MANIPAL UNIVERSITY

FIRST YEAR M.Sc. (RESPIRATORY THERAPY) DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: BASIC SCIENCES
(SPECIALTY: ADULT CARDIO RESPIRATORY CARE)

Thursday, May 30, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 80

1. Describe briefly the anatomy of lower respiratory tract including the bronchopulmonary segments. Add a note on vascular supply of the lung

                                                        (12+4 = 16 marks)

2. Write the normal values, causes and symptoms caused by the following electrolyte imbalances

    a) Magnesium

    b) Sodium

    c) Potassium

    d) Phosphate

                                                        (4×4 = 16 marks)

3. **Short Notes:**

3A. Events of cardiac cycle.

3B. Work of breathing.

3C. Whole body diffusion gradients.

3D. Chemical control of breathing.

3E. Mucus controlling agents.

3F. Respiratory Alkalosis.

                                                        (8×6 = 48 marks)

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MANIPAL UNIVERSITY

FIRST YEAR M.Sc. R.T. DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: ADVANCED BIOSTATISTICS & RESEARCH METHODOLOGY

Tuesday, May 28, 2013

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer all questions.**

1. Define the following:

1A. Alternate hypothesis

1B. Type II error

1C. P- value

1D. Level of significance

1E. Parameter

(1×5 = 5 marks)

2A. Define various measures of central tendency and write the situations where each one is appropriate.

2B. Explain the method of systematic sampling and state its merits and demerits.

(5+5 = 10 marks)

3A. A researcher identified coronary risk factors among men and women in a long term health care facility. Of the 250 male subjects, 62 had hypertension. Of the 1100 female subjects, 265 had hypertension. Construct 95% confidence interval for difference in proportions of hypertension between male and females and interpret it.

3B. A sample of 500 students participated in a study to evaluate the level of their knowledge of risk factors for a certain group of diseases and the result is given below:

Course	Knowledge of risk factors		
	Good	Poor	Total
Paramedical	72	50	122
Engineering	58	320	378
Total	130	370	500

Do these data suggest that there is an association between knowledge of risk factors for the group of disease and major field of study from which the present sample is drawn? (Let α=0.05, Chi square for 1 degree of freedom= 3.84).

(5+5 = 10 marks)

4A. Explain the design, conduct and analysis of cohort study.

4B. A group of 5000 men with the habit of chewing tobacco and another group of 8000 men without the habit were followed up for a specified length of time, to assess the association between tobacco chewing and oral cancer. At the end of follow up 45 cases were observed among the chewing group and 22 cases among non-chewers group. Construct a 2×2 table for this information. Obtain the strength of association between tobacco chewing habits and oral cancer. Interpret the findings.

(10+5 = 15 marks)

5A. Discuss about materials and methods in a research report.

5B. Briefly explain the multivariate technique used for the analysis of time-to event data.

(5+5 = 10 marks)

6. **Write short notes on:**

6A. Sample size determination for estimation of mean

6B. Wilcoxon signed rank test

6C. Analysis of Variance

6D. Regression

6E. Systematic reviews

6F. Binomial distribution

(5×6 = 30 marks)

MANIPAL UNIVERSITY

FIRST YEAR M.Sc. (RESPIRATORY THERAPY) DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: ADVANCED RESPIRATORY THERAPY SCIENCE I

(Common for both Neonatal & Paediatric Respiratory Care and Adult Cardio Respiratory Care)

Saturday, June 01, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 80

✍ **Draw diagram where necessary.**

1. A 20 year old female was intubated due to respiratory failure. Her chest x-ray shows bilateral infiltrates suggestive of ARDS and blood gas shows respiratory acidosis with severe hypoxia. You are asked to initiate mechanical ventilation for this patient. What parameter setting you would choose for her and why?

(16 marks)

2. What are the physiological effects of ventilatory modes?
   a) Volume control ventilation
   b) Pressure control ventilation
   c) Adaptive support ventilation
   d) Automated tube compensation

(4×4 = 16 marks)

3. **Short notes:**

3A. Oxygen toxicity.

3B. Flow waveform.

3C. SIMV mode - advantage and disadvantage.

3D. Sedation and its assessment on ventilated patients.

3E. Negative pressure ventilation.

3F. Trigger.

(8×6 = 48 marks)

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MANIPAL UNIVERSITY

FIRST YEAR M.Sc. (RESPIRATORY THERAPY) DEGREE EXAMINATION – MAY/JUNE 2013

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

Tuesday, June 04, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 80

1.   Define SIRS. Describe the diagnosis and treatment of sepsis.

                                                                    (4+6+6 = 16 marks)

2.   Describe the etiology, pathophysiology and treatment of Pulmonary Tuberculosis.

                                                                    (4+6+6 = 16 marks)

3.   Short Notes:

3A.   Methicillin resistant staphylococcus Aureas in ICU

3B.   Leptospirosis

3C.   Postoperative atelectasis

3D.   Acute severe asthma

3E.   Hyponatremia

3F.   Respiratory alkalosis

                                                                    (8×6 = 48 marks)