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MANIPAL UNIVERSITY

FIRST YEAR B.Sc. M.L.T./B.Sc. N.M.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./M.Sc. N.M.T. DEGREE EXAMINATION – JUNE 2015

SUBJECT: ANATOMY

Tuesday, June 02, 2015

Time: 10.00-11.30 Hrs.

Max. Marks: 40

Answer ALL the questions.

1. Name the parts of urinary system. Describe the right kidney.

(5+5 = 10 marks)

2. **Write short notes on:**

2A. Spinal cord

2B. Vas deferens

2C. Typical synovial joint

2D. Nasal septum

2E. Ovary

2F. Maxillary air sinus

(5 marks × 6 = 30 marks)



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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/M.Sc. NMT DEGREE EXAMINATION – JUNE 2015

SUBJECT: PHYSIOLOGY

Thursday, June 04, 2015

Time: 10.00-11.30 Hours.

Max. Marks: 40

✍ Answer ALL questions. Draw diagrams wherever necessary.

1. Essay Questions:

- 1A. Explain the chemical regulation of respiration.
- 1B. Draw and label an electrocardiogram (ECG) from limb lead II. Indicate any two intervals of ECG. Mention any two uses of ECG.
- 1C. Mention any two functions of cerebellum. List any three features of cerebellar lesion.
- 1D. Mention any two actions of growth hormone. List any three clinical features of acromegaly.

(5 marks × 4 = 20 marks)

2. Write short answers for the following:

- 2A. List any two functions of hemoglobin.
- 2B. List any two functions of white blood cells.
- 2C. Write a note on achalasia cardia.
- 2D. Name the parts of the vestibular apparatus and mention one function of vestibular apparatus.
- 2E. Define blood pressure. Mention the normal systolic and diastolic blood pressure range in a normal adult, at rest.
- 2F. Mention any two functions of skin.
- 2G. Name two indicators of ovulation.
- 2H. Mention two differences between facilitated diffusion and active transport mechanism.
- 2I. Mention two differences between skeletal and cardiac muscles.
- 2J. Give any two differences between rods and cones.

(2 marks × 10 = 20 marks)



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

SUBJECT: BIOCHEMISTRY

Saturday, June 06, 2015

Time: 10.00-11.30 Hours

Max. Marks: 40

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

1. Explain anaerobic glycolysis and add a note on its energetics. (8 marks)

2. Give a diagrammatic representation of the processes of emulsification and absorption of lipids in the intestine. (6 marks)

3. Write short notes on the following:
 - 3A. Components of electron transport chain and order of their arrangement
 - 3B. Reactions of β -oxidation in mitochondria
 - 3C. Importance of dietary fibers
 - 3D. Secondary structure of proteins(4 marks \times 4 = 16 marks)

4. Answer the following:
 - 4A. List four differences between DNA and RNA.
 - 4B. Write two reactions where the coenzyme form of niacin is required.
 - 4C. List the four key enzymes of gluconeogenesis.
 - 4D. Name one condition in which these biochemical parameters are increased in blood: glucose, uric acid, bilirubin and urea.
 - 4E. Define buffer and write the Henderson- Hasselbalch equation.(2 marks \times 5 = 10 marks)



MANIPAL UNIVERSITY

FIRST YEAR B.Sc. M.I.T. DEGREE EXAMINATION – JUNE 2015

SUBJECT: DARK ROOM TECHNIQUES

Tuesday, June 09, 2015

Time: 10.00-13.00 Hrs.

Max. Marks: 80

✍ Answer ALL questions. Each question carries SIXTEEN marks.

1. What is noise? Explain different types of noise that we encounter on an image. Add a note on how to specify image unsharpness.
2. Explain silver recovery by metallic replacement method and compare the advantages and disadvantages of electrolytic and metallic replacement method.
3. Describe the chemical action of developer and add a note on factors affecting fixation.
4. Explain the types of x ray cassettes with the help of a neat diagram and add a note on care and maintenance of x ray cassettes.
5. Write short notes on the following:
 - 5A. Dark room lighting
 - 5B. Artifacts that occur during processing of the film
 - 5C. Kidney surgery film
 - 5D. Irradiation and Halation



MANIPAL UNIVERSITY**FIRST YEAR B.Sc. M.I.T. DEGREE EXAMINATION – JUNE 2015****SUBJECT: RADIATION PHYSICS**

Thursday, June 11, 2015

Time: 10.00-13.00 Hrs.

Max. Marks: 80

✍ Answer ALL questions. Each question carries SIXTEEN marks.

1. Define Photo electric effect and Compton effects and mention its significance in Medical Imaging.
2. Describe the cardinal principles of radiation protection in diagnostic radiology.
3. **Explain in details:**
 - 3A. Rectification
 - 3B. X-ray beam restrictors
4. **Write short notes on:**
 - 4A. Gas filled detectors
 - 4B. Autotransformer
5. **Discuss the following:**
 - 5A. Geometry of a radiographic image
 - 5B. Law of Radioactivity

