

MANIPAL UNIVERSITY

**THIRD/FOURTH YEAR B.Sc. R.R.T. & D.T./B.Sc. C.V.T./B.Sc. M.R.T/B.Sc. R.T./
B.Sc. M.L.T./B.O.T./B.P.T. DEGREE EXAMINATION – JUNE 2015**

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

Monday, June 01, 2015

Time: 10:00-13:00 Hrs.

Max. Marks: 80

☞ Answer ALL the questions.

1. Define statistics and list its role in health sciences. (5 marks)

2. Describe Validity and Reliability. (5 marks)

3. Give the difference between nominal and ordinal variables with examples. (5 marks)

4. Classify the following into different scales of measurements (Nominal, Ordinal, Interval and Ratio). (5 marks)
 - a) Temperature ($^{\circ}F$) b) City c) Age
 - d) Gender e) Stage of disease (I/II/III/IV)

5. Briefly describe Probability and Non Probability sampling. (5 marks)

- 6A. In a study of 126 patients admitted in a hospital, it was assessed whether patients were 'Current smoker', 'Past smoker' or 'Never smoker'. The frequencies of these categories are shown in table below. Represent the data with the help of a pie chart.

Smoking status	Frequency
Current smoker	42
Past smoker	21
Never smoker	63

- 6B. The data gives the intelligence quotient (I.Q) of 36 children. Construct frequency table along with relative frequencies using the class intervals, less than 90, 90 – 100, 100 – 110, and so on.

99	103	112	118	109	76	110	101	98	100	116	113
139	105	120	106	113	121	99	103	98	117	109	130
95	105	120	93	108	65	85	94	98	101	117	115

(5+5 = 10 marks)

- 7A. Why do we use coefficient of variation? How is it different from standard deviation? Explain with an example.

7B. Compute the median, range and inter-quartile range for the following data:

SBP (mmHg): 120 125 121 123 125 127 122 128 123 126 122

(5+5 = 10 marks)

8. It was observed that the incubation period in days of patients with infectious hepatitis follows normal distribution with a mean of 20 days and standard deviation of 4 days. What percentage of the patients have incubation period:

8A. Below 12 days

8B. Between 24 and 28 days

(5 marks)

9. What is Karl-Pearson's correlation coefficient? List its properties.

(5 marks)

10. Write a note on health information system and its requirements.

(5 marks)

11A. Explain the terms prevalence and incidence with examples.

11B. Define crude birth rate and infant mortality rate.

(6+4 = 10 marks)

12. Define epidemiology. Enumerate its uses. Describe case series analysis.

(10 marks)



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

MANIPAL UNIVERSITY

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

SUBJECT: PULMONARY REHABILITATION
(2010 SCHEME)

Wednesday, June 03, 2015

Time: 10:00-13:00 Hrs.

Max Marks: 80

✍ Draw diagrams wherever necessary.

1. Define the term pulmonary rehabilitation. What are the goals of pulmonary rehabilitation?
How do you select patients for the Rehabilitation program?
(3+8+5 = 16 marks)

2. Describe the different types of surgical technique of lung volumes. What are their indication, contraindications and complications?
(5+4+4+3 = 16 marks)

3. Write short notes on:
 - 3A. What are the outcome measurement in pulmonary rehabilitation?
 - 3B. Explain the breathing techniques used for pulmonary rehabilitation.
 - 3C. Assessments of Shuttle walk test and Six minute walk test.
 - 3D. Advantages and disadvantages of Metered dose inhaler, small volume nebulizer and Ultrasonic nebulizer.
 - 3E. Discuss the clinical features of obstructive sleep apnea and its management.
 - 3F. How will you give a patient and family, the education about chronic obstructive pulmonary diseases?
(8 marks × 6 = 48 marks)



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

Friday, June 05, 2015

Time: 10:00-13:00 Hrs.

Max Marks: 80

✍ Draw diagrams wherever necessary.

1. Define infection, sepsis, septic shock and MODS. Explain in detail about management of septic shock.
(8+8 = 16 marks)
2. A patient in ICU has developed ventricular tachycardia. The patient is conscious and awake. What is the management required?
The same patient after few minutes developed Ventricular fibrillation. What is the management required? Add a note on post resuscitation care.
(6+4+6 = 16 marks)
3. **Write short notes on:**
 - 3A. Technique of intercostal tube insertion in adults.
(8 marks)
 - 3B. Add a note on types of dialysis and complications associated with it.
(4+4 = 8 marks)
 - 3C. Cardiac pacing
(8 marks)
 - 3D. Exercise tolerance testing
(8 marks)
 - 3E. Congestive heart failure
(8 marks)
 - 3F. Add a note on cardioversion
(8 marks)



MANIPAL UNIVERSITY**THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2015****SUBJECT: ADVANCED NEONATAL RESPIRATORY CARE
(2010 SCHEME)**

Monday, June 08, 2015

Time: 10:00-13:00 Hrs.

Max. Marks: 80

✍ **Draw diagrams wherever necessary.**

1. Define Bronchopulmonary Dysplasia (BPD). Discuss the stages based on radiological features. Add a note on the management of BPD.
(2+8+6 = 16 marks)
2. You are called for a high risk delivery of a 32 weeks gestation with an expected weight of 1250 grams. How will you prepare your equipment for resuscitation? Discuss each steps of resuscitation.
(8+8 = 16 marks)
3. **Write short notes on:**
 - 3A. Pathophysiology of Meconium aspiration syndrome
(8 marks)
 - 3B. A 37 weeks gestation baby on mechanical ventilation was diagnosed to have Persistent Pulmonary Hypertension (PPHN). Discuss on the management of PPHN.
(8 marks)
 - 3C. Components and functions of Surfactant
(4+4 = 8 marks)
 - 3D. Indication and Contraindication of continuous positive airway pressure
(4+4 = 8 marks)
 - 3E. Discuss how you will wean a term 40 week gestation male baby, ventilated for meconium aspiration syndrome.
(8 marks)
 - 3F. You are attending a normal vaginal delivery of a 37 week gestation female baby. The baby cried immediately after birth. You are asked to clamp the cord. Discuss on the adaptation of cardiopulmonary resuscitation.
(8 marks)



MANIPAL UNIVERSITY

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

SUBJECT: PSYCHOLOGY
(2010 SCHEME)

Wednesday, June 10, 2015

Time: 10:00-13:00 Hrs.

Max Marks: 80

1. Choose the single best answer.

1A. Observation of one's own behavior by looking within is referred to as:

- i) Clinical method ii) Case-history method
iii) Naturalistic observation iv) Introspection method

1B. Psychoanalytical therapy is introduced by

- i) Rogers ii) Freud
iii) Pavlov iv) Ellis

1C. Which of the following psychotherapy deals with 'negative automatic thought'?

- i) Humanistic ii) Cognitive
iii) Behavior iv) Existential

1D. An IQ of 66 is considered as

- i) Dull Normal ii) Average
iii) Severe Mental Retardation iv) Mild Mental Retardation

1E. Which of the following is related to classification of mental disorders?

- i) ICD ii) EMG
iii) DCM iv) DCI

(1 mark × 5 = 5 marks)

2. Write definitions on any FIVE of the following:

2A. Survey Method

2B. Stress

2C. Intelligence

2D. Rehabilitation

2E. Prompting

2F. Normality

2G. Coping

(3 marks × 5 = 15 marks)

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

- 3A. Naturalistic observation method of psychology
- 3B. Concept of Abnormality
- 3C. Neurotic disorders
- 3D. Assessment of cognitive function
- 3E. Euthanasia
- 3F. Electro Convulsive Therapy
- 3G. Mood disorders
- 3H. Rational Emotive Behavior Therapy
- 3I. Any two techniques of behavior therapy

(5 marks × 6 = 30 marks)

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

- 4A. Describe the effects of stress and its management
- 4B. Crisis intervention strategies
- 4C. Explain the various aspects of bereavement counseling

(15 marks × 2 = 30 marks)



MANIPAL UNIVERSITY
THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2015
SUBJECT: RESPIRATORY THERAPY SCIENCE – III
(2010 SCHEME)

Friday, June 12, 2015

Time: 10:00-13:00 Hrs.

Max Marks: 80

1. Explain in brief the different types of High Frequency Ventilation. Write down the initial settings of High frequency oscillatory ventilation and moderations in these settings with justification. List the complications of high frequency ventilation.

(6+6+4 = 16 marks)
2. Explain in detail the physiological changes which lead to improvement in oxygenation when an ARDS patient is positioned prone during mechanical ventilation. What is the regime for prone positioning in these patients? What are the complications of prone position ventilation?

(6+6+4 = 16 marks)
3. **Write short notes on:**
 - 3A. Write in brief the indications, conducting system and contraindications of extra corporeal membrane oxygenation.
 - 3B. Ventilatory graphics changes in circuit leak and Auto-PEEP
 - 3C. Enumerate the indications for non-invasive ventilation. What are the conditions in which non-invasive ventilation is contraindicated?
 - 3D. Explain in detail how APRV mode works. How does this modality of ventilation help the patient?
 - 3E. You get a ventilator troubleshooting call for high pressure alarm. What all are the potential causes and solutions of this alarm?
 - 3F. Heliox therapy

(8 marks × 6 = 48 marks)

