✍ **Answer ALL the questions.**

1.   Describe the lobes and functional areas of cerebral hemisphere.

(2+6 = 8 marks)

2.   Describe the position, lobes, surfaces, relations, blood supply and nerve supply of liver.

(1+2+1+2+1+1 = 8 marks)

3.   **Write briefly on:**

3A.   Ureter

3B.   Spermatic cord

3C.   Breast

3D.   Cartilage

3E.   Thoraco-abdominal diaphragm

3F.   Retina

3G.   Superior vena cava

3H.   Pituitary gland

(3×8 = 24 marks)

⁂⁂⁂

MANIPAL UNIVERSITY

FIRST YEAR B.Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: PHYSIOLOGY

Thursday, May 30, 2013

Time: 10.00-11.30 Hours.   Max. Marks: 40

✎ **Answer ALL questions. Draw diagrams wherever necessary.**

1. **Essay questions:**

1A. Classify leucocytes. Mention one function of each.

1B. Draw a neat labeled diagram of the visual pathway.

1C. Mention the site of formation and circulation of cerebrospinal fluid. List any two functions of cerebrospinal fluid.

1D. List five actions of cortisol.

                                                                (5×4 = 20 marks)

2. **Write short answers for the following:**

2A. Mention any two transport mechanisms across the cell membrane.

2B. Mention any two differences between the first and second heart sounds.

2C. Enumerate any two differences between skeletal and smooth muscles.

2D. Mention any two anticoagulants.

2E. Define stroke volume. Give its normal value.

2F. Mention the different forms in which oxygen is transported in the blood.

2G. List any two functions of liver.

2H. Define alveolar ventilation. Mention its normal value.

2I. List any two functions of placenta.

2J. Define renal threshold. Mention the renal threshold for glucose.

                                                                (2×10 = 20 marks)

MANIPAL UNIVERSITY

FIRST YEAR B.Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: BIOCHEMISTRY

Saturday, June 01, 2013

Time: 10.00-11.30 Hours   Max. Marks: 40

1.   Write in detail the reactions of urea cycle. Add a note on two disorders of urea cycle.

(8 marks)

2.   Explain the metabolism of ketone bodies.

(6 marks)

3.   **Write short notes on the following:**

3A.   Structure of DNA

3B.   Secondary structure of proteins

3C.   Digestion of starch

3D.   Reactions of β- oxidation of palmitic acid in mitochondria

(4×4 = 16 marks)

4.   **Answer the following:**

4A.   Give two functions of dietary fibers.

4B.   Name two important products each derived from tyrosine and glycine.

4C.   List four functions of calcium.

4D.   Write the normal serum levels of total protein, uric acid, creatinine and total cholesterol.

4E.   What are proenzymes? Give two examples.

(2×5 = 10 marks)

MANIPAL UNIVERSITY

FIRST YEAR B.Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: BIOMEDICAL INSTRUMENTATION TECHNIQUES

Tuesday, June 04, 2013

Time: 10.00-13.00 Hrs.   Max. Marks: 80

✍ **Answer All Questions. Draw diagrams if necessary.**

1A. What is cardiac stress test? List the different cardiac stress tests. Discuss in detail about treadmill test.

(2+2+6 = 10 marks)

1B. With the help of block diagram, discuss the components and working principle of HPLC.

(2+4+4 = 10 marks)

1C. Explain general technique of an electrophoresis. What are the different factors affecting electrophoresis? Describe SDS-PAGE.

(2+3+5 = 10 marks)

2. **Write detailed notes on:**

2A. Types of autoclaves

2B. Incubator

2C. EMG

2D. Precautions for operating centrifuge

2E. Indirect ELISA

2F. Analytical balance

2G. Haemodialyzer

(5×7 = 35 marks)

3. **Write short notes on:**

3A. Nernst's equation

3B. PCO_2 electrode in blood gas analyzer

3C. Applications of mammogram

3D. General principle of chromatography

3E. Equipment of phase contrast microscope

(3×5 = 15 marks)