FACULTY OF MEDICINE, UNIVERSITY OF RUHUNA

FINAL EXAMINATION FOR MEDICAL DEGREES – August 2026

MEDICINE PAPER 1

31st August 2026 (1.00 – 4.00pm) 3 hours

Index Number: .....

Instructions:

1. Write your index number in all 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	

Index No ..... Final MBBS examination, August 2026, Medicine

1). A 68-year-old male with 40 pack-year smoking history and poorly controlled Type 2 diabetes mellitus presents to the Emergency Unit. He had a 4-day history of fever, progressively worsening dyspnea, right-sided pleuritic chest pain and productive cough with yellowish sputum. This morning, he became acutely confused and agitated.

On examination, he is sweating excessively and using accessory muscles of respiration. GCS is 13/15. Temperature: 39.4 C, heart rate: 128 bpm, blood pressure: 86/50mmHg, respiratory rate: 34 breaths/min, SpO2 – 83% on room air. On respiratory system examination, trachea is central, decreased expansion on the right middle and lower zones with stony dullness to percussion. Auscultation reveals bronchial breathing, increased vocal resonance and coarse inspiratory crackles over the right mid-to-lower zones.

1.1) State the complete clinical diagnosis. (10 marks)

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1.2) Using the clinical parameters at presentation, grade the severity of the condition mentioned in 1.1 and justify the level of care you would recommend for this patient. (10 marks)

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1.3) State **two (2)** additional causes for hypotension. (10 marks)

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1.4) Select the **four (4)** most critical initial diagnostic investigations to perform within the first hour. Provide a concise justification for each with expected findings. (15 marks)

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ii.....

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iii.....

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iv.....

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1.5) Outline **three (3)** immediate management steps within the first hour specifying your targets where relevant? (15 marks)

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ii.....

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iii.....

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Despite initial management the patient's clinical status deteriorates over the next 24 hours. He is subsequently intubated and mechanically ventilated.

Arterial blood gas on FiO2 0.70 via endotracheal tube is as follows.

pH: 7.22 PaO_2: 63mmHg $PaCO_2$: 54mmHg

HCO3: 18mmol/L (22-26) Lactate: 4.8mmol/L

Serum Creatinine: 310mg/dL (Baseline: 90) Blood Urea: 26mmol/L (2-8)

Urine Output: 10mL/hr via urinary catheter over the last 8 hours.

Chest Radiograph (AP supine): Diffuse, bilateral, alveolar infiltrates

1.6) Interpret the Arterial Blood Gas (ABG) results and mention the likely cause for each abnormality. (10 marks)

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1.7) Calculate the PaO_2 to FiO_2 ratio and mention it's significance. (10 marks)

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The patient has developed severe acute kidney injury (AKI) with rising creatinine and oliguria.

1.8) Explain **two (2)** possible mechanisms. (10 marks)

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1.9) Despite all measures patient is having a progressive AKI. State two options of renal replacement therapy explaining which one is the most suitable. (10 marks)

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2). A 70-year-old woman is admitted with progressively worsening shortness of breath on exertion for four months. She has been on treatment for hypertension and osteoarthritis of the knees for the past eight years. On examination, she is pale with multiple bruising patches over both upper and lower limbs. She is not icteric. There is no hepatosplenomegaly. Cardiovascular system examination reveals an ejection systolic murmur heard best over the aortic area without radiation. The remainder of the system examination is unremarkable.

2.1) List **three (3)** differential diagnoses for this presentation. (15 marks)

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2.2) State **three (3)** important features in the history that you would elicit to determine the likely diagnosis giving reasons. (15 marks)

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The results of initial investigations done on admission are given below:

- Haemoglobin: 6.0 g/dL (11.5–16.0)
- White blood cell count: 3.1 × 10^9/L (4.0–11.0)
- Platelet count: 70 × 10^9/L (150–450)
- MCV: 91 fL (80–96)
- Reticulocyte count: 0.2% (0.5–2.5)

2.3) Interpret the significance of the reticulocyte count. (10 marks)

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2.4) State **four (4)** further investigations that you would perform to arrive at a diagnosis explaining the reasons. (10 marks)

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Three days after admission she develops fever, delirium and rapidly worsening shortness of breath.

On examination: Temperature 39.2°C, Pulse 126/min, Blood pressure 90/60 mmHg, Respiratory rate 34/min, GCS 14/15. She is severely pale with bilateral coarse crepitations.

Repeat investigations:

- Hemoglobin: 4.8 g/dL
- White blood cell count: 0.5×10^9/L
- Neutrophils 40%, lymphocytes 55%, monocytes 3 %, eosinophils 2%
- Platelet count: 18×10^9/L

2.5) What acute complication best explains her deterioration? (10 marks)

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2.6) Outline **five (5)** immediate management steps for the complication identified in question 2.5. (25 marks)

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2.7) Outline the definitive man.agement of one of the underlying haematological disorders you listed in question 2.1 (15 marks)

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3). A 48-year-old male presents with tightening chest pain for two hours to the National Hospital Galle. He is a smoker with a history of 25 pack-years. He works as a private bus driver and has two schooling children. His wife is a housewife.

On examination, his BMI is 31kg/m^2. His pulse rate and blood pressure are 88 per minute and 130/80 mmHg respectively. Auscultation of the heart and lung bases is normal on admission.

The ECG on admission reveals deep T inversions from V4 to V6, L1, and aVL leads, and Troponin I is positive.

3.1) What is the complete diagnosis? (10 marks)

3.2) State **five (5)** biochemical and hematological investigations you would request on admission, giving reasons. (10 marks)

3.3) Briefly describe how you would manage this patient on admission. (20 marks)

During the evening ward round, the house officer notices cold peripheries and blood pressure of 80/50 mmHg.

3.4) State the most likely complication this patient had developed. (10 marks)

3.5) State **five (5)** other physical signs that would support the complication mentioned in 3.4. (10 marks)

3.6) Briefly describe the acute management of the condition mentioned in 3.5. (20 marks)

On day three of admission, the patient becomes dyspneic. Auscultation of the heart reveals a pansystolic murmur.

3.7) State **two (2)** possibilities for the pansystolic murmur, mentioning the possible underlying mechanism. (10 marks)

After 10 days of admission, the patient is discharged.

3.8) State **four (4)** advises you would give on discharge. (10 marks)

4). A 52-year-old man with type 2 diabetes is referred from a surgical ward for medical opinion regarding optimization of his diabetes and cardiovascular risk factors. He has had type 2 diabetes for six years but has defaulted follow-up and treatment. He was admitted with a chronic ulcer over the plantar aspect of his left foot.

On examination, his BMI is 25 kg/m². He has bilateral pitting ankle oedema and a chronic ulcer over the plantar aspect of the left foot. His blood pressure is 170/100 mmHg.

Available investigations reveal:

Capillary blood glucose: 345 mg/dL

HbA1c: 12.0%

ECG: Left ventricular hypertrophy with deep Q waves in the anterior chest leads.

4.1) List **three (3)** underlying medical causes of bilateral ankle oedema in this patient. (10 marks)

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2.....3

3 .....

4.2) State **one (1)** physical sign that you would elicit in support of each of the three conditions mentioned in question 4.1. (15 marks)

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4.3) List **two (2)** investigations to support each of the conditions mentioned in question 4.1. (15 marks)

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4.4) List **two (2)** diabetes-related complications that may have contributed to the development of the chronic foot ulcer in this patient. (10 marks)

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4.5) State **two (2)** symptoms that you would elicit in the history in support of each of the complications mentioned in question 4.4. (10 marks)

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4.6) State **two (2)** physical signs that you would elicit in support of each of the complications mentioned in question 4.4 (10 marks)

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4.7) List **four (4)** medications, other than glucose-lowering agents, that you would prescribe based on this patient's blood pressure and ECG findings at the time of referral and justify the use of each medication. (20 marks)

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4.8) State **three (3)** factors that should be considered when selecting evidence-based glucose-lowering therapy for this patient at discharge. (10 marks)

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5. A 48-year-old man presents with progressive difficulty in walking over five days. He has attended a wedding ceremony one day prior to the onset. He has no history of recent trauma.

5.1 List **three (3)** differential diagnoses you would consider on admission. (15 marks)

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5.2 List **two** (2) additional clinical features that would support each of your differential diagnoses mentioned in 5.1. (15 marks)

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5.3 List **one** (1) investigation each to confirm the differential diagnoses mentioned in 5.1. (15 marks)

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5.4 State the specific therapeutic options that you would consider for each of the differential diagnoses mentioned in 5.1. (15 marks)

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On the 10th day of admission this patient has undergone a lumbar puncture. CSF analysis showed the following results:

CSF:	Clear and colourless
Protein:	225 mg / dL
Sugar:	73 mg/ dL
Cells:	
Lymphocytes	01
Polymorphs	00
Random blood sugar:	108 mg/ dL

5.5 What is the most likely diagnosis? (10 marks)

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5.6 List **three (3)** major complications of this illness. (15 marks)

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5.7 Mention **one** (1) management strategy for each of the complications you mentioned in 5.6. (15 marks)

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