



**FACULTY OF MEDICINE, UNIVERSITY OF RUHUNA
FINAL EXAMINATION FOR MEDICAL DEGREES – July 2023
MEDICINE PAPER 1**

10th July 2023

(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.**

1) A 56-year- old man is admitted with sudden onset severe chest pain of two hours duration. He has a history of diabetes for four years, but his drug compliance is poor. On examination, he is in pain, anxious and dehydrated. Blood pressure (BP) and pulse rate are 130/80 mmHg and 80 beats per minute respectively. Examination of cardiovascular and respiratory systems are normal.

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

B. State briefly **five (5)** steps involved in the initial management of this patient (20 marks)

1) -----

2) -----

3) -----

4) -----

5) -----

After 4 hours, patient is found to have a BP of 80/60mmHg. He is not dyspnoeic.

C. List **two (2)** possible causes for the worsening of his condition (10 marks)

1) -----

2) -----

D. State **two (2)** steps involved in the management of the condition mentioned in C. (20 marks)

1) -----

2) -----

After 5 days, he completely recovers and is ready to be discharged.

E. List **five (5)** drugs that should be included in his prescription and state, briefly, the rationale of using each. (40 marks)

1) -----

2) -----

3) -----

4) -----

5) -----

2) A 60-year-old male presented to the emergency unit with productive cough, wheezing and fever for five days. He was a heavy smoker with a history of 20 pack years. He had several hospital admissions with cough and wheezing over the last 2 years. On examination, he was dyspnoeic and auscultation of the lungs revealed widespread rhonchi.

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

B. Mention **five (5)** additional physical signs you would elicit to support the diagnosis mentioned in A. (10 marks)

1) -----

2) -----

3) -----

4) -----

5) -----

Further evaluation of this patient in the emergency unit revealed following observations. SpO₂ was 87% on room air, respiratory rate was 34 per minute, pulse rate was 120 per minute and blood pressure was 100/60mmHg.

C. List **four (4)** investigations you would request mentioning their value in further management of this patient (20 marks)

1) -----

2) -----

3) -----

4) -----

D. Describe **five (5)** important steps in the management of this patient at this stage. (25 marks)

- 1) -----
- 2) -----
- 3) -----
- 4) -----
- 5) -----

After a good initial response to the treatment, his dyspnea suddenly worsened. Examination revealed: pulse rate 140 per minute, blood pressure 60/40 mmHg, tracheal deviation to left side and hyperresonance over the right hemithorax.

E. What is the most likely cause for his acute deterioration? (10 marks)

F. What is the immediate management? (10 marks)

Three weeks later following a satisfactory recovery patient was discharged from the ward.

G. List **three (3)** steps you would take to reduce further hospital admissions of this patient.

(15 marks)

- 1) -----
- 2) -----
- 3) -----

3) A 30- year-old married school teacher is admitted with weakness of right side of the body for 12 hours. On examination, her blood pressure is 120/80 mmHg. She has spontaneous eye opening and moves the left upper and lower limbs normally. She however, does not respond to any of the questions asked by the doctor. Her capillary blood sugar, oxygen saturation and 12 lead ECG are normal. Non-contrast CT brain shows an infarction in the left middle cerebral artery territory.

A. List **five (5)** underlying disease conditions which cause above presentation. (10 marks)

- 1) -----
- 2) -----
- 3) -----
- 4) -----
- 5) -----

B. Mention **one (1)** feature in the history or examination supporting each disease condition mentioned in A.

(20 marks)

- 1) -----
- 2) -----
- 3) -----
- 4) -----
- 5) -----

C. List **one (1)** confirmatory investigation for each disease condition mentioned in A.(20 marks)

- 1) -----
- 2) -----

4) A 55-year-old man presents with bilateral ankle swelling for three months. He also had poor night sleep, disturbed concentration on his office work and daytime somnolence for last few weeks. He has no history of chest pain or shortness of breath. He has history of diabetes mellitus and dyslipidemia. He does not smoke or consume alcohol.

On examination he has pallor and bilateral pitting ankle oedema. JVP is not elevated with a blood pressure of 100/60 mmHg.

Investigations are as follows.

Hb- 8.6 g/dL (12-14), MCV – 80 fL (70- 90), White cell count – $4.5 \times 10^9/L$ (4-11), Platelet count – $120 \times 10^9/L$ (150- 400),

FBS – 136 mg/dL, HbA1C – 8.5%, AST – 65 IU/L (10-40), ALT – 56 IU/L. (10-40),

Urine for proteins – nil, Serum creatinine – 65 $\mu\text{mol/L}$ (80 – 120), Blood urea – 8 mmol/L (1.8 – 7.1)

A. List **four (4)** medical problems you identified in this patient. (10 marks)

- 1) -----
- 2) -----
- 3) -----
- 4) -----

B. What is the most likely complete clinical diagnosis? (10 marks)

C. List **four (4)** complications (other than those mentioned above) that can be expected with the condition mentioned in B (20 marks)

- 1) -----
- 2) -----

3) -----

4) -----

D. Mention **four (4)** further investigations that would help in the management of this patient and state the expected results (20 marks)

1) -----

2) -----

3) -----

4) -----

E. State briefly **five (5)** steps in the management of this patient. (40 marks)

1) -----

2) -----

3) -----

4) -----

5) -----

5) A 62-year-old man is admitted complaining of reduced urine output for two days. He has last been well ten days back. He developed a high spiking fever which lasted five days. The general practitioner (GP) noted an eschar and started him on doxycycline and fever settled within 24 hours. Though his fever settled, he continued to feel unwell with loss of appetite, nausea and malaise. Over the 24 hours preceding hospital admission, the patient passed only a small amount of urine and the GP requested a number of urgent investigations. The results are given below.

Hb 11.0 g/dL (11-13), WBC $8.39 \times 10^9/L$ (4-11) (N 72%, L 24%, E 4%)

CRP 12 mg/L (<6)

ECG - Normal

Chest radiograph PA view - Normal

AST 58 IU/L (0-40), ALT 62 IU/L (0-40)

Serum albumin 4.2 g/dL (3.5-5), Serum creatinine 6.7 mg/dL (0.8-1.3)

Urine full report: Pus cells 1-2 /hpf, red cells 1-2 /hpf, proteins – trace

TSH 1.23 mIU/L (0.4-4)

A. List **four (4)** physical signs you would look for, related to the reduced urine output, explaining the significance. (20 marks)

- 1) -----
- 2) -----
- 3) -----
- 4) -----

B. List **five (5)** investigations you would request immediately related to the reduced urine output. (25 marks)

- 1) -----
- 2) -----
- 3) -----

- 4) -----
- 5) -----

C. List **two (2)** steps in the initial management (20 marks)

- 1) -----
- 2) -----

D. Six hours later he becomes dyspnoeic. Respiratory rate is 40 per minute now. SpO₂ is 92%.

List **three (3)** possible underlying causes. (15 marks)

- 1) -----
- 2) -----
- 3) -----

E. ECG done at this moment has tall tented T waves and prolonged PR interval.

What is the cause of this ECG abnormality? (5 marks)

F. List **three (3)** immediate steps to treat the ECG abnormality (15 marks)

- 1) -----
- 2) -----
- 3) -----

6) A 16-year-old girl has fatigue and breathlessness for 2 months. She is the eldest of a family of five siblings. Her parents are estate labourers and the family live in a small estate owned house which has several similar houses in a row. Results of the full blood count is shown below

Hb 8g/dL (11-13), MCV 65fL (76-96), MCH 23 pg/cell (27-31), MCHC 28 g/dL (32-36)

WBC $8.5 \times 10^9/L$ (4-11), Platelets $550 \times 10^9/L$ (150-400)

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

B. List **two (2)** most likely causes for answer A. (20 marks)

1) -----

2) -----

C. State **one (1)** differential diagnosis for condition mentioned in A. (10 marks)

D. State **five (5)** questions in the history that you would ask to find out the cause of her anemia. (25 marks)

1) -----

2) -----

3) -----

4) -----

5) -----

E. As a medical officer working in a rural hospital what treatment would you initiate?

(10 marks)

At the next clinic visit her Hb is still 8g/dL,

F. List **two (2)** reasons for the poor response to the treatment given.

(10 marks)

- 1) -----
2) -----

G. List two (2) steps you would take as the medical officer working in the rural hospital to the poor response to treatment.

(15 marks)

7) A 22-year-old man with type 1 diabetes is admitted with abdominal pain, nausea, and vomiting with increasing polyuria, polydipsia, and drowsiness for two days. He has had loss of appetite, vomiting, and diarrhea. He is on insulin basal bolus regimen, but has not taken insulin for three days. On examination, he is drowsy with dry mucus membranes. His pulse rate is 120/bpm, BP is 100/70 mmHg, and respiratory rate is 32 breaths per minutes with clear lung fields. He has mild generalized abdominal tenderness without guarding. The investigations done on admission are given below.

Random blood glucose 450 mg/dL

Arterial blood gas;

pH -7.14 (7.35-7.45), PaCO₂- 26mmHg (35-45), Bicarbonate- 10 mmol/l (18-22)

Hb – 14 g/dL (12-14)

WBC- 18.5X10⁹/L (4-11), CRP- 57.4 mg/dL (<6)

Na- 137 mmol/l (136-145), K- 3.5 mmol/l (3.5-5.5), Cl- 97 mmol/l (96-106), Creatinine- 1.7 mg/dL (0.5 -1.3)

A. What is the acid-base abnormality? (10 marks)

B. What is the most likely reason for the acid base abnormality mentioned in A? (10 marks)

C. List **five (5)** metabolic abnormalities which need immediate correction. (20 marks)

1) -----

2) -----

3) -----

4) -----

5) -----

D. Describe briefly management of each of the metabolic abnormalities mentioned in C.

(40 marks)

- 1)-----

- 2)-----

- 3)-----

- 4)-----

- 5)-----

He is fully recovered five days after admission.

E. What advice would you give him on discharge to avoid the complication mentioned in B?

(20 marks)

8) A 45-year-old man with type 2 diabetes mellitus having suboptimal glycaemic control for many years presents with fever, chills, vomiting and left loin pain for two days. He is on metformin 1g twice a day, gliclazide 120mg twice a day, pioglitazone 30mg in the morning. On examination he has warm peripheries, pulse rate of 120 b.p.m, blood pressure of 100/80mmHg and left loin tenderness. His recent HbA1c was 12%. RBS – 350 mg/dL.

A. What is the diagnosis? (10 marks)

B. Mention **six (6)** investigations useful in management of this patient stating their usefulness.

(30 marks)

1) -----

2) -----

3) -----

4) -----

5) -----

6) -----

C. State **three (3)** important steps in the initial management of his condition? (30 marks)

1) -----

2) -----

3) -----

After 12 hours of management, patient becomes more ill with a pulse rate 130 b.p.m, blood pressure 80/60 mmHg with clammy peripheries.

D. What complication would explain this presentation? (10 marks)

E. Mention the **two (2)** immediate steps in the management of this patient. (10 marks)

1) -----

2) -----

F. State **two (2)** steps to prevent the occurrence of the medical condition mentioned in A.

(10 marks)

