Reg. No.										

MANIPAL UNIVERSITY

SECOND YEAR B.Sc. R.T. DEGREE EXAMINATION – DECEMBER 2007

SUBJECT: PATHOLOGY AND MICROBIOLOGY

Monday, December 10, 2007

Time: 3 Hrs. Max. Marks: 80

Answer SECTION – A and SECTION – B in TWO separate answer books.

SECTION – 'A' : PATHOLOGY : 40 MARKS

1. Define leukemia. Classify acute leukemias. Mention the clinical features of acute leukemias.

(1+4+3 = 8 marks)

2. Define neoplasia. Tabulate the differences between benign and malignant neoplasm.

(1+6 = 7 marks)

3. Write short notes on:

3A. Fate of a thrombus.

3B. Hemophilia.

3C. Factors influencing wound healing.

3D. Primary tuberculosis.

3E. Risk factors for atherosclerosis.

(5×5 = 25 marks)

SECTION – 'B' : MICROBIOLOGY : 40 MARKS

4. Define and classify immunity. Explain acquired immunity in detail.

(1+2+5 = 8 marks)

5. Describe laboratory diagnosis and prophylaxis of Rabies.

(3+4 = 7 marks)

6. Write short notes on any **FIVE**:

6A. Gram staining.

6B. Chemical disinfectants.

6C. Laboratory diagnosis of pulmonary tuberculosis.

6D. Bacterial spore.

6E. Widal test.

6F. AIDS.

(5×5 = 25 marks)

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MANIPAL UNIVERSITY

SECOND YEAR B. Sc. R.T. DEGREE EXAMINATION – DECEMBER 2007

SUBJECT: RESPIRATORY DISEASE PROCESSES

Tuesday, December 11, 2007

Time: 3 Hrs. Max. Marks: 80

Answer all the questions. Draw diagrams wherever necessary.

1. Describe the pathogenesis, diagnosis and management of pulmonary tuberculosis.

(5+5+6 = 16 marks)

2. What are the routes of transmission of SARS virus? Discuss the role of respiratory therapist during a SARS epidemic.

(4+12 = 16 marks)

3. Write short notes on:

3A. Corpulmonale.

3B. How do you asses prognosis in a submersion victim on arrival in hospital and later?

3C. Management of hanging patient.

3D. Sleep disorders.

3E. Management of bronchiectasis.

3F. Post operative pneumonia.

(8×6 = 48 marks)

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MANIPAL UNIVERSITY

SECOND YEAR B. Sc. R.T. DEGREE EXAMINATION – DECEMBER 2007

SUBJECT: DIAGNOSTIC TECHNIQUES

Wednesday, December 12, 2007

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)

2A. Indices for evaluating status of ventilation and oxygenation from an arterial blood gas report.

2B. Study the following case scenario and comment on the status of oxygenation, status of ventilation, acid-base status, V_D/V_T ratio and treatment indicated in this clinical situation:

A 20-year old drug addict is admitted to the emergency room an hour after injecting himself intravenously with an unknown drug. He is drowsy and responds only to vigorous stimulation but not to call. On examination, he is breathing slow and deep breaths at a rate of 8 breaths per minute and a tidal volume of 450 ml. The emergency room physician places him on a 40% Venturi device and draws an arterial sample 30 minutes later that reveals PaO_2 80 mmHg, $PaCO_2$ 72 mmHg, pH 7.25 and HCO_3 27 mmol/L.

((3+3) + (5×2) = 16 marks)

3. Write briefly on:

3A. Routes of central venous catheterisation and their relative merits and demerits.

(8 marks)

3B. 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)

3C. What does the term cardioversion mean? Give the protocol of how you would cardiovert a patient.

(2+6 = 8 marks)

3D. 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)

3E. Define ECG lead and electrode. With the help of a diagram, explain 12 lead ECG.

(2+6 = 8 marks)

3F. Electrocardiologic features and treatment of premature atrial complex, paroxysmal supraventricular tachycardia, ventricular tachycardia and pulseless ventricular activity.

(8 marks)

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SECOND YEAR B.Sc. R.T. DEGREE EXAMINATION – DECEMBER 2007

SUBJECT: APPLIED CARDIOPULMONARY ANATOMY AND PHYSIOLOGY

Thursday, December 13, 2007

Time: 1½ Hrs. Max. Marks: 40

Answer all the questions. Draw diagrams wherever necessary.

1A. With the help of a diagram, describe the normal oxyhaemoglobin dissociation curve. What are the factors affecting it?

(6+4 = 10 marks)

1B. How do you calculate oxygen content of blood? What effect will a drop in haemoglobin concentration from 15 gm% to 8 gm% have on oxygen content, provided all other parameters remain the same?

(3+3 = 6 marks)

2. Write short notes on:

2A. Work of breathing.

2B. Vascular resistance.

2C. Renal regulation of pH.

(8×3 = 24 marks)

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MANIPAL UNIVERSITY

SECOND YEAR B.Sc. R.T. DEGREE EXAMINATION – DECEMBER 2007

SUBJECT: RESPIRATORY THERAPY SCEINCE II

Friday, December 14, 2007

Time: 3 Hrs. Max. Marks: 80

Answer ALL the questions. Draw diagrams wherever necessary.

1. Define and discuss the followings:

1A. Ventilator and ventilator classification system.

1B. SIMV mode.

1C. Pressure support ventilation.

1D. Dual control – CMV.

(4×4 = 16 marks)

2. Draw a diagram (label the axes) that depicts the relationship between the volume of the gas per lung unit and transpulmonary pressure in each of the following conditions:

2A. Normal pulmonary status.

2B. Severe decrease in lung compliance as a result of the acute respiratory distress syndrome (ARDS).

2C. Explain how the decrease that occurs in lung compliance causes respiratory distress in ARDS.

(2+4+4+6 = 16 marks)

3. Write briefly on:

3A. Indications for sigh breaths.

(8 marks)

3B. Negative pressure mechanical ventilation.

(8 marks)

3C. Discuss the dangers of inhalation of a very high inspired concentration of oxygen (FIO_2) and explain how you will adjust the FIO_2 in a patient with hypoxaemic respiratory failure, receiving positive pressure ventilation in the intensive care unit.

(4+4 = 8 marks)

3D. Determination of the size of endotracheal tube required to intubate a child.

(8 marks)

3E. Minimising nosocomial infections in the patient receiving ventilatory support through a tracheostomy.

(8 marks)

3F. Level of priorities for alarms on mechanical ventilators.

(8 marks)