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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 2016**

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

Wednesday, June 01, 2016

Time: 10:00-13:00 Hrs.

Max. Marks: 80

Answer ALL the questions.

1. Differentiate between nominal and ordinal variables with examples. (4 marks)

2. **Classify the following into the four different scales of measurement:**
 - 2A. Cell counts
 - 2B. Blood group
 - 2C. Pain score
 - 2D. IQ(4 marks)

3. **State true or false:**
 - 3A. Pearson's correlation coefficient always takes values ≥ 0
 - 3B. Incidence is not affected by the duration of disease
 - 3C. Convenience sampling is a procedure that assures that each element in the population have equal chance of being included in the sample
 - 3D. Health information system is sample based(4 marks)

4. At rest pulse rates for 22 athletes at a meet are

68	60	78	70	63	68	66	57	74	65	57
66	73	67	68	56	74	64	67	77	72	64

 - 4A. Compute mean, median and range of this data
 - 4B. Construct a frequency distribution table along with relative frequencies for this data using class intervals 55 – 60, 60 – 65, 65 – 70 and so on.
 - 4C. Draw a frequency polygon for the frequency table constructed above.(6+5+4 = 15 marks)

5. Obtain interquartile range for the data regarding number of dental caries in twelve children less than ten years of age.

6 0 2 1 0 4 6 0 4 2 8 3

(8 marks)

6. Define coefficient of variation. Mean and standard deviation of pulse rate for a group of individuals is 76 and 3 beats per minute respectively. The mean and standard deviation of height is 64 and 2 inches respectively. Which of the two characteristics is more consistent?

(5 marks)

7. **Define the following:**

- 7A. Case fatality rate
- 7B. Total fertility rate
- 7C. Crude death rate

(2 marks \times 3 = 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 10 kgs and a standard deviation of 3kgs. Calculate the proportion of pregnant women who gained weight.

- 8A. At most 16 kgs
- 8B. Between 10 to 13 kgs
- 8C. At least 7 kgs

(3 marks \times 3 = 9 marks)

9. **Write short notes on:**

- 9A. Inter rater reliability
- 9B. Descriptive epidemiology
- 9C. Systematic sampling
- 9D. Sample registration system
- 9E. Components of health information system

(5 marks \times 5 = 25 marks)



MANIPAL UNIVERSITY

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

SUBJECT: PULMONARY REHABILITATION (2010 SCHEME)

Friday, June 03, 2016

Time: 10:00-13:00 Hrs.

Max Marks: 80

✍ **Draw diagrams wherever necessary.**

1. Define outcome assessment and timing of patient centered outcome measurement in pulmonary rehabilitation. Describe different domains for outcome assessment.

(4+12 = 16 marks)

2. Discuss the pathophysiology of chronic obstructive pulmonary disease. Define dyspnea. Describe the assessment and management of dyspnea.

(4+4+8 = 16 marks)

3. **Write short notes on:**

3A. Inspiratory muscles training

3B. Obstructive sleep apnea

3C. Home mechanical ventilation

3D. Tobacco dependence

3E. Bronchial hygiene therapy

3F. Lung Volume Reduction Surgery (LVRS)

(8 marks × 6 = 48 marks)



MANIPAL UNIVERSITY**THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2016****SUBJECT: CARDIOPULMONARY INTENSIVE CARE INCLUDING ADVANCED CARDIAC LIFE SUPPORT
(2010 SCHEME)**

Monday, June 06, 2016

Time: 10:00-13:00 Hrs.

Max Marks: 80

✍ Draw diagrams wherever necessary.

1. Explain in detail the tachyarrhythmia 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 hypovolemic shock.
(2+6+8 = 16 marks)
3. **Write short notes on:**
 - 3A. Add a note on acute renal failure
(8 marks)
 - 3B. Add a note on atropine and sodium bicarbonate
(4+4 = 8 marks)
 - 3C. Technique of intercostal tube insertion in adults
(8 marks)
 - 3D. Chain of survival of adults
(8 marks)
 - 3E. Cardiac pacing
(8 marks)
 - 3F. Exercise tolerance testing
(8 marks)



MANIPAL UNIVERSITY**THIRD YEAR B.Sc. R.T. DEGREE EXAMINATION – JUNE 2016****SUBJECT: ADVANCED NEONATAL RESPIRATORY CARE
(2010 SCHEME)**

Wednesday, June 08, 2016

Time: 10:00-13:00 Hrs.

Max. Marks: 80

✍ Draw diagrams wherever necessary.

1. List the methods of heat loss in neonates. Define Neutral Thermal Zone. What is cold stress?
(8+2+6 = 16 marks)
2. 38 weeks gestation baby is born through LSCS. The baby was shifted to NICU in view of distress. The respiratory rate was noticed to be 90/min, HR- 170/min, SpO₂ – 85% and Downe's score of 7. What could be the probable diagnosis? What are the other differential diagnoses? Explain the pathophysiology and the management of the same.
(2+4+5+5 = 16 marks)
3. **Write short notes on:**
 - 3A. 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)
 - 3B. In neonatal resuscitation what are the different ways of delivering Positive Pressure Ventilation (PPV). Write in detail about T- piece resuscitator.
(3+5 = 8 marks)
 - 3C. Define Chronic Lung Disease (CLD). List complications associated with it.
(4+4 = 8 marks)
 - 3D. Add a note on Ventricular Septal Defect (VSD). What is Hyperoxia test?
(4+4 = 8 marks)
 - 3E. Define apnea of prematurity (AOP). Discuss the types of AOP. Add a note of the management of the neonates with AOP.
(2+6 = 8 marks)
 - 3F. Add a note on the causes for reduction of Pulmonary Vascular Resistance (PVR) after birth.
(8 marks)



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

- 3A. Crisis reactions and its management
- 3B. Psychodynamic therapy
- 3C. Case history method
- 3D. Bereavement
- 3E. Survey method
- 3F. Client-centered counselling
- 3G. Sex therapy
- 3H. Euthanasia
- 3I. Group therapy

(5 marks × 6 = 30 marks)

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

- 4A. Explain in detail psychosocial rehabilitation assessment and interventions
- 4B. Describe any three models of mental disorders.
- 4C. Describe in detail the techniques used in behavior therapies.

(15 marks × 2 = 30 marks)



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MANIPAL UNIVERSITY

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

SUBJECT: RESPIRATORY THERAPY SCIENCE – III
(2010 SCHEME)

Monday, June 13, 2016

Time: 10:00-13:00 Hrs.

Max Marks: 80

1. Define Inverse ratio Ventilation. Write indications of Inverse ratio ventilation. Write in detail rationale behind using inverse ratio ventilation. Mention complications of Inverse ratio ventilation.

(16 marks)

2. Write a detailed note on nitric oxide and heliox therapy.

(8+8 = 16 marks)

3. **Write short notes on:**

3A. Draw ventilator graphics for auto peep and air leak

3B. Baby Lung concept in ventilator

3C. Causes and treatment of High pressure alarm on ventilator

3D. Technique of prone position ventilation

3E. Ventilatory strategy in Congestive heart failure

3F. Non – rebreathing mask

(8 marks × 6 = 48 marks)

