

**MANIPAL ACADEMY OF HIGHER EDUCATION**

(Deemed University)

**SECOND YEAR B. Sc. R.T. DEGREE EXAMINATION – JUNE 2006****SUBJECT: RESPIRATORY DISEASE PROCESSES**

Thursday, June 08, 2006

Time: 3 Hrs.

Max. Marks: 80

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

1. Describe the clinicodiagnostic features and management of acute severe asthma.  
(16 marks)
  
2. What do you understand the term *drowning and near-drowning*. Write in brief pathophysiology of drowning. Write in brief steps of management of a submersion victim.  
(2+2+4+8 = 16 marks)
  
3. Write short notes on:
  - 3A. Define hanging and discuss the management of hanging patient in intensive care unit.
  - 3B. Lung abscess.
  - 3C. Risk factors of COPD.
  - 3D. Respiratory therapy management of mechanically ventilated SARS patient.
  - 3E. Malignant effusion.
  - 3F. Caplan's syndrome.

(8×6 = 48 marks)



Reg. No.

# MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

SECOND YEAR B. Sc. R.T. DEGREE EXAMINATION – JUNE 2006

SUBJECT: DIAGNOSTIC TECHNIQUES

Friday, June 09, 2006

Time: 3 Hrs.

Max. Marks: 80

✍ Answer ALL the questions.

✍ Draw diagrams wherever necessary.

1. Describe briefly the divisions of the tracheobronchial tree. With the help of diagrams, illustrate the location of the bronchopulmonary segments of both lungs on the posteroanterior (PA) chest radiograph and lateral chest films.

(5+5+6 = 16 marks)

2. Classify the static and dynamic tests of lung function. With the help of a diagram, describe the timed expiratory spirogram and discuss the information this test provides regarding lung function.

(6+6+4 = 16 marks)

3. Write briefly on:

3A. Describe the relative merits and demerits of four views that are taken for radiological examination of the chest.

(8 marks)

3B. Write an algorithm for systematically assessing basic pulmonary function test results.

(8 marks)

3C. Procedure for sampling arterial blood from an indwelling catheter and preanalytical errors associated with arterial blood gas analysis.

(4+4 = 8 marks)

3D. Radiological features of consolidation and pulmonary oedema of lung.

(4+4 = 8 marks)

3E. ECG changes in inferior wall infarction, anterior lateral ischemia, lateral wall myocardial ischemia and supraventricular tachycardia.

(2+2+2+2 = 8 marks)

3F. Define preload and afterload. Write the factors affecting cardiac output.

(1+1+6 = 8 marks)



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

Saturday, June 10, 2006

Time: 1½ Hrs.

Max. Marks: 40

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

1. A 42-year old lady, a known diabetic, is received in the emergency department. She exhibits gasping and deep respiration and is started on 40% oxygen by venturi mask. An arterial blood gas analysis reveals pH 7.22, PaO<sub>2</sub> 100 mmHg, PaCO<sub>2</sub> 20 mmHg, HCO<sub>3</sub> 8 mEq/L and a base deficit of 16 mEq/L. Her random blood sugar is 496 mg%.
- 1A. What is your provisional diagnosis?
- 1B. Calculate the PaO<sub>2</sub>/FIO<sub>2</sub> ratio and the P(A-a)O<sub>2</sub> difference. Comment on the status of oxygenation.
- 1C. Assess her acid-base condition.

(2+3+3+2+6 = 16 marks)

2. Write short notes on:

- 2A. Lung compliance.
- 2B. Factors affecting cardiac output.
- 2C. V/Q ratio.

(8×3 = 24 marks)



**MANIPAL ACADEMY OF HIGHER EDUCATION**

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

Monday, June 12, 2006

Time: 3 Hrs.

Max. Marks: 80

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

1. With the help of a diagram, explain the meaning of the term *mean airway pressure*. Enumerate the factors that affect mean *pleural* pressure. Describe the beneficial and detrimental pulmonary effects of positive pressure ventilation.

(4+4+8 = 16 marks)

2. Describe how ventilatory support is used in the management of each of the following four conditions:

- 2A. Closed head injury  
2B. Flail chest  
2C. ARDS  
2D. Obstructive lung disease

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

3. Write briefly on:

- 3A. Equal pressure point.  
3B. Threshold resistor.  
3C. Compare and contrast continuous mandatory ventilation (control mode) with intermittent mandatory ventilation.  
3D. High vs. low tidal volumes in mechanical ventilation.  
3E. Common clinical conditions that can hinder weaning.  
3F. Output alarms in mechanical ventilators.

(8×6 = 48 marks)

