

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

SECOND YEAR B.Sc. R.T.T. DEGREE EXAMINATION – JUNE 2005**SUBJECT: PATHOLOGY AND MICROBIOLOGY**

Wednesday, June 08, 2005

Time: 3 Hrs.

Max. Marks: 80

✍ *Answer section A and section B in TWO separate answer books.*✍ *Answer all questions.***SECTION – 'A' : PATHOLOGY : 40 MARKS**

1. Define Necrosis. Mention 4 types of necrosis giving one example for each type. Give the morphology of any one type.

(2+2+3 = 7 marks)

2. Define inflammation. Mention the two types of inflammation and give one example for each type. Describe the vascular changes taking place in acute inflammation.

(8 marks)

3. Write short notes on any FIVE:

3A. Features of vitamin C deficiency.

3B. Classification of Acute leukemias.

3C. Aneurysm – causes, types and complications.

3D. Routes of spread of malignant tumours.

3E. Etiology of carcinoma cervix.

3F. Emphysema – Definition and types with one cause for each type.

(5×5 = 25 marks)

SECTION – 'B' : MICROBIOLOGY : 40 MARKS

4. Define and classify Immunity. Discuss Innate Immunity in detail.

(8 marks)

5. Mention various organisms causing respiratory tract infections. Discuss laboratory diagnosis of Streptococcal infections.

(1+3+3 = 7 marks)

6. Write short notes on any FIVE:

6A. Robert Koch.

6B. Antibiotic sensitivity tests.

6C. Laboratory diagnosis of Gas gangrene.

6D. Vaccine.

6E. Candidiasis.

6F. B.C.G.

(5×5 = 25 marks)



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SECOND YEAR B. Sc. R.T.T. DEGREE EXAMINATION – JUNE 2005

SUBJECT: RESPIRATORY DISEASE PROCESSES

Thursday, June 09, 2005

Time: 3 Hrs.

Max. Marks: 80

✍ Answer all questions. Draw diagrams wherever necessary.

1. Discuss etiology, clinical presentation of SARS and care to be taken while instituting mechanical ventilation for a SARS patient.
(4+4+8 = 16 marks)
2. Describe the pathogenesis, diagnostic aspects and management of tuberculous effusion.
(16 marks)
3. Write short notes on:
 - 3A. Obstructive sleep apnoea.
(8 marks)
 - 3B. Asbestosis.
(8 marks)
 - 3C. What are the clinical features of atropine toxicity? How will you manage a patient with atropine poisoning?
(4+4 = 8 marks)
 - 3D. Aspiration Pneumonia.
(8 marks)
 - 3E. Adhesive atelectasis.
(8 marks)
 - 3F. Non Small cell carcinoma of lung.
(8 marks)



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SECOND YEAR B. Sc. R.T.T. DEGREE EXAMINATION – JUNE 2005**SUBJECT: DIAGNOSTIC TECHNIQUES**

Friday, June 10, 2005

Time: 3 Hrs.

Max. Marks: 80

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

1. Define cardiac preload and afterload. List the parameters that can be considered to represent the preload. How would you interpret a central venous pressure of -1 mmHg in a young male patient who has sustained polytrauma and has hypotension? Outline the management.
(4+4+2+6= 16 marks)
2. Name the major vessels and cardiac chambers that are traversed as the pulmonary artery catheter is advanced. Draw the pressure tracings and normal systolic, diastolic and mean pressures you are likely to see on the monitor as the catheter advances, till it is wedged in the smaller pulmonary arteries.
(4+6+6 = 16 marks)
3. Write briefly on:
 - 3A. What do you look for on a chest x-ray taken after right subclavian vein cannulation? What will you do if the catheter tip is located in the right atrium, and why?
 - 3B. What are the smallest units on the horizontal and vertical axes of an electrocardiogram strip? How do you confirm whether the ECG voltage is standardized or not? How do you calculate the heart rate from an ECG?
 - 3C. How will you differentiate between cardiogenic pulmonary oedema and acute respiratory distress syndrome(ARDS) using information obtained from a pulmonary artery catheter and a chest x-ray?
 - 3D. Draw the lung volume versus time graph in a healthy adult patient performing a forced vital capacity manoeuvre after taking a few tidal volume breaths.
 - 3E. A hysterical and anxious lady is admitted to the casualty and an ABG analysis(on room air) is as follows: pH 7.52, PaO₂ 101 mmHg, PaCO₂ 22 mmHg, bicarbonate 24 mEq/L. Comment on the status of the patient's acid-base balance, oxygenation and ventilation.
 - 3F. Describe the technique of the right femoral vein cannulation. How can the femoral vein be used as a portal for measuring central venous pressure?

(8×6 = 48 marks)



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SECOND YEAR B.Sc. R.T.T. DEGREE EXAMINATION – JUNE 2005**SUBJECT: APPLIED CARDIOPULMONARY ANATOMY AND PHYSIOLOGY**

Monday, June 13, 2005

Time: 1½ Hrs.

Max. Marks: 40

Answer ALL questions. Draw diagrams wherever necessary.

1A. Explain the terms:

- i) Minute ventilation ii) Alveolar ventilation
iii) Dead space iv) Shunt

1B. On preoperative assessment, a patient breathing at a rate of 12 breaths per minute has a tidal volume of 600ml. (Assume a dead space of 150 ml). This produces an arterial carbon dioxide tension (PaCO_2) of 40 mmHg. He undergoes an upper abdominal surgery and postoperatively is found to have a respiratory rate of 24/minute but the minute ventilation has remained the same. The PaCO_2 rises to 60 mmHg. Explain how the PaCO_2 increased even though the minute ventilation remained the same.

 $((2 \times 4) + 8 = 16 \text{ marks})$

2. Write short notes on:

- 2A. Surface tension.
2B. Functional residual capacity.
2C. Chloride shift.

 $(8 \times 3 = 24 \text{ marks})$ 

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SECOND YEAR B.Sc. R.T.T. DEGREE EXAMINATION – JUNE 2005**SUBJECT: RESPIRATORY THERAPY SCIENCE II**

Tuesday, June 14, 2005

Time: 3 Hrs.

Max. Marks: 80

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

1. Discuss the problems associated with inhalation of oxygen under isobaric conditions. Enumerate the clinical features that will enable early identification of these problems. Discuss strategies for preventing/minimizing such problems in a patient on ventilatory support.

(8+4+4 = 16 marks)

2. Describe how ventilator alarms help the respiratory therapist to identify problems related to patient-ventilator dyssynchrony. How will you set each of these alarms while initiating ventilatory support?

(10+6= 16 marks)

3. Write briefly on:

- 3A. Beneficial and harmful effects of positive end-expiratory pressure.
3B. Adaptive support ventilation.
3C. Cardiorespiratory signs and symptoms that suggest failure of weaning.
3D. Rationale for the choice of active humidification versus heat-and-moisture exchangers in the patient on ventilatory support.
3E. Relative merits, demerits and long term complications of orotracheal versus nasotracheal route for tracheal intubation.
3F. Significance of apparatus dead space, anatomical dead space and physiological dead space during mechanical ventilation.

(8×6 = 48 marks)

