

**POSTGRADUATE INSTITUTE OF MEDICINE**  
**UNIVERSITY OF COLOMBO**

**MD PART 2 EXAMINATION IN CHEMICAL PATHOLOGY**  
**FEBRUARY 2022**

**Date:** 14<sup>th</sup> February 2022

**Time:** 9.00 a.m. – 12.00 noon

**THEORY PAPER I (Analytical Biochemistry)**

**There are four (04) questions and answer all questions.**

**Questions 1 and 2 have three (03) sub questions.**

**All four (04) questions carry equal marks.**

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1.

1.1. Outline the principles of methods for analysis of oligoclonal bands in cerebrospinal fluid.

1.2. Briefly describe principles of methods for the measurement of serum total calcium.

1.3. Describe the reference method available to measure urine metanephrines.

2.

2.1. Write a critical review on calculated parameters of a lipid profile.

2.2. Write an account on different detection principles in immunoassays.

2.3. Outline measures that are taken in minimizing errors in a molecular laboratory.

3. To overcome the current economic crisis, a decision has been taken to promote open system analyzers and the use of 3<sup>rd</sup> party reagents in them as a measure of reducing the government laboratory budget on reagents.

Critically discuss open and closed analytical systems.

Explain factors considered in selecting the reagents, programming an open system analyzer and type of precautions taken in assessing the reliability of results.

4. Write an account on setting analytical goals in the measurement of cardiac troponins in a clinical chemistry laboratory.

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**FEBRUARY 2022**

**Date:** 14<sup>th</sup> February 2022

**Time:** 1.00 p.m. – 4.00 p.m.

**THEORY PAPER II (Clinical Biochemistry)**

**Answer all four (04) questions.**

**Questions 1 and 2 have three (03) sub questions.**

**All four (04) questions carry equal marks.**

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1. Discuss the following:

- 1.1. Lead poisoning.
- 1.2. Use of thyroglobulin as a tumour marker.
- 1.3. Diagnostic uses of alkaline phosphatase.

2.

- 2.1. Write an account on biochemical analytes affected by acute illnesses.
- 2.2. Write short notes on ketotic hypoglycaemia.
- 2.3. Discuss the clinical significance of measuring magnesium in body fluids.

3. Chemical pathologists play a vital role in organizing dynamic function tests which are requested by clinicians.

Write an account on the available dynamic function tests in the evaluation of the hypothalamic-pituitary-adrenal (HPA) axis.

4. A 40-year-old housewife presents with chest discomfort of one week duration to a general practitioner. She has no history of diabetes mellitus or hypertension. She had premature menopause at 38 years. Her mother has diabetes mellitus and hypertension.

She weighs 82 kg with a height of 155 cm. She was found to have a blood pressure of 160/110 mmHg, acanthosis nigricans and random plasma glucose of 8.9 mmol/L by glucometer.

Identify the medical problems in this patient and describe how you would investigate further, supporting the diagnosis and management.