

MANIPAL UNIVERSITY

**THIRD YEAR 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 – DECEMBER 2016**

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

Time: 10:00-13:00 Hrs.

Thursday, December 15, 2016

Max. Marks: 80

☞ **Answer ALL the questions.**

1. Explain the steps in a research process. (5 marks)

2. Form a frequency table along with relative frequencies for the ages of 48 patients given below. (Class intervals: 0 – 15, 15 – 30, 30 – 45, so on)

30	39	53	47	64	31	10	36	29	40	22	40
76	33	46	17	38	50	30	34	25	36	39	36
15	65	39	43	62	30	07	47	32	36	42	42
47	27	32	39	24	57	37	43	43	54	40	39

(5 marks)

3. Compute the range, 85th percentile, first and third quartiles for the data on duration in days of chicken pox disease in 10 patients.

14	15	14	17	17	13	15	11	10	14
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(10 marks)

4. The duration of time for the first exposure to HIV infection to AIDS diagnosis is called the incubation period. The incubation periods of a random sample of 10 HIV infected individuals is given below (in yrs):

7.5	11.0	10.5	10.0	6.5	13.5	12.0	7.5	11.5	10.0
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- 4A. Calculate mean, median and standard deviation of incubation period.
- 4B. If the number 6.5 above were changed to 9.5, what would happen to the mean and median? State whether each would increase, decrease or remain the same. (10 marks)

5. With the help of scatter diagram explain correlation. (6 marks)

6. **Classify the following into different scales of measurement:**

a) Age	b) Gender	c) Temperature (°F)	d) Marital status
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(4 marks)

7. **Define the following:**

- 7A. Net reproduction rate
- 7B. Still birth rate
- 7C. Incidence rate

(2 marks \times 3 = 6 marks)

8. Serum cholesterol is an important risk factor for coronary disease. Serum cholesterol is approximately normally distributed with mean 200 mg/dL and standard deviation 20 mg/dL.

8A. If the clinically desirable range for cholesterol is < 180 mg/dL, then what proportion of people has clinically desirable levels of cholesterol?

8B. Some investigators feel that only cholesterol levels over 240 mg/dL indicate a high – enough risk for heart disease to warrant treatment. What proportion of the population does this group represent?

(2 marks \times 2 = 4 marks)

9. **Write short notes on:**

- 9A. Face validity and content validity
- 9B. Quantitative variables
- 9C. Simple random sampling
- 9D. Skewness and kurtosis
- 9E. Census
- 9F. Cross sectional studies

(5 marks \times 6 = 30 marks)



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THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – DECEMBER 2016

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

Friday, December 16, 2016

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?

(4+5+7 = 16 marks)

2. Describe the smoking cessation measures in pulmonary rehabilitation.

(16 marks)

3. **Write short notes on:**

- 3A. What are the outcome measurements in pulmonary rehabilitation?
3B. Explain the breathing techniques used for pulmonary rehabilitation.
3C. What are the different kinds of exercise that helps rehabilitating chronic lung disease patients and how?
3D. Write a short note on classification of sleep stages.
3E. Explain the different types of lung volume reduction surgeries.
3F. Based on the relationship between nutritional status and outcome, what are the screening measure and outcome of nutritional intervention?

(8 marks × 6 = 48 marks)



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THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – DECEMBER 2016

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

Saturday, December 17, 2016

Time: 10:00-13:00 Hrs.

Max Marks: 80

☞ Draw diagrams wherever necessary.

1. Explain in detail the bradyarrhythmia algorithm. List the 5 H's and 5 T's.
(10+6 = 16 marks)
2. Define shock. What are the types of shock? Explain in detail about septic shock.
(2+6+8 = 16 marks)
3. **Write short notes on:**
 - 3A. Add a note on chronic renal failure
(8 marks)
 - 3B. Discuss adenosine and adrenaline
(4+4 = 8 marks)
 - 3C. Technique of intercostal tube insertion in adults
(8 marks)
 - 3D. Chain of survival of pediatrics
(8 marks)
 - 3E. Exercise tolerance testing
(8 marks)
 - 3F. Post resuscitation care
(8 marks)



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THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – DECEMBER 2016

SUBJECT: PSYCHOLOGY
(2010 SCHEME)

Monday, December 19, 2016

Time: 10:00-13:00 Hrs.

Max Marks: 80

1. **Choose the single best answer:**

- 1A. Evaluation of the coping resources and options for dealing with stress is known as _____ appraisal.
- i) Primary ii) Secondary
iii) Tertiary iv) None of these
- 1B. Who among the following is associated with Client- Centered Therapy?
- i) Sigmund Freud ii) Carl Rogers
iii) Albert Ellis iv) Adler
- 1C. According to Psychodynamic theory the 'ID' follows the _____ principle.
- i) Pleasure ii) Reality
iii) Morality iv) Love
- 1D. A person is considered mentally retarded if his/ her IQ falls below _____.
- i) 90 ii) 100
iii) 120 iv) 70
- 1E. Which among the following is a technique of Behaviour Therapy?
- i) Dream analysis ii) Free association
iii) Time Out iv) Analysis of Transference

(1 mark × 5 = 5 marks)

2. **Write definitions on any FIVE of the following:**

- 2A. Normality
2B. Personality
2C. Grief
2D. Rehabilitation
2E. Shaping
2F. Counselling
2G. Crisis

(3 marks × 5 = 15 marks)

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

- 3A. Sex therapy
- 3B. Mood disorders
- 3C. Types of Coping
- 3D. Euthanasia
- 3E. Scope of Clinical Psychology
- 3F. Psychosexual stages of Development
- 3G. Stress management
- 3H. Marital therapy
- 3I. Crisis management

(5 marks × 6 = 30 marks)

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

- 4A. Outline the various methods used in Psychology for collecting data.
- 4B. Explain in detail various models of mental disorders.
- 4C. Describe behaviour therapy techniques used in the management of mental disorders.

(15 marks × 2 = 30 marks)



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THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – DECEMBER 2016

SUBJECT: ADVANCED NEONATAL RESPIRATORY CARE
(2010 SCHEME)

Tuesday, December 20, 2016

Time: 10:00-13:00 Hrs.

Max. Marks: 80

✍ Draw diagrams wherever necessary.

1. You are called to operation theatre for a LSCS of a 30 year old female. The details are 36 weeks gestation, single baby. The baby is born and vigorous. Discuss in detail the steps of neonatal resuscitation. Add a note on the cardiopulmonary adaptations at birth.
(8+8 = 16 marks)
2. Define BPD. What is new BPD? Discuss in detail the management of BPD.
(4+2+10 = 16 marks)
3. Write short notes on:
 - 3A. In neonatal resuscitation what are the different ways of delivering PPV? Write in detail about T- piece resuscitator.
(3+5 = 8 marks)
 - 3B. Define Neutral Thermal Zone. Discuss the different practices followed in NICU to prevent heat loss. What is cold stress?
(1+5+2 = 8 marks)
 - 3C. Explain in detail the pathophysiology of MAS.
(8 marks)
 - 3D. Explain in detail the physiological effects of continuous positive airway pressure when ventilating a newborn.
(8 marks)
 - 3E. Explain the ventilation strategy for neonates diagnosed with RDS. What is oxygenation index?
(6+2 = 8 marks)
 - 3F. Define AOP. What are the types of AOP?
(3+5 = 8 marks)



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THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – DECEMBER 2016

SUBJECT: RESPIRATORY THERAPY SCIENCE – III
(2010 SCHEME)

Wednesday, December 21, 2016

Time: 10:00-13:00 Hrs.

Max Marks: 80

1. Write the working principle of flowsensors in following ventilators:

- 1A. Drager Evita 4
- 1B. Drager Baby Log
- 1C. Datex Ohmeda
- 1D. Philips respironics V 200

(4 marks × 4 = 16 marks)

2. A patient arrives in casualty with chest pain, excessive sweating, and breathing difficulty. On auscultation Bilateral basal crepitation was heard. Patient has poor oxygenation on 60% venture. How will you manage the patient? The patient is conscious but restless. Chest X ray shows bilateral fluffy infiltrates and cardiomegaly.

(16 marks)

3. **Write short note on:**

- 3A. Aerosol Therapy
- 3B. Permissive hypercapnia
- 3C. Adaptive pressure ventilation
- 3D. Calibration procedures to be performed on a ventilator prior to use on a patient
- 3E. Ventilatory strategy in a closed head injury patient
- 3F. Non invasive methods for monitoring oxygenation in intensive care units

(8 marks × 6 = 48 marks)

