Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR B.Sc. M.L.T./B.Sc. R.T./B.Sc. M.R.T./B.Sc. M.I.T./B.Sc. C.V.T./ B.Sc. R.R.T & D.T. DEGREE EXAMINATION – AUGUST 2015

SUBJECT: ANATOMY

Wednesday, August 26, 2015

Time: 10.00 – 11.30 Hrs. Max. Marks: 40

✍ **Answer ALL the questions.**

1. Name the components (parts) of female reproductive system. Describe the position, parts, relations, blood supply and lymphatic drainage of uterus.

(2+8 = 10 marks)

2. **Write short notes on:**

2A. Classification and structure of bones

2B. Lungs

2C. Aorta

2D. Anal canal

2E. Pituitary gland

2F. Lobes and functional areas of cerebral hemisphere

(5 marks × 6 = 30 marks)

Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR BOT / B.Sc. MLT / B.Sc. CVT / B.Sc. MIT / B.Sc. RT / B.Sc. NMT / B.Sc. RRT & DT / B.Sc. MRT / DEGREE EXAMINATION – AUGUST 2015

SUBJECT: PHYSIOLOGY

Thursday, August 27, 2015

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

✍ **Answer ALL questions. Draw diagrams and flow chart wherever appropriate.**

1. **Essay Questions:**

1A. Explain the intrinsic mechanism of blood clotting.

1B. Draw and label a normal electrocardiogram from limb lead II and mention the causes for each wave.

1C. Mention any three functions of cerebellum. List any two features of cerebellar lesion.

1D. List four actions of thyroid hormones. Name the condition that results due to deficiency of thyroid hormones in adults.

(5 marks × 4 = 20 marks)

2. **Short Answer Questions:**

2A. Describe rigor mortis

2B. Describe primary active transport mechanism with an example

2C. List two features of erythroblastosis fetalis

2D. What are the two different forms of carbon dioxide transport in blood?

2E. Define cardiac output. Mention its normal value

2F. Name the components of vestibular apparatus

2G. List any two functions of liver

2H. Mention any two actions of testosterone

2I. Define glomerular filtration rate. Give its normal value

2J. Mention two properties of sensory receptors

(2 marks × 10 = 20 marks)

Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR BPT / BOT / B.Sc. MLT / B.Sc. RT / B.Sc. MIT / B.Sc. CVT / B.Sc. RRT & DT DEGREE EXAMINATION – AUGUST 2015

SUBJECT: BIOCHEMISTRY

Friday, August 28, 2015

Time: 10.00 – 11.30 Hours Max. Marks: 40

- **Answer ALL the questions.**
- **Draw diagrams and flow charts wherever appropriate.**

1. Explain the oxidation of acetyl CoA in the TCA cycle and add a note on its energetics. (8 marks)

2. Give a detailed account of the process of emulsification and absorption of lipids in the intestine. (6 marks)

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

3A. Classification of lipoproteins based on density and their functions

3B. Ketolysis and its significance

3C. Basal metabolic rate

3D. Differences between DNA and RNA

(4 marks × 4 = 16 marks)

4. Write brief answers for the following:

4A. Give the Henderson- Hasselbalch equation of bicarbonate buffer system with normal values of the components.

4B. Give normal serum level of calcium and mention THREE hormones involved in its regulation.

4C. Define essential amino acids with THREE examples.

4D. Classify polysaccharides giving ONE example each.

4E. Describe the effect of temperature on enzyme activity with a suitable graph.

(2 marks × 5 = 10 marks)

Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR B.Sc. M.L.T. DEGREE EXAMINATION – AUGUST 2015

SUBJECT: BIOMEDICAL INSTRUMENTATION TECHNIQUES

Saturday, August 29, 2015

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

✍ **Answer ALL the questions. Draw diagrams if necessary.**

1A. What is colorimeter? Define Beer – Lambert's Law. Describe the different parts of colorimeter. Write any two uses of colorimeter.

(1+2+5+2 = 10 marks)

1B. Define electrophoresis. Describe SDS-PAGE in detail.

(2+8 = 10 marks)

1C. What is centrifuge? Describe various types of centrifuges used in clinical laboratory. Add a note on precautions to be taken while using centrifuge.

(2+4+4 = 10 marks)

2. **Write detailed notes on:**

2A. Fluorescent microscope
2B. Hot air oven
2C. Mechanical monopan balance
2D. Measurement of blood PO_2 in blood gas analyser
2E. Mammogram
2F. Partition chromatography
2G. Ultrasound imaging

(5 marks × 7 = 35 marks)

3. **Write short notes on:**

3A. Vortex mixer
3B. Principle of autoclaving
3C. Electrodes in pH meter
3D. Principle of RIA
3E. Heating mantle

(3 marks × 5 = 15 marks)