

MANIPAL UNIVERSITY

FRIST YEAR MASLP / MOT / MSc. MLT / MSc. RT / MSc. ECHOCARDIOGRAPHY / OPTOMETRY / MSc. MIT / MSc. RRT & DT DEGREE EXAMINATION – JUNE 2017

SUBJECT: STATISTICS & RESEARCH METHODS / ADVANCED BIOSTATISTICS & RESEARCH METHODOLOGY / BIOSTATISTICS / ADVANCED BIOSTATISTICS & RESEARCH METHODOLOGY / PAPER IV: EPIDEMIOLOGY & BIOSTATISTICS / PAPER IV: RESEARCH METHODOLOGY & BIOSTATISTICS / BIOSTATISTICS/ ADVANCED BIOSTATISTICS & RESEARCH METHODOLOGY

Friday, June 02, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

1. Define the following:

- 1A. Any three measures of central tendency
- 1B. Qualitative and quantitative variables with examples
- 1C. Sampling errors and non-sampling errors
- 1D. Sampling frame, probability sampling and non-probability sampling

(3+2+2+3 = 10 marks)

- 2A. Write the properties of normal distribution. List any two applications of normal distribution.
- 2B. The mean rate of adenosine triphosphate among a sample of 30 insulin resistant children was found to be 6 $\mu\text{mol/g}$ of muscle/min with standard deviation of 2 $\mu\text{mol/g}$ of muscle/min. Find the 95% and 99% confidence intervals for the mean rate of adenosine triphosphate for the study population.

(5+5 = 10 marks)

- 3A. Define type I error, type II error, level of significance and power of a statistical test of significance.
- 3B. Hypothermia is a problem for extremely low birth weight infants. A study was conducted to investigate whether wrapping these infants in polyethylene bags in the delivery room and while they are being transferred to the neonatal intensive care unit affects the survival of babies. The results of the study conducted among 140 extreme low birth weight babies are given in the following table:

Warming treatment	Number of infants		Total
	Lived	dead	
Polyethylene bag	63	7	70
Traditional	61	9	70
Total	124	16	140

Test at 5% level of significance whether mortality among the extreme low birth weight infants is associated with the kind of warming treatment given. The table value for 5% level of significance is 3.84.

(4+6 = 10 marks)

4. Discuss independent sample t test and paired t test with an example.

(10 marks)

5. Explain case control study under the headings:

- i) design with the help of a flow chart
- ii) measure of strength of association
- iii) merits
- iv) demerits

(4+2+2+2 = 10 marks)

6A. Write a short note on randomization in clinical trials.

6B. A randomized controlled trial has been planned to compare the effects of low fat diet with the diet recommended by the American Diabetic Association. The outcome variable is the total cholesterol (in mg/dL). What is the minimum number of subjects required in each group to detect a difference in total cholesterol of 20 mg/dL between the two groups with 90% power and 5% level of significance? Based on the earlier experience the standard deviation of total cholesterol in the population is about 35 mg/dL. The table value for 90% power and 5% level of significance is 1.28 and 1.96 respectively.

(5+5 = 10 marks)

7. **Write short notes on:**

- 7A. Validity of diagnostic test
- 7B. Structure of research thesis
- 7C. Meta-analysis
- 7D. Logistic regression

(5 marks × 4 = 20 marks)



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MANIPAL UNIVERSITY

FIRST YEAR M.Sc. (RESPIRATORY THERAPY) DEGREE EXAMINATION – JUNE 2017

SUBJECT: ADVANCED RESPIRATORY THERAPY SCIENCE I

(SPECIALIZATION: ADULT CARDIO RESPIRATORY CARE / NEONATAL & PAEDIATRIC RESPIRATORY CARE)
(2013 SCHEME)

Wednesday, June 07, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Draw diagrams wherever necessary.**

1. What is the role of noninvasive ventilation in ARDS? Add a note on weaning using non - invasive ventilation.

(10+6 = 16 marks)

2. Discuss Auto PEEP. What are the complications associated with it? How to troubleshoot Auto PEEP?

(8+4+4 = 16 marks)

3. **Short notes:**

3A. Active humidification

3B. Ventilator associated Pneumonia

3C. Complications associated with long term ventilation

3D. Patient assessment during mechanical ventilation

3E. Effects of positive pressure ventilation on cardiovascular system

3F. Add a note on time constant

(8 marks × 6 = 48 marks)



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MANIPAL UNIVERSITY

FIRST YEAR M.Sc. (RESPIRATORY THERAPY) DEGREE EXAMINATION – JUNE 2017

SUBJECT: CRITICAL CARE MEDICINE I
(SPECIALTY: NEONATAL AND PAEDIATRIC RESPIRATORY CARE)
(2013 SCHEME)

Friday, June 09, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

1. Define ARDS. Discuss the Etiology Pathogenesis and Management of ARDS.
(16 marks)

2. Define Bronchopulmonary dysplasia (BPD). Discuss the factors contributing, classification, Management and Prevention of BPD.
(16 marks)

3. **Write short notes on following:**
 - 3A. Nosocomial Pneumonia
 - 3B. Airway Management in babies with upper airway obstruction
 - 3C. Define and Classify Apnoea. Add a note on Management
 - 3D. Etiology, clinical features and Management of Lung Abscess
 - 3E. Respiratory Care of a child with cystic fibrosis
 - 3F. Supportive Care of a child on Ventilator

(8 marks × 6 = 48 marks)



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MANIPAL UNIVERSITY

FIRST YEAR M.Sc. (RESPIRATORY THERAPY) DEGREE EXAMINATION – JUNE 2017

SUBJECT: CRITICAL CARE MEDICINE – I
(SPECIALTY: ADULT CARDIO RESPIRATORY CARE)
(2013 SCHEME)

Friday, June 09, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

1. Describe the pathophysiology and ICU management of drowning.
(8+8 = 16 marks)
2. Describe any two common Acid base disturbances in ICU. Enumerate the causes of each.
(8+8 = 16 marks)
3. **Write short notes on:**
 - 3A. Bullet Injuries
 - 3B. Hyponatremia
 - 3C. Chronic obstructive pulmonary Disease
 - 3D. Electrical Safety Injuries
 - 3E. Pulmonary hypertension
 - 3F. Drowning

(8 marks × 6 = 48 marks)

