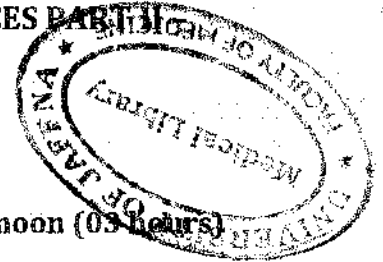


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UNIVERSITY OF JAFFNA, SRI LANKA
SECOND EXAMINATION FOR MEDICAL DEGREES PART II
SEPTEMBER 2025
Academic Year 2020/2021
Pathology Paper II



Date: 15.09.2025

Time: 09.00 am - 12noon (03 hours)

ANSWER ALL 10 QUESTIONS

Write the answers in the given space below each question.

1. A 62-year-old male presents with complaints of progressive shortness of breath for the past 6 months, initially occurring on exertion but now present even at rest. He also reports orthopnea and paroxysmal nocturnal dyspnea. Past history reveals long-standing hypertension and ischemic heart disease. On examination, he is mildly cyanotic, with distended neck veins and bilateral pitting pedal oedema. Auscultation reveals bilateral basal crackles and a third heart sound (S3). A diagnosis of congestive cardiac failure was made.

1.1. Define congestive cardiac failure.

(10 Marks)

1.2. Describe the pathogenesis of the following clinical features of this patient. (20 Marks)

1.2.1. Orthopnea

1.2.2. Paroxysmal nocturnal dyspnea.

1.2.3. Distended neck veins.

1.2.4. Bilateral pitting pedal oedema.

1.2.5. Bilateral basal crackles.

- 1.3. Briefly describe the expected gross and microscopic changes in the following organs of this patient. (30 Marks)

1.3.1. Lung

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1.3.2. Liver

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- 1.4. List two (02) causes of **left-sided** and two (02) causes of **right-sided** heart failure. (10 Marks)

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- 1.5. Briefly describe the compensatory mechanisms of heart failure. (15 Marks)

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- 1.6. List three (03) complications of long-standing congestive cardiac failure. (15 Marks)

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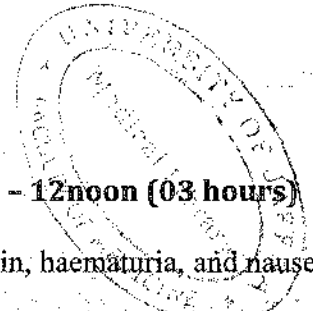
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2. A 45-year-old male presents with severe flank pain radiating to the groin, haematuria, and nausea. Imaging confirms the presence of a urinary calculus in the ureter.

2.1. Define the term urolithiasis. (10 Marks)

2.2. State the main factors involved in the pathogenesis of urolithiasis. (15 Marks)

2.3. List four (04) clinical conditions that predispose to stone formation in the urinary tract. (10 Marks)

2.4. List the four (04) major types of urinary stones based on their chemical composition. (10 marks)

2.5. Mention three (3) morphological features of the main type of urinary stone in the ureter. (10 marks)

2.6. Mention three (03) possible complications of untreated urinary calculi. (15marks)

2.7. List five (05) key laboratory investigations in a suspected case of urolithiasis. (10marks)

2.8. Mention two (02) main imaging modalities which are used for the diagnosis of renal stones. (10marks)

2.9. Briefly describe the key preventive health measures to avoid urolithiasis. (10marks)

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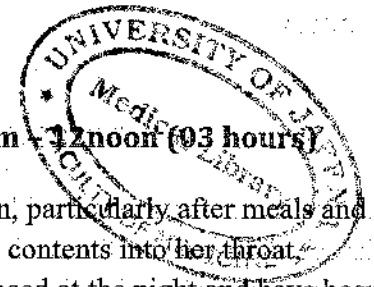
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3. A 47-year-old woman presents with a complaint of frequent heartburn, particularly after meals and when lying down. She also reports occasional regurgitation of gastric contents into her throat, especially when bending forward. These symptoms are more pronounced at the night and have been progressively worsening over the past few months.

3.1. Mention the most probable clinical diagnosis. (10marks)

3.2. Briefly describe five (05) primary risk factors contributing to the development of this condition. (25 marks)

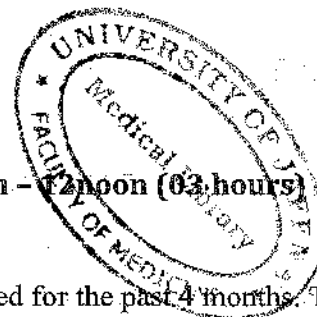
3.3. Name one investigation that will help in the diagnosis. (10 marks)

3.4. Indicate the expected findings in the investigation mentioned in 3.3. (20 marks)

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4.

4.1. A 42-year-old woman presents with a lump in the anterior neck, noticed for the past 4 months. The lump is slowly enlarging and is painless. On examination, a firm, non-tender, 2.5 cm nodule is palpated in the right lobe of the thyroid.

4.1.1. List four (04) differential diagnoses of a thyroid nodule other than malignancy. (10 marks)

4.1.2. Mention four (04) clinical features that would suggest malignancy in a thyroid nodule.

(10 marks)

4.1.3. List four (04) investigations useful to make the diagnosis of this patient and indicate the pathological basis of each investigation. (20 marks)

4.1.4. Mention two (2) long-term complications that may occur following thyroidectomy.

(10 marks)

4.2. A 11-year-old boy is brought to the pediatric clinic with concerns about poor growth. His height is well below the 3rd percentile for his age. His parents report that he has always been shorter than his peers, and growth has been particularly slow over the past few years.

4.2.1. List four (04) endocrine causes of short stature. (10 marks)

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4.2.2. List the investigations that will differentiate each cause mentioned in 4.2.1 and indicate the expected findings. (20 marks)

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4.2.3. Write two (02) other clinical features of each condition mentioned in 4.2.1. (10 marks)

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4.2.4. Give two (2) non-endocrine causes of short stature that should be considered in the differential diagnosis. (10 Marks)

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5. A 62-year-old male, farmer by occupation, presents to the outpatient department with a 3-month history of persistent cough. Over the past 6 weeks, he has noticed increasing shortness of breath, unintentional weight loss of 6 kg, and occasional streaks of blood in the sputum. He has a "50-pack-year smoking history". He also found to have high serum calcium level.

5.1. Mention the most likely diagnosis. (05 marks)

5.2. Mention two (02) other differential diagnoses for the above clinical presentation. (05 marks)

5.3. List five (05) investigations that will help in the diagnosis of this patient and indicate the expected findings. (40 marks)

5.4. Briefly explain the pathological basis for high serum calcium levels in this patient. (10 marks)

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6. A 45-year-old male, who is diagnosed with cirrhosis, was admitted to the emergency department with the features of portal hypertension.

6.1. Define liver cirrhosis. (10 marks)

6.2. List five (05) common causes of liver cirrhosis. (15 marks)

6.3. Describe the common pathological features of liver cirrhosis. (15 marks)

6.4. Briefly explain the pathogenesis of portal hypertension in cirrhosis. (20 marks)

6.5. Mention five (05) clinical features of portal hypertension. (10 marks)

6.6. List five (05) complications of cirrhosis other than portal hypertension and mention the **pathophysiological mechanism** of each complication. (30 marks)

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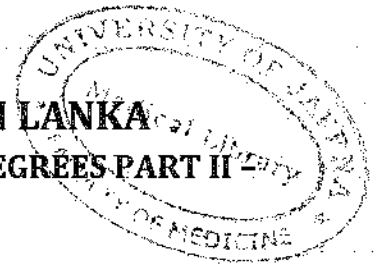


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7. A 10-year-old boy came to the accident and emergency department with an accidental cut injury to his forearm.

7.1. List the main types of wound healing. (05 marks)

7.2. Mention the type of wound healing that may occur in this patient. (05 marks)

7.3. Mention the differences between the types mentioned in 7.1. (20 marks)

7.4. Mention the phases of wound healing and briefly describe each phase. (30 marks)

7.5. List five (05) factors that impair wound healing. (20 marks)

7.6. List different aetiological types of chronic ulcer. (10 marks)

7.7. Mention two (02) growth factors which regulate wound healing. (05 marks)

7.8. Name the types of atypical scars of wound healing. (05 marks)



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- 8.1. Mention four (04) possible causes for her clinical presentation. (20 marks)

- 8.2. List four (04) initial investigations that can be done in this patient. (20 marks)

- 8.3. Mention five (05) risk factors for ovarian malignancy. (20 marks)

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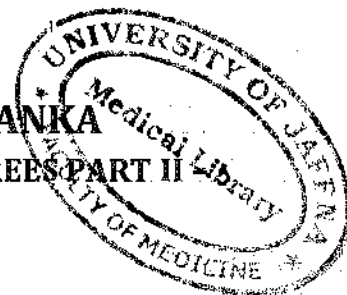


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9. A 60-year-old man is referred to the haematology clinic for investigation of anaemia.

If vitamin B12 (VB12) deficiency is suspected in this patient,

9.1. Mention two key questions you would ask, which will help in the diagnosis of vitamin B12 deficiency, giving reasons. (20 marks)

9.2. List the findings expected in his full blood count and blood picture, and outline the **pathological basis** of the red cell changes observed in VB12 deficiency. (30 marks)

After reviewing the presenting clinical features, the clinician suspects the possibility of colonic carcinoma in this patient.

- 9.3. Mentions the type of anaemia expected in patients with colonic carcinoma and outlines its pathophysiology. (20 marks)

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- 9.4. Briefly describe the causes for refractoriness to iron therapy and mention the laboratory investigations which help to identify them. (30 marks)

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10. A 60-year-old patient presents with anaemia, and the clinician suspects haemolytic anaemia.
- 10.1. Outline the patient history and examination findings which favour the presence of haemolytic anaemia. (20 marks)
- 10.2. Briefly classify haemolytic anaemia expected in this patient, giving examples for each type. (20 marks)
- 10.3. List four (04) laboratory investigations (except urine tests) carried out in the initial assessment and expected findings in haemolytic anaemia. (20 marks)

10.4. Briefly describe the pathological basis of the two (02) test findings mentioned in 10.3. (20 marks)

10.5. Describe how laboratory examination of urine helps in the differentiation of different types of haemolytic anaemia. (20 marks)