14, 2020

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

- 1A. Discuss glycine metabolism.
- 1B. Explain the formation and biological significance of special compounds formed from glycine
2. Write the reactions of Emden-Meyerhof pathway occurring in erythrocytes, including aspects of regulation and energetics.

(10 marks × 2 = 20 marks)

3. **Write briefly on:**

- 3A. Structure-function relationship of hemoglobin,
- 3B. Digestion of carbohydrates and absorption of glucose in the intestine
- 3C. Polyol pathway and its significance.
- 3D. Clinical importance of C-reactive protein and ceruloplasmin
- 3E. Heteropolysaccharides-composition and functions
- 3F. Galactosemia- defect and clinical complication

(5 marks × 6 = 30 marks)



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FIRST SEMESTER M.Sc. (MEDICAL BIOCHEMISTRY) DEGREE EXAMINATION – JANUARY 2020

SUBJECT: GENERAL TECHNIQUES AND ENZYMES (MBC 605)

Wednesday, January 15, 2020

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Explain competitive, non-competitive and allosteric enzyme inhibitions giving one example for each
(10 marks)
2. Write the principal and applications of differential ultracentrifugation. Explain a scheme for the fractionation of rat liver homogenate into subcellular fractions
(10 marks)

3. **Short Answer Questions**

- 3A. Enzyme Linked Immunosorbent assay (ELISA)
- 3B. Principle and applications of spectrophotometry
- 3C. Affinity chromatography
- 3D. Ion-selective electrode
- 3E. Scintillation counter
- 3F. Cell disruption methods

(5 marks × 6 = 30 marks)

