

MANIPAL UNIVERSITY

**THIRD 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./
FOURTH YEAR B.O.T./B.P.T. DEGREE EXAMINATION – JUNE 2017**

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

Thursday, June 01, 2017

Time: 10:00-13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL the questions.**

1. List and define different types of variables. (6 marks)

2. **Classify the following into the four different scales of measurement:**

2A. Stages of cancer

2B. Blood group

2C. Pain score (mild/moderate/sever)

2D. Age

(4 marks)

3. Thirty seven persons were examined for haemoglobin level in their blood (mg per dl). Construct a frequency polygon for the data.

Hb (mg/dl)	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17
No. of persons	5	10	15	4	2	1

(4 marks)

4. Compute 65th percentile and standard deviation for the following data regarding weight of infants (in kg.).

2.32	2.36	2.89	3.03	3.86	2.90	4.01	3.69	3.07	2.87
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(10 marks)

5. Data below shows the number of colonies of bacteria grown on ten agar plates. Calculate median and interquartile range.

60	70	100	160	140	80	110	95	130	115
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(10 marks)

6. **Define the following:**

6A. Perinatal mortality rate

6B. Crude birth rate

(2+2 = 4 marks)

7. Describe correlation using scatter plots.

(6 marks)

8. The amount of weight gained during pregnancy was assessed and was found to be approximately normally distributed with a mean weight gain of 12 kgs and a standard deviation of 4 kgs. Calculate the proportion of pregnant mothers who gained weight:

- 8A. Less than 20 kgs
- 8B. Between 12 to 16 kgs
- 8C. At least 8 kgs

(2 marks \times 3 = 6 marks)

9. **Write short notes on:**

- 9A. Reliability
- 9B. Epidemiology and its aims
- 9C. Systematic sampling
- 9D. Characteristics of good hypothesis
- 9E. Disease Registries
- 9F. Case reports

(5 marks \times 6 = 30 marks)



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MANIPAL UNIVERSITY

THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2017

**SUBJECT: PULMONARY REHABILITATION
(2010 SCHEME)**

Saturday, June 03, 2017

Time: 10:00-13:00 Hrs.

Max Marks: 80

✍ **Draw diagrams wherever necessary.**

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

(16 marks)

2. List the indication and limitation of six minute walk test. What are the scope and purpose of the test? What are the precautions and safety which are to be taken into consideration?

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

3. **Write short notes on:**

3A. What are the types of ventilator muscle training devices? Write in detail about these devices with help of diagram.

3B. Smoking cessation assessment and management.

3C. Mechanisms of Dyspnea.

3D. Emergency procedures during exercise training.

3E. Discuss the pharmacologic agents in patients with COPD.

3F. Oxygen therapy in Pulmonary Rehabilitation, its Indication and delivery system.

(8 marks × 6 = 48 marks)



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THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2017

SUBJECT: CARDIOPULMONARY INTENSIVE CARE INCLUDING ADVANCED CARDIAC LIFE SUPPORT
(2010 SCHEME)

Tuesday, June 06, 2017

Time: 10:00-13:00 Hrs.

Max Marks: 80

1. Discuss the ACLS algorithm for management of tachycardia without pulse. Add a note on defibrillation.

(10+6 = 16 marks)

2. Classify types of acute renal failure. Add a note on management of established renal failure.

(6+10 = 16 marks)

3. **Write short notes on:**

3A. Sodium bicarbonate

3B. Use of End-tidal carbon dioxide in ACLS

3C. Treadmill test

3D. Pathophysiology of congestive heart failure

3E. Airway gadgets in CPR

3F. Management of Supraventricular tachyarrhythmias

(8 marks × 6 = 48 marks)



MANIPAL UNIVERSITY**THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2017****SUBJECT: ADVANCED NEONATAL RESPIRATORY CARE
(2010 SCHEME)**

Thursday, June 08, 2017

Time: 10:00-13:00 Hrs.

Max. Marks: 80

✍ **Draw diagrams wherever necessary.**

1. Discuss in detail about the changes from intrauterine to extrauterine life. Add a note on the causes for reduction of Pulmonary Vascular Resistance (PVR) after birth.

(10+6 = 16 marks)

2. Discuss the algorithm of Neonatal Resuscitation for Neonates according to ILCOR, AHA guidelines. What are targeted SpO₂ during the first 15 minutes of life.

(12+4 = 16 marks)

3. **Write short notes on:**

3A. Explain in detail about Atrial Septal Defect (ASD). Add a note of hyperoxia test.

(4+4 = 8 marks)

3B. Explain in detail the pathophysiology of Meconium Aspiration Syndrome.

(8 marks)

3C. Discuss the physiological effects of continuous positive airway pressure when ventilating a newborn.

(8 marks)

3D. What is oxygen index? Explain its significance. Add a note on the Chest X-ray features and stages of Respiratory Distress Syndrome (RDS).

(2+2+4 = 8 marks)

3E. Define Neutral Thermal Zone. Discuss the different practices followed in NICU to prevent heat loss. What is cold stress?

(1+5+2 = 8 marks)

3F. Add a note on Persistent Pulmonary Hypertension (PPHN).

(8 marks)



MANIPAL UNIVERSITY**THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2017****SUBJECT: PSYCHOLOGY
(2010 SCHEME)**

Saturday, June 10, 2017

Time: 10:00-13:00 Hrs.

Max Marks: 80

1. Choose the single best answer:

1A. JPMR is basically a psychotherapeutic technique for _____

- i) Mood disorder ii) Relaxation
iii) Personality Disorder iv) Mental Retardation

1B. Which among the following is related to the biological treatment of mental disorders?

- i) ECG ii) EMG
iii) ECT iv) EMT

1C. Grief refers to the _____

- i) State of loss ii) Reaction to the loss
iii) State of depression iv) State of anxiety

1D. Who among the following developed cognitive therapy?

- i) Aaron T. Beck ii) Albert Ellis
iii) Carl Rogers iv) Hans Selye

1E. 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

(1 mark × 5 = 5 marks)

2. Write definitions of any FIVE of the following:

- 2A. Crisis
2B. Survey method
2C. Mood disorders
2D. Approach-approach conflict
2E. Modelling
2F. Stress diathesis model
2G. Counseling

(3 marks × 5 = 15 marks)

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

- 3A. Humanistic model of mental disorder
3B. Schizophrenia
3C. Group therapy

- 3D. Sexual dysfunctions
- 3E. Ethical and legal issues related to Euthanasia
- 3F. Exposure and desensitization
- 3G. Bereavement counseling
- 3H. Conduct disorder
- 3I. Case history method of psychology

(5 marks × 6 = 30 marks)

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

- 4A. Explain in detail different theoretical perspectives of mental disorders.
- 4B. Describe in detail the Ellis and Beck Cognitive therapy.
- 4C. Explain the classification system of mental disorders based on ICD and DSM.

(15 marks × 2 = 30 marks)



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THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2017

SUBJECT: RESPIRATORY THERAPY SCIENCE – III
(2010 SCHEME)

Tuesday, June 13, 2017

Time: 10:00-13:00 Hrs.

Max Marks: 80

1. What are the moderations in settings that can be made during mechanical ventilation to improve oxygenation? Explain each with justification. (16 marks)
2. Prioritize the alarms. Troubleshoot the alarms for possible causes. (16 marks)
3. **Write short notes on:**
 - 3A. Noninvasive ventilation. (8 marks)
 - 3B. Physiological basis of high frequency oscillatory ventilation. (8 marks)
 - 3C. Different Ventilatory graphical representation to identify
 - i) Air Leak
 - ii) Secretions(4+4 = 8 marks)
 - 3D. A patient arrives in casualty with severe respiratory distress. His chest X-ray showed fluffy pulmonary infiltrates bilaterally. His ABG on 40% venturi mask shows pH-7.23, pCO₂- 30 mm Hg, HCO₃⁻ 19 mmol/L, PaO₂- 50 mm Hg. You are called in to manage the respiratory distress. Elaborate. (8 marks)
 - 3E. Explain in detail decompression sickness. What is the treatment for it? (4+4 = 8 marks)
 - 3F. Explain airway pressure release ventilation and biphasic positive airway pressure modes. (4+4 = 8 marks)

