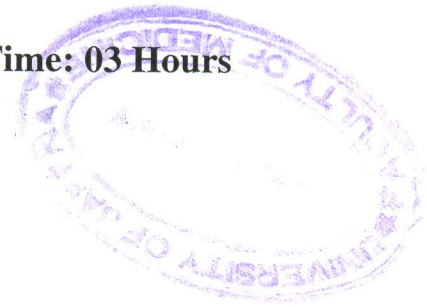


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UNIVERSITY OF JAFFNA, SRI LANKA
BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES
FOURTH YEAR SECOND SEMISTER EXAMINATION - FEBRUARY 2014
MLSCF 4202 CLINICAL CHEMISTRY AND FLUID ANALYSIS

Date: 05.03.2014

Time: 03 Hours



ANSWER ALL SIX QUESTIONS

1. 1.1 10 year old child presented with peripheral oedema of one week duration. He was suspected to have nephrotic syndrome and admitted to the hospital for further management.
 - 1.1.1 List the investigations that could be helpful in the diagnosis and further management of this patient. (15 Marks)
 - 1.1.2 What are the significant findings would you observe from the above investigations. (30 Marks)
- 1.2 Three consecutive days creatinine clearance (Crcl) of this patient, after the hospital admission was, 55 ml / min, 63 ml / min, 93 ml / min respectively.
 - 1.2.1 List two reasons for the discrepancy in the Crcl of this patient. (10 Marks)
 - 1.2.2 How would you advice the patient regarding the specimen collection for the measurement of Crcl. (30Marks)
 - 1.2.3 Mention the steps which involve in the measurement of Crcl . (15Marks)

2

A biochemistry laboratory monitors the calcium (Ca) assay using one level of quality control(QC) serum. The laboratory mean (\bar{X}) for this quality control serum is 3.1 mmol/L and the standard deviation (SD) is 0.03mmol/L.

2.1 Draw a Levy- Jennings chart. (20Marks)

2.2 Plot the QC values obtained from 1st to 20th February on the chart (20Marks)

Day	Ca (mmol/L)	Day	Ca (mmol/L)
1	3.05	11	3.08
2	3.03	12	3.09
3	3.03	13	3.08
4	3.08	14	3.08
5	3.06	15	3.09
6	3.05	16	3.07
7	3.05	17	3.07
8	3.06	18	3.09
9	3.12	19	3.08
10	3.21	20	3.09

2.3 Comment on QC results on the following days (60Marks)

Run number(Day)	Decision on run Accept (✓) Reject(X)	Control values violated	Type of error
D2			
D3			
D8			
D10			
D20			

- 3 3.1** A 28 year old woman visited her family doctor several times since giving a birth to her second child eight months previously. She complained of weight gain, lethargy and amenorrhea.
- 3.1.1 What are the types of amenorrhea and mention the type of amenorrhea in this patient? (10Marks)
- 3.1.2 List the endocrine investigations that could be carried out in this patient to find out the cause. (15 Marks)
- 3.1.3 Mention the expected findings of the above investigations. (15Marks)
- 3.2** A 42 year old woman complained of progressive weakness of the body and adrenal hypo-function is suspected.
- 3.2.1 List the preliminary investigations that could be carried out in this patient and mention the expected results (30 Marks)
- 3.2.2 Describe steps of one of the dynamic function tests in detecting hypofunction of the adrenal gland (30 Marks)
- 4 4.1** Serum triacylglycerol and serum cholesterol of a 30 year old female patient are as follows, Serum total cholesterol 9mmol/ L,
Serum triacylglycerol 31mmol / L
- 4.1.1 List four (4) possible causes for high triacylglycerol level in this patient, other than mentioned in 4.2 (15Marks)
- 4.1.2 What are the preanalytical and analytical factors that could affect the serum triacylglycerol level? (10 Marks)
- 4.1.3 List the different types of lipoproteins which are included in the lipid profile assay. (10Marks)
- 4.1.4 How would you calculate the LDL cholesterol from the other lipoproteins? (10 Marks)
- 4.1.5 Give the principle of a method which is used in the laboratory for the analysis of serum triacylglycerol (20Marks)
- 4.2** If the patient is suspected to have acute pancreatitis
- 4.2.1 Mention the changes that could be observed in her lipid profile (15Marks)
- 4.2.2 Mention the other biochemical tests and their expected findings, that are helpful in the diagnosis of acute pancreatitis (20 Marks)

- 5** **5.1** A 35 year old male presented with headache and high blood pressure (HT) of 190 / 110mmHg.
- 5.1.1 List three (3) adrenal disorders that could cause HT. (15 Marks)
- 5.1.2 What are the biochemical tests (blood and urine) that could help in the identification of the causes you mentioned above? (20Marks)
- 5.1.3 Give the expected findings of the above mentioned tests (15Marks)
- 5.2** The above patient developed jaundice and generalized itch after getting medication for HT
- 5.2.1 What are the types of jaundice and mention the biochemical tests (blood and urine) that are used to differentiate each type? (15Marks)
- 5.2.2 Which biochemical tests are used to assess the liver function? (15 Marks)
- 5.2.3 Describe the changes you would observe in the liver function tests, in viral hepatitis. (20Marks)
- 6** A 63 year old male complained of lethargy and tiredness of three months duration. He is suspected to have anaemia.
- 6.1**
- 6.1.1 List the investigations (biochemical and haematological) that could help to identify the gastro intestinal causes of anaemia. (20Marks)
- 6.1.2 Give the reason for selecting above investigations (20Marks)
- 6.1.3 Mention the steps involved in the occult blood test. (15Marks)
- 6.1.4 What advice would you give to the patient before the collection of sample for occult blood test? (15Marks)
- 6.2** On further questioning, he complained of passing dark colour urine.
- 6.2.1 List three (3) possible causes for passing dark colour urine in this patient. (15Marks)
- 6.2.2 Describe the important steps for the preparation of centrifuged urinary sediment for urinalysis. (15Marks)