

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)



**MANIPAL ACADEMY OF HIGHER EDUCATION**

(Deemed University)

**FIRST YEAR B.Sc. R.T.T. DEGREE EXAMINATION – JUNE 2005****SUBJECT: PHYSIOLOGY****(OLD REGULATION)**

Thursday, June 02, 2005

Time: 1½ Hrs.

Max. Marks: 50

✍ Answer ALL questions.

- 1A. Define coagulation. Outline the extrinsic pathway of coagulation.
- 1B. State Landsteiner's law. Mention the agglutinogens and agglutinins present in the ABO system and Rh system of blood grouping.
- 1C. Enumerate the functions of cerebellum. Mention any two features of cerebellar lesion.
- 1D. Define arterial blood pressure. Give normal values. Explain the role of baroreceptors in regulation of blood pressure.
- 1E. How much is the normal plasma calcium level? Enumerate any four functions of ionic calcium. Name the three hormones regulating serum calcium level.
- 1F. Draw a labeled diagram of spirogram showing various lung volumes and capacities. Define vital capacity and timed vital capacity.

(4×6 = 24 marks)

- 2A. Give normal WBC count and RBC count in adults.
- 2B. With the help of a diagram indicate the location of respiratory centers.
- 2C. Mention the activation and action of pepsinogen.
- 2D. List the functions of large intestine.
- 2E. Enumerate any four properties of cardiac muscle.
- 2F. Draw a labeled diagram of reflex arc.
- 2G. Mention the actions of FSH in male and female.
- 2H. List four actions of estrogen.
- 2I. Draw a labeled diagram of neuromuscular junction.
- 2J. Define: i) Isometric contraction      ii) Absolute refractory period.
- 2K. Define: i) Micturition      ii) GFR.
- 2L. Give the cause for following conditions.
  - i) Cretinism      ii) Diabetes insipidus
  - iii) Accromegaly      iv) Cushing's syndrome.
- 2M. Name the receptor for: i) vision      ii) taste.

(2×13 = 26 marks)



**MANIPAL ACADEMY OF HIGHER EDUCATION**

(Deemed University)

**FIRST YEAR B.Sc. M.L.T./ B.Sc. N.M.T./ B.Sc. R.T. DEGREE EXAMINATION – JUNE 2005****SUBJECT: PHYSIOLOGY****(NEW REGULATION)**

Thursday, June 02, 2005

Time: 3 Hrs.

Max. Marks: 80

✍ **Answer ALL questions.**

- 1A. Define arterial blood pressure. Give its normal value. List four factors that determine blood pressure.
- 1B. Draw a diagram to show the location, nerve supply and central connections of arterial baroreceptors. Describe their role in regulation of blood pressure. (10 marks)
- 2A. Name two factors which shift the oxygen haemoglobin dissociation curve to the right. Name the forms in which  $O_2$  is transported in blood.
- 2B. Mention the agglutinogens and agglutinins present in each of the groups of ABO and Rh systems.
- 2C. i) Define GFR. List two factors influencing it.  
ii) List two special features of renal blood flow.
- 2D. Draw a neat labelled diagram of action potential. List two properties of action potentials.
- 2E. Draw a neat labelled diagram of dorsal column tract. Name two sensations carried by it. (4×5 = 20 marks)
- 3A. What is spermatogenesis? What is the normal sperm count? Name two factors that affect spermatogenesis.
- 3B. List four functions of hypothalamus.
- 3C. List four functions of skin.
- 3D. Give two important differences between dwarfism and cretinism.
- 3E. Name the different WBC. (2×5 = 10 marks)
4. List the hormones of posterior pituitary. List two actions of each. Add a note on regulation of any one of the hormones. List two features of diabetes insipidus. (10 marks)
- 5A. Give the normal  $pCO_2$  in arterial and venous blood. In what forms is  $CO_2$  transported in blood? Name two factors influencing for  $CO_2$  diffusion across the respiratory membrane.
- 5B. Draw a labelled diagram of nephron. List four functions of kidney.
- 5C. List six proteolytic enzymes in GIT. Add a note on absorption of proteins.
- 5D. Define 'blood coagulation'. Draw a schematic diagram to show the intrinsic pathway of blood coagulation.
- 5E. Classify hypoxia with one example for each. (4×5 = 20 marks)
- 6A. List two differences between Upper motor neuron and Lower motor neuron paralysis.
- 6B. Define venous return. Give its normal value..
- 6C. Define: i) anaemia ii) thrombocytopenic purpura
- 6D. List two differences between skeletal muscle and cardiac muscle.
- 6E. List four functions of liver. (2×5 = 10 marks)



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 DEGREE EXAMINATION – JUNE 2005

**SUBJECT: BIOCHEMISTRY**

Friday, June 03, 2005

Time: 1½ Hrs.

Max. Marks: 40

---

*Answer all questions.*

1. Define:
  - 1A. Calorie
  - 1B. Calorific value
  - 1C. Specific dynamic action
  - 1D. BMR
2. Trace steps of formation of lactate from glucose.
3. Classify fatty acids with one example each.
4. Classify proteins depending on functions in our body with one example each.
5. Write the coenzyme forms of riboflavin. Write any three reactions where they participate.
6. Explain various factors affecting calcium homeostasis.
7. Mention the various iso forms of creatine phosphokinase and their clinical significance.
8. Explain the principle and significance of Van den Bergh's test.
9. Trace the steps of de novo synthesis of uridine mono phosphate.
10. Calculate the energy requirement of a person weighing 55 kg with moderate physical activity on a mixed diet.

(4×10 = 40 marks)



**MANIPAL ACADEMY OF HIGHER EDUCATION**

(Deemed University)

**FIRST YEAR B.Sc.R.T. DEGREE EXAMINATION – JUNE 2005****SUBJECT: PHARMACOLOGY**

Monday, June 06, 2005

Time: 3 Hrs.

Max. Marks: 80

✍ **Answer ALL questions.**

- 1A. List four parenteral routes of drug administration.
- 1B. List two advantages and two disadvantages of oral route.
- 1C. List four new drug delivery systems.

(2+2+2 = 6 marks)

2. Write briefly on:

- 2A. First pass metabolism
- 2B. Inhaled asthma medication
- 2C. Thiopentone
- 2D. Mucolytics

(4×4= 16 marks)

3. Define the following terms with one example:

- 3A. Iatrogenic disease
- 3B. Sedative
- 3C. Bacteriostatic
- 3D. Tachyphylaxis

(2×4= 8 marks)

- 4A. Classify the drugs used in bronchial asthma with examples.
- 4B. Explain the mechanism of action of commonly used drug.
- 4C. List four antitussives.

(3+3+2 = 8 marks)

5. Explain the pharmacological basis for the following:

- 5A. Oximes in organophosphorous poisoning.
- 5B. Neostigmine in myasthenia gravis.
- 5C. Adrenaline along with lignocaine in local anaesthesia.
- 5D. ACE inhibitors in hypertension.
- 5E. Streptokinase in myocardial infarction.

(3×5 = 15 marks)

6. Name the drug used in the following conditions with its route of administration.

- 6A. Acute angina
- 6B. Morphine poisoning
- 6C. Status asthmaticus
- 6D. Wide angle glaucoma
- 6E. Anaphylactic shock

(1×5= 5 marks)

7A. List four anticholinergics

7B. List four uses of anticholinergics

7C. List two adverse effects of anticholinergics.

(2+2+1 = 5 marks)

8A. List four advantages of Benzodiazepines over barbiturates.

8B. Mention two uses of Benzodiazepines.

8C. Add a note of treatment of barbiturate poisoning.

(4+1+4 = 9 marks)

9A. Name one glucocorticoid and one mineralocorticoid.

9B. List two uses and four adverse effects of glucocorticoids.

9C. Mention two contraindications for the use of corticosteroids.

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

10A. Mention two uses of Penicillins.

10B. List two adverse effects of tetracyclines.

10C. Mention two contraindications for the use of tetracyclines.

(1+1+1 = 3 marks)



Reg. No.									
----------	--	--	--	--	--	--	--	--	--

# MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

## FIRST YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2005

### SUBJECT: RESPIRATORY THERAPY SCIENCE - I

Tuesday, June 07, 2005

Time: 3 Hrs.

Max. Marks: 80

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

1. What is meant by the term oxygen cascade and oxygen flux? Explain the different steps of the oxygen cascade, giving reason in each case for the change in partial pressure of oxygen ( $PO_2$ ). What is alveolar gas equation? Calculate the partial pressure of arterial oxygen ( $PAO_2$ ) of a patient breathing a  $FiO_2 = 0.5$  (dry gas mixture) when
- i)  $PaCO_2$  is 40 mmHg                      ii)  $PaCO_2$  is 60 mmHg

(4+6+2+4 = 16 marks)

2. What is the principle on which the capnograph works? Draw a labeled diagram of a typical capnograph waveform. Discuss with appropriate graphs the situations when one obtains abnormal capnograph waveforms.

(4+4+8 = 16 marks)

3. Write briefly on:

3A. Oropharyngeal airway.

3B. Units of measurement of pressure.

3C. Manual resuscitators.

3D. Types of flow and their significance in respiratory physiology.

3E. Physical principle of small volume nebuliser.

3F. State Dalton's law and Boyle's law and give one medical application for each.

(8×6 = 48 marks)



Reg. No.										
----------	--	--	--	--	--	--	--	--	--	--

# MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

## FIRST YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2005

### SUBJECT: PATIENT CONTACT TECHNIQUES

Wednesday, June 08, 2005

Time: 3 Hrs.

Max. Marks: 80

✍ Answer ALL questions. Draw diagrams wherever necessary.

1. Discuss the steps of basic life support aimed at assessing and providing support to the airway, breathing and circulation.

(16 marks)

2. What do you understand by the term 'chest physiotherapy'? Name four components of chest physiotherapy. List the equipment that you would assemble prior to endotracheal suction. Give two indications and contraindications each for endotracheal suction.

(2+4+6+4 = 16 marks)

3. Write briefly on:

3A. Surface markings of major and minor fissures of the lung.

3B. Nonverbal communication.

3C. Abnormal breath sounds.

3D. Give the normal values (with units) of *potassium*, *white cell count*, *fasting blood glucose*, *bilirubin* and *bleeding time*.

3E. Components of examination of the chest.

3F. Vital signs.

(8×6 = 48 marks)

