Faculty of Medicine University of Ruhuna

Third Examination for Medical Degrees (Part II) – May 2023

Pathology Paper I

Thursday 11th May 2023 9.00 am to 11.00 am **Two hours for all six (06) questions**

Answer **ALL SIX** questions.
Answer each part in in the given space.

Index Number:

Part A

1. A 65-year-old man presents with chronic cough and haemoptysis. On examination he is wasted. Chest X-Ray shows a cavitatory lesion in the apex of his right lung. His sputum is positive for Acid Fast Bacilli (AFB).

1.1. State the most probable complete diagnosis? (10 marks)

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1.2. Briefly describe the pathogenesis of the cavitatory lesion in his right lung. (30 marks)

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1.3. Briefly describe the macroscopic appearance expected in his thorax. (30 marks)

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1.4. Briefly describe the microscopic features of the lung lesion (20 marks)

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1.5. List two complications of this condition. (10 marks)

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2. ……..

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Part B

2.1 A 30-year-old man with a history of head injury is admitted to emergency trauma unit and CT scan reveals an extradural haemorrhage.

2.1.1 What is the most likely aetiology for extradural haemorrhage? (10 marks)

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2.1.2. He died several hours later due to cardio-respiratory arrest. Briefly describe the pathological basis for cardio-respiratory arrest in this patient. (30 marks)

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2.2 A 45-year-old man presents with severe retrosternal chest pain to the ETU. His ECG shows ST elevations and troponin level is elevated. On the third day of admission he develops severe dyspnoea and died despite resuscitative measures.

2.2.1 Describe the macroscopic changes you would expect to see in his heart. (15 marks)

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2.2.2 Describe the microscopic changes you would expect to see in his heart. (20 marks)

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2.2.3 Explain the pathological basis of dyspnoea in this patient. (25 marks)

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Part C

3.1. A 45-year-old man presents with frothy urine and found to have proteinuria of 3+.

3.1.1. What is the most probable diagnosis? (10 marks)

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3.1.2. List three causes for the above diagnosis. (15 marks)

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3.1.3. Briefly describe the microscopic features of his kidney in one of the condition you mentioned in **3.1.2**. (15 marks)

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3.1.4. Several years later he presents with End Stage Kidney Disease (ESKD).

Briefly describe the macroscopic features you would expect in his kidneys. (15 marks)

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3.2. A 21-year-old woman presents with blood and mucous diarrhoea. Endoscopy shows features of inflammatory bowel disease (IBD). Histopathological examination of serial biopsies of her bowel favours Crohn disease.

3.2.1. Briefly describe the macroscopic features you expect to see in her bowel. (15 marks)

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3.2.2. List two complications that can arise in this patient. (10 marks)

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3.2.3. Briefly describe the pathological features that help to differentiate Crohn disease from ulcerative colitis. (20 marks)

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Index Number:

Part D

4.1. A 45-year-old woman presents with a breast lump. The lump is irregular in shape, firm and attached to the skin and deep structures.

4.1.1. What is the most likely diagnosis? (10 marks)

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4.1.2. List **three (3)** other lesions in breast which can mimic the diagnosis you mentioned in 4.1.1 (15 marks)

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4.1.3. FNAC (Fine Needle Aspiration Cytology) of the lesion is performed.
Briefly describe the advantages of FNAC in a patient with a breast lump. (25 marks)

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4.1.4. Briefly describe the cytological features you would expect to see in the diagnosis mentioned in **4.1.1** (25 marks)

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4.1.5. Later a core needle biopsy of the breast lesion is performed. Briefly describe how you would transport this specimen to the laboratory? (15 marks)

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4.1.6. What is the advantage of core needle biopsy over cytology in assessing the breast lesion in this patient? (10 marks)

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Index Number:

Part E

5.1. Diabetes mellitus is a common endocrine disorder.

5.1.1 Outline how you would confirm the diagnosis of diabetes mellitus? (20 marks)

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5.1.2. State **three (3)** acute metabolic emergencies in diabetes mellitus. (15 marks)

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5.2. A 13-year-old boy diagnosed with diabetes mellitus presents in semiconscious state to the Emergency Unit. His capillary blood glucose is 25 mmol/L.

5.2.1. State **four (4)** essential investigations to perform in this patient and briefly mention the expected abnormalities. (20 marks)

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5.2.2. State the pathological basis for one of the investigation findings you mentioned in **5.2.1**

(20 marks)

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5.3. On clinic follow up this boy's fasting serum investigations reveal the following.

Analyte	**Result**	**Cut off value**
Total cholesterol	212 mg/dL	< 200 mg/dL
HDL cholesterol	29 mg/dL	> 40 mg/dL
Triglyceride	342 mg/dL	< 150 mg/dL

Calculate the LDL cholesterol and interpret the patient's lipid profile giving reasons for the abnormalities. (25 marks)

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Part F

6. A 15-year-old child presents with a history of exertional dyspnoea, dark urine and yellow discolouration of eyes. Examination reveals pallor, jaundice and soft splenomegaly. Haemolytic anaemia is suspected by the clinician.

6.1. List **four** (4) laboratory tests you would request to confirm haemolytic anaemia, stating expected findings in each test. (20 marks)

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6.2. Outline the pathological basis of splenomegaly in haemolytic anaemias. (15 marks)

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6.3. If autoimmune haemolytic anaemia (AIHA) is suspected, how would you confirm? (10 marks)

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6.4. Haemolytic anaemia can be classified in to extravascular and intravascular haemolysis based on the site of red cell destruction.
Compare and contrast the laboratory investigation findings in extravascular and intravascular haemolysis. (20 marks)

Laboratory test	Extravascular haemolysis	Intravascular haemolysis

6.5. State two information in the history which favour the diagnosis of inherited haemolytic anaemia. (10 marks)

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2. ……
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6.6. Outline the classification of inherited haemolytic anaemias giving examples for each (10 marks)

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6.7. Outline pathological basis of anaemia in one of the inherited haemolytic anaemia you mentioned in **6.6** (15 marks)

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