

RT

Reg. No.

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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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)



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MANIPAL UNIVERSITY

FIRST YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2015

SUBJECT: PHARMACOLOGY
(2010 SCHEME)

Tuesday, June 09, 2015

Time: 10.00 – 13.00 Hrs.

Max. Marks: 80

1. **Define the following:**

- 1A. Bioavailability
- 1B. Therapeutic index
- 1C. Teratogenicity
- 1D. Plasma half life
- 1E. Plasma clearance

(3 marks × 5 = 15 marks)

2. **Give two examples, two uses and two side effects of the following:**

- 2A. Adrenergic agonist
- 2B. Diuretics
- 2C. Penicillins
- 2D. Corticosteroids
- 2E. NSAIDS

(6 marks × 5 = 30 marks)

3. **Describe different routes of administration.**

(5 marks)

4. **Classify drugs used in the treatment of Congestive heart failure. Describe one group of drugs with mechanism of action and side effects.**

(6+8 = 14 marks)

5. **Describe the rationale behind using:**

- 5A. Atropine for OP poisoning
- 5B. Salbutamol in Asthma
- 5C. Vecuronium in patients who are on mechanical ventilator
- 5D. Lidocaine jelly for intubation

(4 marks × 4 = 16 marks)



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MANIPAL UNIVERSITY

FIRST YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2015

SUBJECT: PATIENT CONTACT TECHNIQUES
(2010 SCHEME)

Thursday, June 11, 2015

Time: 10.00-13.00 Hrs.

Max. Marks: 80

✍ **Long Notes:**

1. Define vital signs. Mention the various vital signs measured in ICU and their normal values. Write the clinical conditions where the vital signs are altered. Define blood pressure and describe the techniques which are used to measure B.P.
(16 marks)
2. Explain on the Pediatric Basic Life Support. Explain on the automated external defibrillator.
(16 marks)

3. **Short Notes:**

- 3A. Normal values and clinical significance of changes in hemoglobin, total red blood cell count, total white blood cell count and prothrombin time.
- 3B. Indications and steps of chest physical therapy. Define postural drainage, mention which position applies for drainage of secretions from right posterior basal segment and left apicobasal segment.
- 3C. Give the normal value for the following (with units) and name one condition in which each parameter is altered:
 - i) Anion gap
 - ii) Blood glucose
 - iii) Clotting time
 - iv) Serum potassium levels
- 3D. Write a short note on different types of breathing exercises. Which breathing exercise would be advised for post-abdominal surgery patients?
- 3E. Examination of the respiratory system
- 3F. Non-verbal communication

(8 marks × 6 = 48 marks)



MANIPAL UNIVERSITY

FIRST YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2015

SUBJECT: RESPIRATORY THERAPY SCIENCE – I
(2010 SCHEME)

Saturday, June 13, 2015

Time: 10:00-13:00 Hrs.

Max. Marks: 80

✍ Draw diagrams wherever necessary.

1. Oxygen is present in the atmosphere and also in our blood.
 - 1A. Discuss the basic concept of oxygen cascade.
 - 1B. What are the indications of oxygen therapy?
 - 1C. List the different hazards caused by oxygen therapy

(6+4+6 = 16 marks)

2. An artificial airway importance is to maintain airway patency. Discuss on the following questions:
 - 2A. With a neat diagram explain the parts of an endotracheal tube
 - 2B. List down the sequence for intubation
 - 2C. List down the bed side methods to assess endotracheal tube position

(6+6+4 = 16 marks)

3. Write short notes on:
 - 3A. Add a note on the difference between spacers and holding chambers. Discuss on the technique of using a metered dose inhaler without a spacer or chamber.

(2+6 = 8 marks)
 - 3B. Discuss on the principle of a Capnometer. Explain its normal and abnormal graphical interpretation of a Capnogram.

(4+4 = 8 marks)
 - 3C. Define Absolute humidity and Relative humidity. Add a note on heat moisture and exchangers.

(3+5 = 8 marks)
 - 3D. List the types of reducing valves. Add a note on a multistage reducing valve.

(3+5 = 8 marks)
 - 3E. Respiratory therapy devices are governed with physics law. Define the following:
 - i) Charles Law
 - ii) Henry's Law
 - iii) Graham's Law
 - iv) Poiseuille's Law

(8 marks)
 - 3F. Define the different types of manual resuscitators. With the help of a how does a self-inflating bag works.

(2+6 = 8 marks)

