UNIVERSITY OF JAFFNA, SRI LANKA

FACULTY OF ALLIED HEALTH SCIENCES

FOURTH YEAR FIRST SEMESTER EXAMINATION IN

B.Sc. (HONS) IN MEDICAL LABORATORY SCIENCES- 2019

MLSCB 4135 CLINICAL BIOCHEMISTRY II

Date: 10.03.2021 **Time: 3 hours**

ANSWER ALL SIX QUESTIONS.

1.

1.1 A 36 years woman, presented to the Subfertility clinic with a history of primary subfertility of two years duration.

1.1.1 List **two (02)** endocrine causes for subfertility in a woman (05 marks)

1.1.2 List **two (02)** important laboratory tests for each of the endocrine causes you mentioned in 1.1.1 giving the expected abnormalities. (10 marks)

1.2. A 30 years man, presented to the Accident & Emergency with severe giddiness and weakness. On examination he was found to have buccal pigmentation and was suspected to have adrenal insufficiency.

1.2.1 List **two (02)** causes for adrenal insufficiency (05 marks)

1.2.2 Name **one (01)** endocrine test other than pituitary hormone that can be done in this patient (05 marks)

1.2.3 List the precautions you will take while collecting blood for the test mentioned in 1.2.2 (10 marks)

1.2.4 Name **one (01)** dynamic function test that can be done in this patient to confirm the diagnosis (05 marks)

1.2.5 Describe briefly, how the test you mentioned in 1.2.4 will be done and what samples will be taken during that test (10 marks)

1.3

1.3.1. Briefly, explain **two (02)** analytical problems that can be encountered in analyzing serum Prolactin by immunoassays (40 marks)

1.3.2 List the precautions to be taken in collecting blood sample for serum Prolactin. (10 marks)

2.

2.1 Discuss briefly, the steps to be taken to protect the personnel and environment of the Chemical Pathology laboratory, where chemicals and antibodies are used as reagents and biological samples are handled. (40 marks)

2.2 Give the patient preparation, precautions in sample collection and sample type for the following tests:

2.2.1 Ionized Calcium (20 marks)

2.2.2 Oral glucose tolerance test (OGTT) (40 marks)

3. Internal quality control and External quality assurance are important components in the total quality management of a Chemical Pathology laboratory.

3.1 List **two (02)** important factors that are considered in deciding on the frequency of internal quality control run (10 marks)

3.2 List **five (05)** situations where internal quality controls should be done in this laboratory. (20 marks)

3.3 If one level of internal quality control is out of range, what steps will you take in the laboratory giving all possibilities. (30 marks)

3.4 Briefly explain, External quality assurance programme (EQA) in your laboratory, where commercial EQA is not available for an analyte. (40 marks)

4.

4.1 Briefly explain the precautions to be taken, sample type, container to be used in collection of urine for urinalysis (10 marks)

4.2 List the processes of preparation and microscopic examination of urine for deposits, by the WHO recommended method. (50 marks)

4.3 List **three (03)** disadvantages of the current method used routinely in Chemical Pathology laboratories for urine for deposits. (15 marks)

4.4 List **three (03)** types of epithelial cells that can be seen in urinalysis and mention **one (01)** condition for each where it can be present in urine (15 marks)

4.5 Mention the changes that you would expect in white cells (WBC) and red cells (RBC) in hypertonic urine? (10 marks)

5.

5.1

5.1.1 Explain briefly the working principle of direct Ion Selective Electrode (ISE) (10 marks)

5.1.2 List **five (05)** analytes that can be measured by the method given in 5.1.1 (10 marks)

5.1.3 List **two (02)** advantages of direct ion selective electrode over flame photometer (10 marks)

5.2 A 39 years man who is an alcoholic presented to the Accident & Emergency with severe upper abdominal pain, indigestion and bloating of one day duration. He was suspected to have acute pancreatitis.

5.2.1 Name **one (01)** test that is routinely done in the Chemical Pathology laboratory to aid in the diagnosis. (10 marks)

5.2.2 Name **one (01)** test, if done will be a more specific and sensitive marker for acute pancreatitis. (10 marks)

5.2.3 List **four (04) other** laboratory tests with the expected changes, used in the diagnosis and monitoring of this disease. (30 marks)

5.3 This patient with time developed chronic pancreatitis.

5.3.1 List **two (02)** faecal tests that will help in the diagnosis (10 marks)

5.3.2 Name the main endocrine function that can be lost in chronic pancreatitis (10 marks)

6. Explain briefly the following for the analytical methods given below.

a) Principle of the method

b) assay conditions

c) interferants, if any

d) methods to reduce or prevent interference, if any

6.1 Serum creatinine by Jaffe method (60 marks)

6.2 Serum total protein by Biuret method (40 marks)