Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

FIRST YEAR B.Sc. M.L.T./ B.Sc. N.M.T./ B.Sc. R.T./ B.Sc. M.I.T. DEGREE EXAMINATION – JUNE 2005

SUBJECT: ANATOMY

Wednesday, June 01, 2005

Time: 1½ Hrs. Max. Marks: 40

Answer all questions. Draw neat labeled diagram wherever necessary.

1. Discuss the structure of the lateral wall of the nasal cavity. Add a note on the mucous membrane of the nasal cavity.

(5+3 = 8 marks)

2. Give an account of the arterial supply to the heart.

(8 marks)

3. Write briefly on:

3A. Microscopic structure of the skeletal muscle.

3B. Major openings of diaphragm.

3C. Structure of a lymph node.

3D. Oesophagus.

3E. Nephron.

3F. Ovary.

3G. Lateral ventricles of brain.

3H. Suprarenal gland.

(3×8 = 24 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

FIRST YEAR B.Sc. M.I.T. DEGREE EXAMINATION – JUNE 2005

SUBJECT: HUMAN PHYSIOLOGY

Thursday, June 02, 2005

Time: 1½ Hrs. Max. Marks: 50

❖ ***Answer all questions.***

1A. Draw a labelled diagram of a gastric gland from the body of the stomach. Give the composition and function of the gastric juice.

1B. Name the posterior pituitary hormones and describe their functions.

(8+8 = 16 marks)

2A. List the functions of the respiratory system.

2B. Define glomerular filtration rate giving its normal value. Mention the influence of any 3 factors on GFR.

2C. Name the gonadotrophic hormones. Mention their actions both in males and females.

2D. Define cardiac output and stroke volume giving their normal values. Add a note on factors affecting venous return to the heart.

2E. From the data given below calculate the respiratory minute volume and alveolar ventilation.

Tidal volume --- 150 ml. Respiratory rate --- 12/minute.

Draw labelled graphs to show intrapleural, intrapulmonary pressure changes and tidal exchange during a quiet respiration.

2F. List the physiological changes taking place in a woman during pregnancy.

(5×6 = 30 marks)

3A. Give the basis for pregnancy diagnosis tests.

3B. Name the hormone responsible for lactation.

3C. Mention the cause for menopause.

3D. List the hormones secreted by the placenta.

(4 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

FIRST YEAR B.Sc. M.I.T. DEGREE EXAMINATION – JUNE 2005

SUBJECT: BIOCHEMISTRY

Friday, June 03, 2005

Time: 2 Hrs. Max. Marks: 40

1. Choose the single best response to each of the following:

1A. α-helix of proteins is stabilized by

a) Hydrogen bonds
b) Ionic bonds
c) Glycosidic bonds
d) Hydrophobic bonds

1B. Which of the following is an invert sugar?

a) Glucose
b) Sucrose
c) Fructose
d) Maltose

1C. Iron absorption in the duodenum is promoted by all the following except:

a) Phytates
b) Vitamin C
c) Gastric HCl
d) Cysteine

1D. The macro molecule which carries the genetic information is

a) Proteins
b) Lipids
c) Nucleic acids
d) Carbohydrates

(1×4 = 4 marks)

2. State whether the following statements are TRUE/FALSE:

2A. Glucose-6-phosphate is one of the key enzyme of gluconeogenesis.

2B. Sodium is an example for major extra cellular cation.

2C. Pellagra is due to the deficiency of thiamine.

2D. Deoxy ribose is the sugar present in DNA molecule.

(1×4 = 4 marks)

3. Fill in the blanks:

3A. _____ is an example for essential fatty acid.

3B. Van den Bergh's test is specific for _____.

(1×2 = 2 marks)

4. Answer any SIX of the following:

4A. Write one each biochemical reaction for following vitamins:

i) Thiamine ii) Niacin iii) Riboflavin

4B. Write briefly on Zinc.

4C. Give an example each for the following and give their components.

i) Phospholipid ii) Mucopolysaccharide

4D. Calculate the energetics obtained by the complete oxidation of acetyl CoA through citric acid cycle.

4E. Write a note on sickle cell anemia.

4F. What is ketosis? Discuss the causes of ketosis.

4G. Enumerate the reactions of urea cycle.

(3×6 = 18 marks)

5. Answer any TWO of the following:

5A. Discuss the β-oxidation of palmitic acid under the following headings:

i) Activation of palmitate ii) Transport into mitochondira.

iii) β-oxidation steps.

(1+2+3 = 6 marks)

5B. Enumerate the reactions of HMP shunt. Add a note on its significance.

(4+2 = 6 marks)

5C. Classify the carbohydrates giving suitable examples.

(6 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

FIRST YEAR B.Sc. M.I.T. DEGREE EXAMINATION – JUNE 2005

SUBJECT: RADIATION PHYSICS

Monday, June 06, 2005

Time: 3 Hrs. Max. Marks: 80

✍ ***Answer any FIVE of the seven questions.***

1A. Explain the basic principles of radiation protection.

1B. Discuss equivalent dose and effective dose.

(10+6 = 16 marks)

2A. Discus in detail about modern X-ray tubes.

2B. Explain heel effect.

(10+6 = 16 marks)

3A. If C1, C2 and C3 are the capacitors connected in i) series ii) parallel which are connected to a battery of 5V. Find the equivalent capacitance in both the cases.

3B. Define half life of a radionuclide.

3C. Derive the equation for half-life from:
N = N0 * exp(–decay constant * decay time)

((4+4)+4+4 = 16 marks)

4. Write short notes on:

4A. Alpha decay.

4B. Beta decay.

4C. Internal conversion.

4D. Electron capture.

(4 × 4 = 16 marks)

5. Write short notes on:

5A. Photoelectric effect.

5B. Compton effect.

5C. Pair production.

(5+7+4 = 16 marks)

6. What are X-rays? Discuss the properties of X-rays.

(16 marks)

7. What are the advantages of photoelectric effect in diagnostic radiology? Write about the compton effect in radiology.

(16 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

FIRST YEAR B.Sc. M.I.T. DEGREE EXAMINATION – JUNE 2005

SUBJECT: X-RAY DARK ROOM TECHNIQUES

Tuesday, June 07, 2005

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 light.

1B. Film base.

1C. Silver halide crystal.

1D. Fixing process.

1E. Dark room storage of films.

1F. Phosphor layer of intensifying screen.

2. Automatic film processor.

3. Dark room construction.

4. Silver recovery.

5. Developer replenisher solution.

6. Film construction.

7. Cassette.