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UNIVERSITY OF JAFFNA, SRI LANKA
BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES
FOURTH YEAR FIRST SEMESTER EXAMINATION- JANUARY 2016
MLSCB 4103 CLINICAL BIOCHEMISTRY II

DATE: 21.01.2016

Time: 03 Hours

ANSWER ALL SIX QUESTIONS

1.

1.1 A 10 year old boy presented with short stature to the paediatric clinic. After clinical history and examination growth hormone deficiency was suspected.

1.1.1. List two causes for growth hormone deficiency in this patient. (20 Marks)

1.1.2. List one base line investigation that can be carried out in this patient.(10 Marks)

1.1.3 List two dynamic function tests that can be carried out in this patient to confirm growth hormone deficiency. (20 Marks)

1.2. Give one dynamic function test that can be carried out in adults simultaneously for growth hormone and cortisol deficiency. (05 Marks)

1.3. Mention the contraindications, precautions, preparation, procedure and interpretation of the results that you will obtain, for the test mentioned in 1.2. (45 Marks)

2. A 60 year old lady presented with cancer and was awaiting chemotherapy treatment. The renal function was to be established before starting treatment.

2.1. What is meant by renal clearance? (10 Marks)

2.2. List four qualities of an ideal substance to measure the glomerular filtration rate. (10 Marks)

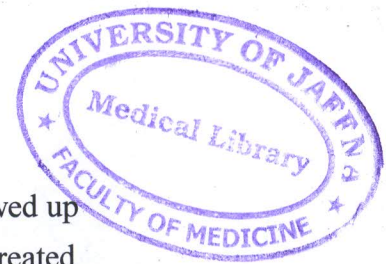
2.3. To measure the glomerular filtration rate

2.3.1. What advice will you give to the patient on sample collection (25 Marks)

2.3.2. What analytes are to be measured (20 Marks)

2.3.3. List two other measurements needed for calculation of corrected glomerular filtration rate (10 Marks)

- 2.3.4. Give the formulae used for calculation of corrected glomerular filtration rate with the measurements given in 2.3.2 and 2.3.3. (25 Marks)
- 3.
- 3.1.
- 3.1.1. What is immunofixation? (20 Marks)
- 3.1.2. Briefly explain the steps involved in immunoelectrophoresis & immunofixation (30 Marks)
- 3.1.3. Draw an immunofixation pattern of a Multiple myeloma patient having IgG kappa (20 Marks)
- 3.2.
- 3.2.1. What is high dose hook effect? (10 Marks)
- 3.2.2. Briefly explain the high dose hook effect and its mechanism giving an example. (20 Marks)
- 4.
- 4.1.
- 4.1.1. Mention two causes each for pre hepatic, hepatic and post hepatic Jaundice. (15 Marks)
- 4.1.2. Describe the tests you will perform to differentiate the types given in 4.1.1. (60 Marks)
- 4.2. A 35 year old lady was suspected to have malabsorption due to coeliac disease.
- 4.2.1. Describe briefly the changes that occur in small intestine in coeliac disease. (10 Marks)
- 4.2.2. List three investigations that can be carried out to investigate coeliac disease. (15 Marks)
5. A 30 year old obese lady presented for routine health check-up to her doctor. Few investigations were ordered and her fasting plasma glucose was 118 mg/dl (6.55mmol/L). She did not have any symptoms of diabetes mellitus. After 1 month the repeat fasting plasma glucose was 119mg/dl (6.61mmol/L). Her doctor wanted to investigate her further.
- 5.1. What further test should be carried out in this patient? (10 Marks)
- 5.2. How will you prepare the patient for this test? Include the advice to be given, patient preparation, sample collection and interpretation of the report. (50 Marks)



- 5.3. No abnormalities were detected in the test done in 5.1. She was followed up and was diagnosed to have diabetes mellitus after few years. She was treated with insulin. One day, she suddenly developed tremors, palpitations, headache, hunger, and fatigue and loss of consciousness while on treatment. What is this condition? (10 Marks)
- 5.4. Give the most probable cause for the condition mentioned in 5.3 in this patient. (10 Marks)
- 5.5. List two tests that can be done in this patient to confirm the cause given in 5.4 giving the abnormalities that are expected. (20 Marks)
6. A 50 year old gentleman with hypertension and diabetes presented to the medical clinic. He was advised to do lipid profile.
- 6.1. What advice will you give to the patient on preparation for lipid profile test? (20 Marks)
- 6.2. List two precautions you will take when collecting blood for lipid profile (10 Marks)
- 6.3. What components of lipid profile are routinely analyzed in the clinical laboratory? (7.5 Marks)
- 6.4. Give the formula that is used for calculated parameters in lipid profile. (12.5Marks)
- 6.5. List two advantages of Apo A1/B100 ratio over the lipid profile. (10 Marks)
- 6.6. Describe the principle of the method used to estimate triacylglycerol in routine laboratory.. (40 Marks)