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# MANIPAL UNIVERSITY

## SECOND YEAR B.Sc. R.T. DEGREE EXAMINATION – DECEMBER 2011

### SUBJECT: APPLIED CARDIOPULMONARY ANATOMY AND PHYSIOLOGY

Tuesday, December 13, 2011

Time: 10:00-11:30 Hrs. Max. Marks: 40

- **Answer to the point. Unnecessary padding of answers will be counterproductive.**
- **Draw diagrams wherever necessary.**

1. Describe in detail the transport of oxygen in the body from lungs to tissues.

(16 marks)

**2. Write short notes on:**

2A. Vascular supply of the lungs

2B. Frictional forces opposing ventilation

2C. Abnormal haemoglobins

(8×3 = 24 marks)

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# MANIPAL UNIVERSITY

## SECOND YEAR B. Sc. R.T. DEGREE EXAMINATION – DECEMBER 2011

### SUBJECT: DIAGNOSTIC TECHNIQUES

Wednesday, December 14, 2011

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

- **Draw diagrams wherever necessary.**
- **Answer to the question and avoid padding of answers.**

1. What are the indications and complications of central venous catheterisation? Explain the various routes of insertion and procedure of central venous catheterization.

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

2. Explain the normal lung volume and capacities with the help of diagram. What are the methods used to find out total lung capacity? Explain any one of them in detail.

(8+2+6 =16 marks)

**3. Write short notes on:**

3A. Electrical conduction of heart

(8 marks)

3B. Radiological features of pneumothorax and pulmonary oedema

(4+4 = 8 marks)

3C. Ventricular fibrillation and Ventricular tachycardia

(4+4 = 8 marks)

3D. Indications and complications of PA catheterization. What are the values which can be monitored using a PA catheter?

(8 marks)

3E. Bedside spirometry

(8 marks)

3F. Interpret the ABG and write the management of a patient on 60% Venturi pH = 7.29, $PCO_2$ = 72 mmHg, $PO_2$ = 85 mmHg, $HCO_3$- = 28 mmol/L.

(8 marks)

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# MANIPAL UNIVERSITY

## SECOND YEAR B. Sc. R.T. DEGREE EXAMINATION – DECEMBER 2011

### SUBJECT: RESPIRATORY DISEASE PROCESS

Thursday, December 15, 2011

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

- **Answer ALL the questions.**
- **Draw Diagrams wherever necessary.**

1. Describe the etiology, clinical features and pathophysiology of Acute Respiratory Distress Syndrome (ARDS). Discuss the management of ARDS.

(3+3+4+6 = 16 marks)

2. Classify Pneumonthorax? How will you diagnose a tension pneumothorax? Outline the management of a tension pneumothorax?

(3+5+8 = 16 marks)

**3. Write short notes on:**

3A. Flail Chest
3B. Small Cell Carcinoma
3C. HIV/ AIDS and effects on pulmonary disease
3D. Pneumoconiosis
3E. Myasthenia Gravis
3F. Sleep Apnea and management

(8×6 = 48 marks)

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# MANIPAL UNIVERSITY

## SECOND YEAR B.Sc. R.T. DEGREE EXAMINATION – DECEMBER 2011

### SUBJECT: RESPIRATORY THERAPY SCIENCE II

Friday, December 16, 2011

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

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✍ **Answer ALL the questions.**

1. Explain the principle of incentive spirometry. Write its indication and contraindication? What are the types of spirometer? If a patient is lifting 900cc and holding it for 3sec, how much tidal volume is he generating?

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

2. Explain the changes occurring during spontaneous, positive pressure and negative pressure ventilation in relation to volume, flow and pressure changes. Add a short note on transpulmonary pressure and its significance.

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

**3. Write short notes on:**

3A. Clinical features of respiratory failure and its types

3B. Phase variables

3C. Physiological effects of positive pressure ventilation on CNS, CVS and renal system

3D. Constant flow and constant pressure generators

3E. Ventilatory circuits

3F. Causes of sudden respiratory distress in a patient receiving ventilatory support

(8×6 = 48 marks)