FACULTY OF MEDICINE, UNIVERSITY OF RUHUNA

FINAL EXAMINATION FOR MEDICAL DEGREES – February 2026

MEDICINE PAPER 1

09th February 2026 ***(1.00 – 4.00pm) 3 hours***

Index Number: .....

Instructions:

1. **Write your index number in all the pages.**
2. **Answer all questions.**
3. **Write your answers in the space given after each part of the question.**
4. **The space given is adequate for the expected answer.**
5. **Normal values are given within brackets.**
6. **Please return the question book at the end of the examination.**

Question number	Marks %
1	
2	
3	
4	
5	
Total	

1) A 76-year-old woman is brought to the Emergency Department with increasing drowsiness, poor oral intake and reduced urine out put for the past three days. Ten days ago she had a fall for which she did not seek medical attention. She has a history of type 2 diabetes mellitus. On examination, she is drowsy with a Glasgow Coma Scale (GCS) of 13/15. She is dehydrated. Her pulse is low volume at a rate of 110 beats/min, blood pressure is 90/70 mmHg. Respiratory rate is 24 breaths/min, oxygen saturation on air is 88% and there are bibasal coarse crepitations on auscultation of the lungs. Pupils are equal and normally reacting. There are no focal neurological signs.

A. State **four (4)** differential diagnoses for this presentation. (10 marks)

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Initial investigations reveal:

Capillary blood sugar: >500 mg/dL
Serum creatinine: 3.6 mg/dL (0.6-1.2)
Urine output: Nil for 6 hours
Urine ketones: Negative

Arterial blood gas analysis: (ABG)
pH: 7.33 (7.35–7.45)
pCO_2: 24 mmHg
HCO_3^-: 14 mmol/L (22–26)
pO_2: 76 mmHg
Serum sodium: 154 mmol/L (135–145 mmol/L)
Serum potassium: 3.8 mmol/L (3.5–5.0 mmol/L)
Serum lactate: 2.7 mmol/L (0.5–2.2 mmol/L)

CT brain shows age-related changes only.

B.

i. Describe the acid–base status based on the ABG. (5 marks)

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ii. Calculate the effective serum osmolality and interpret the results (10 marks)

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C. State the most likely diagnosis. (10 marks)

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D. Mention **four (4)** precipitating factors for this condition. (10 marks)

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E. State one possible cause for each of the following complications in this patient (15 marks)

i. Altered level of consciousness

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ii. Hypotension

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iii. Acute kidney injury with anuria

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F. Outline **five (5)** steps in the initial management during first 6 hours (30 marks)

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G. Mention **four (4)** other major complications of the diagnosis that she could develop while on treatment (10 marks)

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2) A 45-year-old male presented with 3-week history of low-grade fever, progressive fatigue, and night sweats. He also reports a recent onset of painful, red nodules on his fingertips and a severe lower backache. He has a history of rheumatic fever in childhood; underwent a dental extraction 5 weeks ago. Vitals: Temp: 38.2°C, HR: 104 bpm (regular), BP: 110/70 mmHg, RR: 18/min, SpO2: 98% on room air. On examination, he is pale, lethargic. His JVP is not elevated. A grade 3/6 pansystolic murmur is audible at the apex, radiating to the axilla.

Investigations are given below.

Hb – 9 g/dL (12-16) WBC – 12 × 10^9/ L (4-11) Platelets – 550 × $10^{9/L}$ (150-450)

CRP – 65 u/L (<6) ESR – 45 /1st hour

AST – 35 IU/L (30-40)

ALT – 30 IU/L (30-40)

Serum creatinine – 150 mmol/L (80-120) Chest radiograph - normal

Urinalysis: Microscopic hematuria (++) and proteinuria (+)

A. What is the most likely diagnosis of this patient? (5 marks)

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B. State **five (5)** important features in the history, examination and investigations that would support the diagnosis mentioned in A and indicate their relevance. (20 marks)

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C. State **two (2)** investigations that you would request to confirm the diagnosis mentioned in A in this patient with the expected results. (15 marks)

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2.....

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D.State **two (2)** steps in the initial management of this patient. (10 marks)

1.....

2.....

E.State the most likely cause for the back pain of this patient (10 marks)

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F. State **three (3)** additional examination findings that would support the condition mentioned in (15 marks)

1.....

2.....

3.....

While on treatment for 5 days he continues to have fever. He develops a shortness of breath and difficulty in lying flat on the bed. His pulse was 120/ min and , BP – 90/60mmHg. SpO2: reduced to 94% on air.

F. What is the likely complication that he has developed? (5 marks)

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G. State **five (5)** steps in the acute management of the complication mentioned in F (10 marks)

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H. State **four (4)** other complications of the diagnosis mentioned in A. (10 marks)

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3) A 28-year-old woman presents with numbness and weakness in her hands and feet, described as a "glove and stocking" distribution developing over three weeks. She also reports fatigue and has noticed a reddish rash across her cheeks. On examination, she has reduced muscle power in distal muscles of the lower limbs and sensory loss for pain in the hands and feet. Her fasting blood sugar is 96 mg/ dL and ESR is 110 mm . 1st hour

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

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B. List **three (3)** underlying causes which can lead to above condition (15 marks)

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2. .....

3. .....

C. List **one (1)** feature in the history for each of the diagnosis you suspected in B

(15 marks)

1.....

2.....

3.....

D. List **one (1)** examination finding to support each of the diagnosis you suspected in B

(15 marks)

1.....

2.....

3.....

E. Indicate **one (1)** confirmatory investigation with expected results for each of the diagnosis you mentioned in B (15 marks)

1.....

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3.....

F. Briefly describe the steps of management of one of the conditions you mentioned in B

(30 marks)

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4) A 65 year-old woman is admitted complaining of fever, cough with increased sputum production, worsening shortness of breath and loss of appetite for 5 days. She gives a history of intermittent shortness of breath, wheeze and productive cough for the past 10 years. She has four admissions over the last one year. She is on regular inhaled Long Acting Beta Agonist (LABA) and Fluticasone combination. She was last hospitalized three months earlier and had been relatively well since discharge from the hospital with only the usual background shortness of breath till this admission. Her BMI is 15 kg/m^2 and has bilateral crepitations on auscultation.

A. State **three (3)** differential diagnoses for the current presentation? (10 marks)

1.....

2.....

3.....

B. State **five (5)** physical signs that will help to differentiate the diagnoses mentioned in A, stating their relevance. (15 marks)

1.....

2.....

3.....

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C. State **five (5)** chest radiographic abnormalities you expect to see in the diagnoses you mentioned in A. (15 marks)

1.....

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D. State **three (3)** bacterial pathogens which could be the cause of the acute deterioration. (10marks)

1.....

2.....

3.....

E) State **five (5)** steps in the management (pharmacological and non-pharmacological) of this patient explaining reasons (20 marks)

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While on treatment patient deteriorated with worsening dyspnea on day 3 admission. The arterial blood gas performed showed following

pH- 7.3

PO2 – 70 mmHg

PCO2 50 mmHg

HCO3- - 35 mmol/L

F) State **three (3)** possible causes for the deterioration. (10 marks)

1.....

2.....

3.....

G) Outline **three (3)** steps in the management of her current problem. (10 marks)

1.....

2.....

3.....

H) State **two (2)** important follow up arrangements you will make after discharge from the ward (10 marks)

1.....

2.....

5) A 22 year old previously healthy woman presents with fatigue, shortness of breath and yellowish discoloration of eyes for three weeks. She has also noticed dark urine. There is no significant illnesses in the family. On examination she is afebrile and has conjunctival icterus and mild splenomegaly. There is no lymphadenopathy or hepatomegaly.

Investigations

Hb- 7 g/dL (11-13)

MCV 80 fL

Platelet count 180×10^9/L(150-400)

WBC – 6×10^9/L (4-11)

A. Based on the clinical presentation what is the likely type of anaemia? (5 marks)

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B. State **three (3)** investigations to confirm the type of anaemia mentioned in A (10 marks)

1 .....

2 .....

3 .....

C. Mention **three (3)** likely aetiologies for the type of anaemia mentioned in A. (15 marks)

1.....

2 .....

3.....

D. State **one (1)** specific investigation each for the each of the aetiologies mentioned in C. (10 marks)

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One week later she complained of painful joints of both hands. She had an erythematous rash over the face and limbs but more marked on the face. Further investigations revealed following.

Hb – 6 g/dL

WBC – 6×10^9

Platelets – 110×10^9

Urine analysis

Protein ++

RBC -15-20

Pus cells – 20-30

Serum creatinine – 1.6 umol/L

ESR – 80 mm in 1st hour

E. Based on the above what is the most likely underlying diagnosis? (10 marks)

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F. List **two (2)** other investigations you would perform mentioning their value in the management. (10 marks)

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G. Mention the most likely cause for the abnormal serum creatinine in this patient. (10 marks)

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H. Mention **two (2)** possible underlying histopathological findings for the cause mentioned in G. (10 marks)

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I. Outline the steps in the management of anaemia and high serum creatinine in this patient. (20 marks)

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