

Reg. No.

# MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

## SECOND YEAR B. Sc. R.T. DEGREE EXAMINATION – AUGUST 2006

### SUBJECT: RESPIRATORY DISEASE PROCESSES

Monday, August 14, 2006

Time: 3 Hrs.

Max. Marks: 80

✍ Answer all questions. Draw diagrams wherever necessary.

1. Describe the pathogenesis and diagnostic evaluation of exudative pleural effusions.  
(16 marks)
2. What do you understand by Drowning and Near-drowning? Write in brief pathophysiology of drowning. Write in brief steps of management of a submersion victim.  
(4+4+8 = 16 marks)
3. Write short notes on:  
(8×6 = 48 marks)
  - 3A. Pulmonary hypertension.
  - 3B. Hospital acquired pneumonia.
  - 3C. Risk factors of lung cancer.
  - 3D. Severe acute asthma.
  - 3E. Emphysema.
  - 3F. Complications of pulmonary Tuberculosis.



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(Deemed University)

## SECOND YEAR B. Sc. R.T. DEGREE EXAMINATION – AUGUST 2006

### SUBJECT: DIAGNOSTIC TECHNIQUES

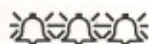
Wednesday, August 16, 2006

Time: 3 Hrs.

Max. Marks: 80

- ✍ Answer ALL the questions.  
✍ Draw diagrams wherever necessary.

1. Define the absolute refractory period. With the help of a diagram label the 3 phases of depolarization. Describe the movement of ions across the cardiac cell membrane during these phases of depolarization.  
(4+5+7 = 16 marks)
- 2A. How do you standardize an electrocardiographic recording? What are the limb leads and chest leads that constitute a standard 12- lead ECG recording? Which lead is ideal for monitoring cardiac rhythm?  
(2+2+2+2 = 8 marks)
- 2B. Describe the ECG changes in inferior wall infarction, anterior lateral ischaemia, lateral wall myocardial ischaemia and supraventricular tachycardia.  
(8 marks)
3. Write briefly on:
  - 3A. What is pulmonary capillary wedge pressure (PCWP)? Describe how a pressure trace obtained from a pulmonary artery catheter helps in obtaining correct placement of the catheter.  
(2+6 = 8 marks)
  - 3B. Enumerate the various views taken for radiological chest examination and briefly discuss on each view.  
(8 marks)
  - 3C. Enumerate three routes by which a central venous catheter can be inserted. Mention two complications of central venous catheterization. What information does a central venous catheter give about cardiovascular function?  
(3+2+3 = 8 marks)
  - 3D. Define closing volume, closing capacity, functional residual capacity (FRC) and residual volume (RV). Enumerate and describe techniques that can be used for measuring FRC.  
(1+1+1+1+4 = 8 marks)
  - 3E. Describe with the help of labeled diagrams the following lung function tests:
    - i) FEV<sub>1</sub>/FVC
    - ii) FEF<sub>200-1200</sub>
    - iii) FEF<sub>25% - 75%</sub>
    - iv) MVV  
(2+2+2+2 = 8 marks)
  - 3F. Write briefly on:
    - i) Modified Allen's test and its interpretation.
    - ii) Checklist before and after collecting an arterial blood sample.  
(4+4 = 8 marks)



**MANIPAL ACADEMY OF HIGHER EDUCATION**

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**SECOND YEAR B.Sc. R.T. DEGREE EXAMINATION – AUGUST 2006****SUBJECT: APPLIED CARDIOPULMONARY ANATOMY AND PHYSIOLOGY**

Thursday, August 17, 2006

Time: 1½ Hrs.

Max. Marks: 40

**✍ Answer ALL questions.****✍ Draw diagrams wherever necessary.**

1A. Define compliance. Enumerate and briefly describe the various types of compliance.

(2+3 = 5 marks)

1B. Name four conditions where lung compliance is altered. Briefly describe the effects of change in compliance on respiration.

(2+3 = 5 marks)

1C. How can compliance be measured? Add a note on time constants in relation to the alveoli.

(2+4 = 6 marks)

2. Write short notes on:

(8×3 = 24 marks)

2A. Bronchopulmonary segments.

2B. Regulation of pH in the body.

2C. Events during cardiac cycle.



**MANIPAL ACADEMY OF HIGHER EDUCATION**

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**SECOND YEAR B.Sc. R.T. DEGREE EXAMINATION – AUGUST 2006****SUBJECT: RESPIRATORY THERAPY SCIENCE II**

Friday, August 18, 2006

Time: 3 Hrs.

Max. Marks: 80

**✍ Answer ALL questions.****✍ Draw diagram wherever necessary.**

1. Explain the meaning of the term *pressure support ventilation* (PSV). Explain how PSV can be used to offload a part or the whole of the work of breathing on to the ventilator. Describe a protocol for PSV weaning of a 50-years-old adult male victim of polytrauma who had needed mechanical ventilation for several days.

(2+8+6 = 16 marks)

2. Possible reasons and corrective action for changes in high and low minute ventilation or tidal volume, high and low peak airway pressure, high and low respiratory rate, I:E ratio too high or too low in a patient receiving mechanical ventilatory support.

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

3. Write briefly on:

- 3A. Murray lung scoring and acute physiology and chronic health evaluation in ICU management.  
3B. Causes of sudden respiratory distress and its management in a patient receiving ventilatory support.  
3C. Synchronised intermittent mandatory ventilation (SIMV) vs Assist control – CMV.  
3D. Negative inspiratory force.  
3E. Chest cuirass and iron lung ventilators.  
3F. Potential effects of PEEP in left ventricular dysfunction.

(8×6 = 48 marks)

