



UNIVERSITY OF JAFFNA, SRI LANKA
FACULTY OF ALLIED HEALTH SCIENCES
THIRD YEAR FIRST SEMESTER EXAMINATION IN BScHons (MLS)-2022
MLSCB 3126 CLINICAL BIOCHEMISTRY II
PAPER II

Date: 12.01.2024

Time: 2 Hours

ANSWER ALL THE QUESTIONS

ANSWER EACH QUESTION, IN SEPARATE ANSWER BOOKS

1. A 35 year old woman presented to the Outpatient Department with features suggestive of Hypothyroidism. She was referred to the Endocrine clinic for further investigations and management.
 - 1.1 Name the 1st line screening test in this condition and give reasons for choosing that test. (20 marks)
 - 1.2 Mention what generation assay is needed to be used as the single screening test for thyroid dysfunction (both for hypothyroidism and Hyperthyroidism) (05 marks)
 - 1.3 Thyroxine treatment was started for this patient and testing for monitoring treatment efficacy, was ordered in 2 weeks. Explain the reason why the screening test cannot be used in 2 weeks after initiation of therapy and name the test that can be used if early monitoring is needed. (20 marks)
 - 1.4 Explain briefly the advice that should be given to the patient to prepare for the blood test mentioned in 1.3. (10 marks)
 - 1.5 Explain briefly, the interferences that can occur in thyroid immunoassays and mention the ways to alleviate/ reduce the interferences, if suspected. (45 marks)

- 2.
- 2.1 Explain briefly the use of following hormones in clinical practice.
- 2.1.1 Serum beta human Chorionic Gonadotropin (Beta hCG). (25 marks)
- 2.1.2 Plasma intact Parathyroid hormone (iPTH). (25 marks)
- 2.2 Explain patient preparation, sample collection, collection containers and transport of the following tests:
- 2.2.1 Ionized calcium. (25 marks)
- 2.2.2 Stool for occult blood. (25 marks)
3. A 38 year old man was diagnosed with Hypertension. As he was a young hypertensive patient, investigations were done to exclude causes for young Hypertension.
- 3.1 List **four (04)** causes for Endocrine Hypertension. (20 marks)
- 3.2 Briefly describe all possible tests done in Chemical Pathology Laboratory to differentiate all four causes mentioned in 3.1. Include wherever needed, preparation, sample type and containers used to collect samples, if any additives needed for the containers and if special sample transport conditions are needed. Include 1st line tests and further tests involved for all four causes mentioned in 3.1. (80 marks)
- 4.
- 4.1 A synovial fluid sample was sent to your laboratory for testing.
- 4.1.1 List **four (04)** indications for synovial fluid analysis. (10 marks)
- 4.1.2 The colour and clarity are observed as the 1st step of testing. Mention the colour, clarity for the **normal joint fluid** and **two (02)** of the conditions mentioned in 4.1.1. (15 marks)
- 4.1.3 Describe the microscopic examination features including polarized microscopy of **two (02)** crystals that can be found in the synovial joint fluid in pathological conditions. (20 marks)
- 4.1.4 List **two (02)** biochemical tests that can be done in synovial fluid (05 marks)



- 4.2 A 25 year old obese, married woman with two years of subfertility history, attended the subfertility clinic. The attending doctor suspected Polycystic ovarian syndrome (PCOS).
- 4.2.1 List **five (05)** investigations that will be done in Chemical Pathology laboratory and explain briefly the expected changes in those test reports in Polycystic ovarian syndrome. (20 marks)
- 4.2.2 List **five (05)** other tests that can be done to exclude other causes of subfertility in this patient. (10 marks)
- 4.2.3 All investigations on this woman were normal and male subfertility was suspected.
- 4.2.3.1 Name the first line test done in male subfertility (05 marks)
- 4.2.3.2 Mention the advice given to the patient's husband on preparation, sample container and sample collection for the test mentioned in 4.2.3.1 (15 marks)
5. An external quality assurance programme (EQA)/ Proficiency testing (PT) is essential for a clinical laboratory, even though internal quality control is used regularly.
- 5.1 Briefly explain the essential features that should be present in an EQA/PT programme you are planning to implement in your laboratory. (30 marks)
- 5.2 List **two (02)** alternatives that can be used, if a formal External quality assurance programme is not available for urine microscopy. (10 marks)
- 5.3 List **four (04)** important practices to be taken care of while handling and testing Proficiency testing sample. (10 marks)
- 5.4 Urine Chemistry PT programme is followed by your laboratory and the report for Magnesium is given below. Comment on this report given below, highlighting each component you will see in the report and interpret them. (50 marks)