POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

Selection Examination for Enrolment to the in-service Training Programme in Postgraduate Certificate in Basic Laboratory Sciences leading to the Postgraduate Diploma in Histopathology, Clinical Haematology and Chemical Pathology - September 2016

Date: 29th September 2016 **Time:** 1.00 pm - 3.00pm

ESSAY PAPER

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

PART A

ANATOMICAL PATHOLOGY (GENERAL & SYSTEMIC)

1. Describe the pathogenetic mechanisms responsible for the following lesions.

1.1 'Nutmeg liver' in a sixty year old male with congestive cardiac failure. (30 marks)

1.2 Long-standing multinodular goitre in a forty-five year old female. (30 marks)

1.3 Cerbral infarction in a seventy-five year old male who had a transmural myocardial infarction, five days prior. (40 marks)

2.

2.1 Describe the differences between 'stable' and 'unstable' atheromatous plaques, in relation to their structure and clinical effects. (40 marks)

2.2 List five prognostic factors for breast carcinoma that are included in a Pathology report, indicating how each factor influences the prognosis. (40 marks)

2.3 List the different classes of growth-regulatory genes that are the targets for oncogenic agents, giving an example for each class. (20 marks)

PART B

HAEMATOLOGY

3.

3.1 A 20 year old girl was admitted to medical ward with shortness of breath on exertion, pallor and icterus for three (03) days duration.

Her full blood count (FBC) is given below

Haemoglobin 7 g/dL, MCV 90 fL, MCH 28pg, WBC/DC & platelet counts are normal

3.1.1 State the most likely condition for the above presentation (10 marks)

3.1.2 State four (04) important and relevant questions that you should ask in the history of this patient to establish the diagnosis (10 marks)

3.1.3 List four (04) initial investigations with the expected findings necessary to confirm the condition you mentioned in 3.1.1 (20 marks)

3.2 State five (05) advices you would give to a patient who has been recently started on warfarin treatment (20 marks)

3.3 List four (04) probable causes and four (04) investigations for each of the following clinical conditions stated below (40 marks)

3.3.1 Febrile reaction five (05) minutes after starting blood transfusion

3.3.2 A 50 year old man with haemoglobin of 20 g/dL and PCV 56%

3.3.3 A 60 year old man with prolonged PT, APTT, and TT

3.3.4 A Pregnant lady with low platelet count

PART C

CHEMICAL PATHOLOGY

4.

4.1 Discuss the causes and pathogenesis of hypocalcaemia in an adult patient and outline the biochemical investigations to arrive at a diagnosis/ diagnoses.

(60 marks)

4.2 A 30 year-old lady with 7 weeks of amenorrhoea (POA) presented with the complaint of excessive vomiting to the outpatient department (OPD) in a Base Hospital.

Her laboratory investigations revealed the following:

Random plasma glucose		2.5 mmol/L	
Serum			
Sodium	135	mmol/L	(135 - 145)
Potassium	3.1	mmol/L	(3.5 – 5.3)
Creatinine	110	µmol/L	(60 – 120)
Urea	12	mmol/L	(2.9 – 9.2)
Urine for hCG	-	positive	
Urine for ketone bodies	-	positive	

4.2.1 Mention the differential diagnoses for excessive vomiting in this patient.

4.2.2 Mention one biochemical investigation that will help to differentiate the diagnoses mentioned in question No. 4.2.1 from normal pregnancy.

4.2.3 Explain the pathogenesis of hypokalemia in this patient.

4.2.4 Interpret her renal function tests.

4.2.5 What is the most probable cause for the presence of ketone bodies in her urine?

(20 marks)

4.3 A 36 year-old woman, presented with a febrile illness, which was later diagnosed as pneumonia. She was started on Intravenous (IV) antibiotics.

Her investigations revealed the following:

Serum			
Iron	2.0	µmol/L	(9 – 27)
TIBC	30.0	µmol/L	(45 – 70)
% Iron saturation	6.0		(10 – 35)
Ferritin	801.0	µg/L	(10 – 160)

Whole blood			
Haemoglobin	10.0	g/dL	(11.5 – 16.5)

4.3.1 Discuss the laboratory findings.

4.3.2 What is/are the cause/s for the above laboratory findings?

(15 marks)

4.4 A biochemistry laboratory in a Base hospital received a blood sample from a 7 year-old male child without any clinical history.

His laboratory investigation results revealed the following:

Serum Cholesterol	412	mg/dL	(125 - 189)
Serum Albumin	18	g/L	(34 - 54)

4.4.1 What is the most probable diagnosis?

4.4.2 Name one biochemical investigation that will help to arrive at the diagnosis you mentioned in Question No (4.4.1)

(5 marks)