MANIPAL UNIVERSITY

FIRST YEAR B.Sc. R.T. / B.Sc. M.I.T. DEGREE EXAMINATION – AUGUST 2008

SUBJECT: ANATOMY

Tuesday, August 19, 2008

Time: 1½ Hrs.   Max. Marks: 40

✍ **Answer all the questions.**

✍ **Draw neat labeled diagram wherever necessary.**

1. Name the parts of large intestine. Give an account of appendix.

$$(2+6 = 8 \text{ marks})$$

2. Name the parts of the respiratory system. Give an account of the interior of the larynx.

$$(2+6 = 8 \text{ marks})$$

3. Answer briefly on:

3A. Ureter

3B. Labeled diagram showing sagittal section of eyeball

3C. Suprarenal gland

3D. Right ventricle.

3E. Typical synovial joint

3F. Testis

3G. Brainstem

3H. Functional areas of cerebrum.

$$(3 \times 8 = 24 \text{ marks})$$

MANIPAL UNIVERSITY

FIRST YEAR B.Sc. M.I.T. DEGREE EXAMINATION – AUGUST 2008

SUBJECT: RADIATION PHYSICS

Wednesday, August 20, 2008

Time: 3 Hrs.   Max. Marks: 80

✍ **Answer any FIVE of the following.**

1A. List the requirements of X-ray production.
1B. Discuss the Gas tubes and Coolidge's tube with necessary diagram.

(4+12 = 16 marks)

2. Define Half Value Layer and Tenth value Layer of a material using plots and starting from attenuation equation arrive at Half Value Layer and tenth value layer and write the relation between them.

(16 marks)

3. List the important steps which will protect the patient from radiation Dose in diagnostic radiology.

(16 marks)

4. Discuss the following:
4A. Line focus principle
4B. Anode angle
4C. Space charge effect
4D. Tube cooling.

(4+3+5+4 = 16 marks)

5A. What is electromagnetic radiation?
5B. Explain:
   i)   Quantum nature of Radiation
   ii)   Mass-Energy Equivalence
   iii) Fluorescence
   iv)   Electromagnetic spectrum

(2+(4+3+3+4)= 16 marks)

6A. If the exposure rate of a radioactive source is 7.5mR/hr at a distance of 7.5 meters then what would have been the exposure rate at 2.5 meter?
6B. If the exposure rate of a radioactive source is 1R/h at one meter what is the exposure received by a person standing at 2 meter for 3 minutes
6C. Under narrow beam geometry condition of irradiation what will be the intensity of a cobalt source photons when one introduces a lead of 15cm in the path in terms of initial intensity.
(Data : HVL of Pb for Co-60 is 1.21cm)

(4+4+8 = 16 marks)

7. Discuss in detail Exposure Switching, timers and HT cables.

(16 marks)

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MANIPAL UNIVERSITY
FIRST YEAR B.Sc. M.I.T. DEGREE EXAMINATION – AUGUST 2008
SUBJECT: BIOCHEMISTRY
Thursday, August 21, 2008

Time available: 1½ Hours

Max. Marks: 40

✍ **Answer ALL the questions:**

1. What are enzymes? Classify them.

    (4 marks)

2. Give the clinical importance of any 3 enzymes.

    (3 marks)

3. List three disaccharides and give one source of each of them.

    (3 marks)

4. How is pyruvate converted to glucose in the body? Explain.

    (8 marks)

5. Write a note on the absorption of lipids from the intestine.

    (4 marks)

6. Define BMR. List any four factors affecting it.

    (3 marks)

7. Explain the biochemical functions of cobalamine.

    (3 marks)

8. List four similarities and four differences between Kwashiorkor and Marasmus.

    (4 marks)

9. What is the normal level of serum calcium? How is this level regulated?

    (4 marks)

10. Describe the structure of DNA in detail.

    (4 marks)

MANIPAL UNIVERSITY
FIRST YEAR B.Sc. M.I.T. DEGREE EXAMINATION – AUGUST 2008
SUBJECT: PHYSIOLOGY
Friday, August 22, 2008

Time: 1½ Hrs.   Max. Marks: 40

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1.   **Write short notes on:**

1A.   Hypoxia.

1B.   Ear as a sense organ.

1C.   Functions of cerebellum.

1D.   Plasma proteins-major types and functions.

1E.   Anterior pituitary.

(5×5 = 25 marks)

2.   **Write brief answers to the following:**

2A.   List any four sensations carried by posterior column tract.

2B.   Draw a labeled diagram of a nephron showing various parts.

2C.   Name the salivary glands and mention the functions of saliva.

2D.   Explain any two features seen in Parkinson's disease.

2E.   Mention the role of acetylcholine in neuromuscular transmission.

(2×5 = 10 marks)

3.   **Indicate whether the following statements are True or False against each of the statements:**

3A.   Implantation of fertilized ovum normally takes place in the fallopian tube.

3B.   Organ of Corti is the receptor of hearing.

3C.   Mature RBC lacks a nucleus.

3D.   Cushing syndrome results from a decrease in cortisol level.

3E.   ECG records mechanical events in each cardiac cycle.

(1×5 = 5 marks)

MANIPAL UNIVERSITY

FIRST YEAR B.Sc. M.I.T. DEGREE EXAMINATION – AUGUST 2008

SUBJECT: DARK ROOM TECHNIQUES

Saturday, August 23, 2008

Time: 3 Hrs.   Max. Marks: 80

✍ **Answer any FIVE questions. Question number 1 is compulsory.**

✍ **Each question carries 16 marks.**

1.   **Write short notes on any FOUR of the following:**

1A.   Safe film handling time.

1B.   Loading bench.

1C.   Electrolysis.

1D.   Loading and unloading a cassette.

1E.   Role of phosphor grain size in intensifying screen.

1F.   Quantum mottle.

✍ **Write a short note on any FOUR of the following:**

2.   Factors affecting developing process of film.

3.   Rare earth screens.

4.   Classification of hangers.

5.   Types of film fog.

6.   Image unsharpness.

7.   Over or underpenetrated radiograph.