

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD PART 2 EXAMINATION IN CHEMICAL PATHOLOGY
JANUARY 2021

Date: 18th January 2021

Time: 1.00 p.m. – 4.00 p.m.

THEORY PAPER I (Analytical Biochemistry)

There are four questions & Answer all questions

Questions 1 and 2 have three sub questions.

All four questions carry equal marks.

- 1.**
 - 1.1 With the aid of a diagram, outline the components of an oxygen (Clark) electrode and describe how it works.
 - 1.2 Compare and contrast atomic absorption spectrophotometry (AAS) and inductively coupled plasma mass spectrometry (ICP-MS).
 - 1.3 Outline the principles of methods for measuring free thyroxine including the reference method.
- 2.**
 - 2.1 Outline how you would minimize the risk of a novel infectious virus, including the use of standard precautions in the Chemical Pathology laboratory, and those procedures that put staff most at risk.
 - 2.2 Write an account on molecular assays for the detection of cell-free circulatory tumour DNA.
 - 2.3 Describe the principles of laboratory water purification and the quality checks that should be put in place to ensure the purity of the laboratory water supply.

Contd.../2-

3. Under a primary health care development project, the Ministry of Health is planning to introduce point of care test (POCT) devices to Healthy Life Style clinics in your district to check blood glucose, creatinine, total cholesterol and urine protein. Describe your role as the Chemical Pathologist in a District General Hospital, in implementing and ensuring the quality of this new service over the coming years.

4. Critically evaluate the methods available for the measurement of albumin in serum and urine, including the pre-analytical, analytical, and post-analytical factors that may influence the patient results.

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JANUARY 2021

Date: 19th January 2021

Time: 9.00 a.m. – 12.00 noon

THEORY PAPER II (Clinical Biochemistry)

There are four questions & Answer all questions.
Questions 1 and 2 have three sub questions.
All four questions carry equal marks.

1. Discuss the following.

- 1.1 Value of pleural fluid in diagnosis.
- 1.2 Pathophysiology of the re-feeding syndrome.
- 1.3 Plasma amino acids in disorders of the urea cycle.

2.

- 2.1 Write notes on the role of epigenetics in health and disease.
- 2.2 How do you manage critical biochemical results in your laboratory?
- 2.3 Write notes on investigation of pheochromocytoma.

Contd.../2-

3. A 75-year-old man residing in an elders' home is found to have a serum sodium concentration of 125 mmol/L, having been unwell for a few weeks. Using an algorithm, explain how the clinical history, examination findings and investigations would help in arriving at a final diagnosis. What would be your advice to the requesting clinician on further management?

4. Compare and contrast non-HDL cholesterol, apolipoprotein (apo) B and LDL-cholesterol in the cardiovascular disease risk assessment.