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POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION LEADING TO MD IN HISTOPATHOLOGY, CLINCIAL HAEMATOLOGY AND CHEMICAL PATHOLOGY – JANUARY 2023

Date:- 10th January 2023 **Time:-** 9.30 a.m. – 11.30 a.m.

ESSAY PAPER

Answer all questions.
Answer each question in a separate book.
All questions carry equal marks.

PART A
ANATOMICAL PATHOLOGY (GENERAL & SYSTEMIC)

1. Explain the pathological basis of the following

1.1. Elevated serum aminotransferase levels in a patient with chronic alcohol abuse. (25 marks)

1.2. Apical cavities in the lung of a patient with pulmonary tuberculosis. (25 marks)

1.3. Increased incidence of cancer in immunodeficient individuals. (25 marks)

1.4. Nephrotic syndrome in a patient with multiple myeloma. (25 marks)

2.

2.1. A 52-year-old woman who presented with abdominal distension was suspected to have an ovarian malignancy. Peritoneal fluid aspiration was done for cytology and showed malignant epithelial cells.

2.1.1. List four (04) types of malignant ovarian epithelial tumours that this patient is likely to have (10 marks)

2.1.2. Outline how you transport the sample of peritoneal fluid for cytology. (20 marks)

2.1.3. Describe the microscopic features that would suggest malignancy in peritoneal cytology specimens. (15 marks)

2.1.4. This patient has a family history of breast carcinoma.
Name a genetic mutation you would test in this patient. (05 marks)

Contd…./2-

2.2. A 10-year old boy is brought to hospital with a history of fever, malaise and passage of dark urine of 1 day duration. His mother has noted that his urine output is reduced. On examination, he has periorbital oedema and an eczematous rash with infected wounds on his legs. His blood pressure is 140/100 mmHg

These are his investigation findings

Urine analysis		
Colour	Red	
Protein	1+	
Pus cells	10 -15/hpf	
Red cells	80-100/hpf	
Casts	Red cell casts present	
Serum creatinine	0.9 mg/dL	(0.39 - 0.79)
Anti-streptolysin O Titre (ASOT)	800 IU/L	(<200)
Complement (C3)	0.5 g/L	(0.8 - 1.6)

2.2.1. What is the most likely clinical diagnosis? (05 marks)

2.2.2. Describe the changes that you would expect to see on light microscopy and immunofluorescence in the glomeruli if a renal biopsy is obtained from this patient. (30 marks)

The patient does not respond to standard treatment. One week later his serum creatinine rises, and he continues to have oliguria.

2.2.3. What is the most likely complication that this patient is having? (05 marks)

2.2.4. If a renal biopsy is done at this stage, what would it show in addition to the changes described in 2.2.2. (10 marks)

PART B
HAEMATOLOGY

3.

3.1. A 22-year-old man was admitted with shortness of breath. He was pale, icteric and afebrile. He had moderate splenomegaly.

His full blood count (FBC) is given below:

Hb	5.0 g/dL	
MCV	72fL	(80-95)
MCH	23 pg	(27-32)
WBC	8 x 10^9/L	
Platelet count	312 x 10^9/L	
Retic count	10%	(0.5-2.5%)

Contd..../3-

3.1.1. Name three (03) differential diagnoses for the above presentation. (15 marks)

3.1.2. Mention five (05) investigations you would perform to arrive at a diagnosis giving the expected findings. (15 marks)

He has a history of similar episodes requiring blood transfusions during childhood. His elder brother also has a history of several blood transfusions.

3.1.3. Give one (01) likely diagnosis and outline the principles of management. (30 marks)

3.2. A 14-year-old girl was seen in the clinic with a history of menorrhagia since menarche and several episodes of gum bleeding. She had no history of fever. Her full blood count was normal.

3.2.1 Name four (04) other important features you would ask for in the history of this patient to decide on further investigations. (15 marks)

3.2.2. List five (05) basic investigations you would perform on this patient. (15 marks)

3.2.3. If this patient was admitted with an acute episode of severe menorrhagia with a haemoglobin of 3g/dL, how will you stabilize the patient prior to specific therapy? (10 marks)

PART C
CHEMICAL PATHOLOGY

4.

4.1. A 45-year-old man was admitted to the Emergency Treatment Unit with acute chest pain for 1 hour. His ECG changes on admission were non-specific.

4.1.1. Discuss the laboratory investigations that would be helpful in the immediate management of this patient. (15 marks)

He responded to initial treatment, but developed shortness of breath on post infarction day 2.

4.1.2. Mention two (02) biochemical tests with the expected findings that would be helpful in the management. (10 marks)

Contd..../4-

His lipid profile on blood taken within 24 hours of admission is given.

Serum

Cholesterol (Total)	280	mg/dL
Triglyceride	300	mg/dL
LDL	190	mg/dL
HDL	30	mg/dL
Cholesterol/HDL	9.3	

His fasting glucose was 178 mg/dL.

4.1.3. Comment on his investigations with regard to cardiovascular risk. (05 marks)

4.1.4.

(a) What type of lipid anomaly would you treat him for first? (05 marks)

(b) Name the group of medication that you would use as first line treatment for his dyslipidemia mentioning its mechanism of action. (05 marks)

4.1.5. How would you monitor the patient while on the medication mentioned in 4.1.4 (b)? (10 marks)

4.2.

4.2.1. Briefly explain the specimen collection procedures for the given analytes in blood (20 marks)

(a) Ionized calcium

(b) ACTH

(c) Cortisol

(d) Thyroid profile in a patient on thyroxine replacement

4.3. Write briefly the procedure for an oral glucose tolerance test (OGTT). (15 marks)

4.4. A blood sample taken from a previously healthy person for an insurance package, was received by the laboratory from a remote collection center. Serum electrolytes report revealed increased serum potassium.

4.4.1. Mention three (03) pre-analytical errors for this result. (10 marks)

4.4.2. Mention how you would prevent the occurrence of the above pre-analytical errors. (05 marks)