UNIVERSITY OF JAFFNA, SRI LANKA

BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES

FIRST YEAR SECOND SEMESTER EXAMINATION- AUGUST 2017

MLSCB 1206 CLINICAL BIOCHEMISTRY I

PAPER II

DATE: 16.08.2017 **TIME: 02 Hours**

ANSWER ALL EIGHT QUESTIONS

ANSWER EACH PART IN SEPARATE ANSWER BOOKS.

PART A

1.

1.1. Explain five properties that could be considered to select a buffer solution. **(25Marks)**

1.2.

1.2.1. List two buffers used in cation exchange chromatography. **(10 marks)**

1.2.2. Explain how you would prepare one of the buffer solutions mentioned in 1.2.1. **(40 marks)**

1.3. Give the working principles of ion exchange chromatography. **(25Marks)**

2. Blood sample was sent to your laboratory with a brief history of yellowish discoloration of skin, dark colour urine and pale colour stool.

2.1. What biochemical parameter would you perform? **(20 marks)**

2.2. Explain how would you estimate the above mentioned parameter. **(40 marks)**

2.3. Briefly describe the biochemical basis of above symptoms. **(40 marks)**

3. Write short notes on

3.1. Gel electrophoresis **(25 marks)**

3.2. Estimation of Serum Urea **(25 marks)**

3.3. Plasma free metanephrines **(25 marks)**

3.4. Respiratory acidosis **(25 marks)**

4. A 55 year old male suffering from chronic obstructive pulmonary disease was brought to emergency in a critical state with extreme difficulty in breathing. You are requested to perform the blood gas analysis.

4.1. List 4 indications to perform blood gas analysis. **(20 marks)**

4.2. What are the precautions you would take during phlebotomy procedure? **(20 marks)**

4.3. A report of blood gas analysis of the above mentioned patient is given as follows.

			Normal range
pH	-	7.3	7.35 – 7.45
PCO_2	-	46 mmHg	35 – 45 mmHg
PO_2	-	55 mmHg	75 – 100 mmHg
HCO_3^-		24 mEq/L	22 – 26 mEq/L

4.3.1 What is the condition of above mentioned patient? **(05 Marks)**

4.3.2 Describe the interpretation of above ABG report. **(40 Marks)**

4.3.3 What are the causes for the above mentioned condition? **(15 Marks)**

5 5.1.

5.1.1 List three indications for Oral Glucose Tolerance Test (OGTT). **(10 marks)**

5.1.2 Explain how you would prepare the patient for OGTT. **(25 marks)**

5.1.3 Give the principle of the specific method used to measure the plasma glucose. **(35 Marks)**

5.2 Write short notes on estimation of serum glutamate pyruvate transaminase. **(30 Marks)**

6 6.1.

6.1.1 Give the biochemical principle of the Aminophenazone method for analyzing faecal occult blood. **(25 Marks)**

6.1.2 How would you instruct a patient to collect the stool sample for the test mentioned in 6.1.1. **(25 Marks)**

6.1.3 List four causes which can lead to false positive results in the above mentioned test. **(20Marks)**

6.2. Briefly describe the precautions which would be taken in urine analysis by using urine strips. **(30 Marks)**

PART B

7.

7.1 List **three** indications for cerebrospinal fluid analysis. **(15 Marks)**

7.2 List **two** qualities that a sample collection container for cerebrospinal fluid (CSF) should possess. **(20 Marks)**

7.3 List **two** types of counting chambers that can be used for cerebrospinal fluid cell counting. **(20 Marks)**

7.4 When should the blood be collected for random plasma glucose measurement while doing lumbar puncture for CSF collection? **(15 Marks)**

7.5 Give **two** important causes for very high cerebrospinal protein level. **(20 Marks)**

7.6 What test will you perform in cerebrospinal fluid to aid in the diagnosis of multiple sclerosis? **(10 Marks)**

8. Write short notes on the following

8.1 Westgard multi rules **(50 Marks)**

8.2 Specimen collection and handling of urine for urine full report **(50 Marks)**