

MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD YEAR B.Sc. R.R.T. & D.T./ B.Sc. M.R.T/B.Sc. R.T./B.Sc. C.V.T
FOURTH YEAR B.O.T./B.P.T. DEGREE EXAMINATION – JUNE 2018

SUBJECT: BIOSTATISTICS & RESEARCH METHODOLOGY/RESEARCH
METHODOLOGY & STATISTICS/BASIC BIOSTATISTICS & RESEARCH
METHODOLOGY/RESEARCH METHODOLOGY AND BIOSTATISTICS /
BIOSTATISTICS & RESEARCH METHODOLOGY

Friday, June 01, 2018

Time: 10:00-13:00 Hrs.

Max. Marks: 80

✍ Answer ALL the questions.

1. Define statistics and enumerate its applications in health sciences. (5 marks)

2. Form a frequency table along with relative frequencies for the ages of 40 patients given below. (Class intervals: 0 – 15, 15 – 30, 30 – 45, so on)

57	37	43	43	30	39	53	47	64	31
40	22	40	29	15	65	39	43	54	40
24	46	17	38	50	30	34	25	36	39
36	62	30	07	47	32	36	42	42	47

(5 marks)

3. Define discrete and continuous variables with examples.

(4 marks)

4. State true or false:

4A. Mode may or may not exist.

4B. Standard normal curve is either leptokurtic or platykurtic.

(2 marks)

5. Construct a bar diagram for the following data on socioeconomic status of 120 HIV infected subjects.

Socioeconomic Status	No. of subjects
High	55
Middle	25
Low	40

(4 marks)

6. Erythrocyte Sedimentation Rate (ESR) readings (in mm) of 10 tuberculosis patients are given below. Calculate coefficient of variation.

11 9 8 14 10 8 7 12 8 9

(10 marks)

7. Obtain median and interquartile range for the data regarding number of post operative days until diagnosis of infection for each subject experiencing an infection.

7 4 15 8 16 14 8 9 12 11

(8 marks)

8. **Define the following:**

- 8A. Crude death rate
- 8B. Total fertility rate
- 8C. Maternal mortality rate

(2 marks \times 3 = 6 marks)

9. Given the weight of new born babies is approximately normally distributed with a mean of 3000 gms and a standard deviation of 300 gms, obtain the proportion of new born babies with weight

- 9A. More than 3300 gms
- 9B. Between 3000 and 3600 gms

(3 marks \times 2 = 6 marks)

10. **Write short notes on:**

- 10A. Scatter diagram
- 10B. Probability sampling
- 10C. Case series study
- 10D. Health information system
- 10E. Disease registries
- 10F. Scales of measurement

(5 marks \times 6 = 30 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION**THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2018****SUBJECT: PULMONARY REHABILITATION
(2010 & 2015 SCHEME)**

Monday, June 04, 2018

Time: 10:00-13:00 Hrs.

Max Marks: 80

 **Draw diagrams wherever necessary.**

1. Describe various techniques of bronchopulmonary clearance in a patient awaiting lobectomy for treatment of lung abscess in the right upper lobe.

(16 marks)

2. Define sleep apnea. Describe the clinical features, diagnosis, and management of sleep apnea in adult patients.

(4+4+8 = 16 marks)

3. **Write short notes on:**

- 3A. Setting up pulmonary rehabilitation clinic
- 3B. Outcome domains in pulmonary rehabilitation
- 3C. Lung Volume Reduction Surgery (LVRS)
- 3D. Aerosol therapy in pulmonary rehabilitation
- 3E. Methods to measure dyspnea
- 3F. Shuttle walk test

(8 marks × 6 = 48 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION**THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2018****SUBJECT: CARDIOPULMONARY INTENSIVE CARE INCLUDING ADVANCED CARDIAC LIFE SUPPORT
(2010 & 2015 SCHEME)**

Wednesday, June 06, 2018

Time: 10:00-13:00 Hrs.

Max Marks: 80

1. Describe the various steps of basic life support in the management of a pregnant patient who has become unconscious in a hospital ward.
(16 marks)
2. With the help of diagram, explain the three bottle intercostals chest drainage system. Discuss the precautions to be taken in a patient with intercoastal chest tube and underwater seal.
(10+6 = 16 marks)
3. **Write short notes on:**
 - 3A. Pacemaker
 - 3B. Algorithm for treatment of ventricular tachycardia in ACLS
 - 3C. Haemodialysis
 - 3D. Flail chest
 - 3E. Dopamine hydrochloride
 - 3F. Management of chronic kidney disease

(8 marks × 6 = 48 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION
THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2018

SUBJECT: ADVANCED NEONATAL RESPIRATORY CARE
(2010 & 2015 SCHEME)

Friday, June 08, 2018

Time: 10:00-13:00 Hrs.

Max. Marks: 80

✍ **Draw diagrams wherever necessary.**

1. You are asked to connect a bubble CPAP for a 32 weeks gestation baby weight of 1250 grams. What are the physiological effects of continuous positive airway pressure? Add a note on how a bubble CPAP works.

(8+8 = 16 marks)
2. List the methods of heat lost in neonates. Explain how you would prevent heat lost in each. What is neutral thermal zone and cold stress?

(4+6+3+3 = 16 marks)
3. **Write short notes on:**
 - 3A. Pathophysiology of Hyaline membrane disease

(8 marks)
 - 3B. A 32 weeks gestation female baby with birth weight of 1200 gram is presenting with frequent episode of bradycardia and desaturation. You are asked to monitor this baby. What would be the etiology and clinical diagnosis? What steps would you take if frequent episode occur?

(2+1+5 = 8 marks)
 - 3C. List the factors associated with transient tachypnea of new born. Add a note on its pathophysiology.

(4+4 = 8 marks)
 - 3D. Add a note on T-piece resuscitator

(8 marks)
 - 3E. Principle and indication of pulse oximeter

(4+4 = 8 marks)
 - 3F. Explain Fetal Circulation

(8 marks)



3. **Write short notes on any SIX of the following:**

- 3A. Group therapy
- 3B. Problem solving approach to counselling
- 3C. Sex therapy
- 3D. Psychosocial rehabilitation
- 3E. Contingency management
- 3F. Definition and objectives of counselling
- 3G. Scope of clinical psychology
- 3H. Bereavement Counseling
- 3I. Anxiety disorders

(5 marks × 6 = 30 marks)

4. **Write essay on any TWO of the following:**

- 4A. Discuss the various methods in clinical psychology.
- 4B. Outline the different approaches to Psychotherapy.
- 4C. Elaborate the concept of stress and illness and its impact on adjustment.

(15 marks × 2 = 30 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION
THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2018
SUBJECT: RESPIRATORY THERAPY SCIENCE – III
(2010 & 2015 SCHEME)

Wednesday, June 13, 2018

Time: 10:00-13:00 Hrs.

Max Marks: 80

1. Write the indications of Hyperbaric oxygen therapy. Write the physiological basis of hyperbaric oxygen therapy. How is Hyperbaric oxygen therapy useful in decompression sickness? What are the adverse effects of Hyperbaric oxygen therapy?
(4+6+4+2 = 16 marks)
2. Write a detailed note on Liquid ventilation and nitric oxide therapy.
(8+8 = 16 marks)
3. **Write short notes on:**
 - 3A. HME vs Heated Humidifier
 - 3B. Working principle of Philips respironics ventilator
 - 3C. Ventilatory strategy in an ARDS patient
 - 3D. Bilevel positive airway pressure
 - 3E. Heliox therapy
 - 3F. Write briefly about five parameters that are set on the ventilator during high frequency oscillatory ventilation.
(8 marks × 6 = 48 marks)

