

**MANIPAL 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 2007**

**SUBJECT: ANATOMY**

Thursday, June 07, 2007

Time: 1½ Hrs.

Max. Marks: 40

✍ **Answer all the questions. Draw neat labeled diagram wherever necessary.**

1. Give a brief account of the different parts of small intestine. Add a note on pancreas.  
(4+4 = 8 marks)
  
2. Discuss the uterus under
  - 2A. Normal axis
  - 2B. Parts and relations
  - 2C. Supports(2+4+2 = 8 marks)
  
3. Answer briefly on:
  - 3A. Vocal cord
  - 3B. Left coronary artery
  - 3C. Normal constrictions of ureter
  - 3D. Position and external features of kidney
  - 3E. External features of the right lung
  - 3F. Neuron
  - 3G. Microscopic structure of suprarenal gland
  - 3H. Ascending tracts of the spinal cord and their functions.(3×8 = 24 marks)



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FIRST YEAR B.P.T./B.O.T./B.Sc.M.L.T./B.Sc.N.M.T/B.Sc.R.T.T. DEGREE EXAMINATION – JUNE 2007

**SUBJECT: PHYSIOLOGY**

Friday, June 08, 2007

Time available: 3 Hours.

Max. Marks: 80

- 1A. Describe the mechanism of contraction in skeletal muscle.
- 1B. Describe the functions of the following structures of brain:
- i. Hypothalamus ii. Cerebellum

(10+(5+5) = 20 marks)

2. Write short notes on each of the following:

- 2A. Lung volumes and capacities.
- 2B. Regulation of cardiac output in exercise.
- 2C. Digestive enzymes that act on carbohydrates in diet.
- 2D. Visual pathway.
- 2E. Nerve action potential.
- 2F. Functions of platelets.
- 2G. Lactation.
- 2H. Functions of renal tubules.

(5×8 = 40 marks)

3. Write brief answers to the following:

- 3A. Mention two conditions leading to bradycardia.
- 3B. Give the location of respiratory centers. Mention their functions.
- 3C. Mention two functions of smooth muscles.
- 3D. Name the receptors for
- i. Colour vision ii. Hearing
- 3E. Mention two components of gastric juice.
- 3F. Mention the location and function of vestibular apparatus.
- 3G. Mention two functions of plasma proteins.
- 3H. Name any two hormones of adrenal cortex.
- 3I. Mention the normal body temperature and method of measuring it.
- 3J. Mention two factors affecting spermatogenesis.

(2×10 = 20 marks)



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**FIRST YEAR B. Sc. N.M.T./B. Sc. M.I.T/B.Sc. R.T. DEGREE EXAMINATION – JUNE 2007**

**SUBJECT: BIOCHEMISTRY**

Saturday, June 09, 2007

Time: 1½ Hrs.

Max. Marks: 40

✍ Answer **ALL** the questions.

1. Define glycolysis. Write the reactions of aerobic glycolysis mentioning the enzymes and coenzymes at each step.

(1+7 = 8 marks)
2. Define the term carbohydrates. Classify carbohydrates and give two examples for each class.

(5 marks)
3. Name lipoproteins and write one function each of the lipoproteins.

(4 marks)
4. Define BMR and list the factors affecting it.

(4 marks)
5. With the help of a graph explain the effect of substrate concentration and temperature on enzyme activity.

(6 marks)
6. Discuss urea cycle under the following headings:
  - 6A. Site and subcellular site.
  - 6B. Reactions.

(1+5 = 6 marks)
7. What are essential fatty acids? Give **TWO** examples.

(2 marks)
8. Write the coenzyme form of thiamine and pyridoxine. Write two reactions each in which coenzyme form of the above vitamin takes part.

(5 marks)



**MANIPAL UNIVERSITY**  
**FIRST YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2007**  
**SUBJECT: PHARMACOLOGY**

Monday, June 11, 2007

Time: 3 Hrs.

Max. Marks: 80

✍ **Answer ALL questions.**

- 1A. Calculate the amount of ingredients required to prepare one litre of 10% dextrose in half normal saline.
- 1B. Explain two methods to prolong the duration of action of drugs with examples.
- 1C. Name two drugs given by sublingual route and give two advantages of this route.  
(4+4+2 = 10 marks)
- 2A. Classify neuromuscular blockers with examples.
- 2B. Explain the effects of adrenaline on  
i) Heart                      ii) Lungs
- 2C. Mention two uses and two contraindications of propranolol  
(3+3+2 = 8 marks)
- 3A. Write briefly the mechanism of action, uses and adverse effects of methylxanthines.
- 3B. Name one mast cell stabilizer and one leukotriene antagonist.
- 3C. Mention four drugs given by inhalational route in bronchial asthma.  
(4+1+2 = 7 marks)
4. Mention two uses and two adverse effects of the following drugs.
- 4A. Amlodipine
- 4B. Dexamethasone
- 4C. Promethazine
- 4D. Prazosin
- 4E. Frusemide  
(2×5 = 10 marks)
5. Explain the following terms with an example.
- 5A. Tachyphylaxis
- 5B. Drug nomenclature
- 5C. Idiosyncrasy
- 5D. Chemoprophylaxis
- 5E. Superinfection.  
(2×5 = 10 marks)

- 6A. Define pre- anaesthetic medication.
- 6B. Explain four objectives of pre-anaesthetic medication with one example for each.
- 6C. Give two advantages and two disadvantages of halothane.

(1+6+2 = 9 marks)

- 7A. Classify anti- microbial agents based on the mechanism of action with examples.
- 7B. Give two anti-microbial combinations and mention an indication for each.
- 7C. Mention two tetracyclines.

(4+3+1 = 8 marks)

8. Give two examples and two uses for the following groups of drugs.

- 8A. Selective B<sub>2</sub> agonists.
- 8B. First generation anti-histamines.
- 8C. ACE inhibitors.
- 8D. Long acting glucocorticoids.
- 8E. Anticoagulants.

(2×5 = 10 marks)

9. Mention four local anaesthetics and explain the rationale for combining adrenaline with them.

(2+2 = 4 marks)

- 10A. Define thrombolytics. Give two examples.
- 10B. List four drugs used in the treatment of shock.

(2+2 = 4 marks)



**MANIPAL UNIVERSITY**  
**FIRST YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2007**  
**SUBJECT: RESPIRATORY THERAPY SCIENCE - I**

Tuesday, June 12, 2007

Time: 3 Hrs.

Max. Marks: 80

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

1. What is a manual resuscitator? Mention the highest  $FiO_2$  that can be achieved using a manual resuscitator and how? Using a diagram explain its working principle. List the indications and complications associated with its use. Mention the bag volumes for adult, pediatric and neonatal resuscitators and the use of pressure relief valves present in manual resuscitators.

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

2. Define aerosol and state the aim of medical aerosol therapy. Describe the key mechanisms of aerosol deposition. What are the types of aerosol delivery devices available? Write a short note on ultrasonic nebulisers.

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

3. Write brief notes on:

3A. Endotracheal tubes.

3B. Oxygen therapy devices.

3C. Types of gas flows.

3D. A normal capnogram

3E. Working principle of a 'venturi' device for oxygen therapy.

- 3F. State each of the following gas laws and illustrate its medical applications with one example in each case:

i) Coanda effect.

ii) Poiseuille's Law.

iii) Bernoulli's Principle.

iv) Laplace's Law.

(8×6 = 48 marks)



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**MANIPAL UNIVERSITY**  
**FIRST YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2007**  
**SUBJECT: PATIENT CONTACT TECHNIQUES**

Wednesday, June 13, 2007

Time: 3 Hrs.

Max. Marks: 80

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

1. Define vital signs. Enumerate the vital signs. Write the causes for increase or decrease in each of vital signs.

(2+4+10 = 16 marks)

2. Write the steps to evaluate the respiratory system. What are the clinical manifestations observed during inspection? Write in brief about percussion any two diseases where a dull percussion note is heard.

(4+6+3+3 = 16 marks)

3. Write short notes on:

3A. Bronchopulmonary segments

3B. Normal heart sounds

3C. Evaluate the effectiveness of CPR

3D. Indications of CPT

3E. Write the normal Sodium value and causes of hyponatremia

3F. Facial Expression.

(8×6 = 48 marks)

