0060

THE OPEN UNIVERSITY OF SRI LANKA

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF MEDICAL LABORATORY SCIENCES

ACADEMIC YEAR 2023/2024 – SEMESTER II

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS

MDU4303 – CLINICAL BIOCHEMISTRY II

FINAL EXAMINATION **DURATION: 3 HOURS**

DATE: 24.10.2024 **TIME: 9.30 AM -12.30 PM**

INDEX NO: .....

Part B: Structured Essay Questions (40 marks)

Q1. Diabetic nephropathy is the leading cause of kidney disease in patients with type 1 and type 2 diabetes. The stages of diabetic nephropathy are categorized as microalbuminuria and macroalbuminuria.

1.1 a) What is microalbuminuria? (01 mark)

.....

b) Urine microalbumin test by analyser showed a normal result in a patient with long standing diabetes mellitus. However, when checked with a urine dip stick urinary protein level was ++. The positive results were further confirmed by sulphosalicylic method. State one possibility with a brief description. (02 marks)

.....

.....

.....

c) Briefly explain the advantage of reporting urine albumin excretion as albumin: creatinine ratio (ACR) compared to reporting the concentration of albumin in urine alone. (1.5marks)

.....

.....

1.2 a) List two (02) equations used to calculate estimated glomerular filtration rate (eGFR). (01 mark)

.....

b) State additional data needed to calculate eGFR, using the equations mentioned in 1.2 (a)? (01 mark)

.....

1.3 Briefly describe the principle of Biuret method used in serum protein assay. (1.5 marks)

.....

.....

.....

1.4 Draw and label the densitometry pattern of serum protein electrophoresis in a patient with nephrotic syndrome. (02 marks)

.....

.....

.....

.....

(Total 10 marks)

Q2. Biochemical analysis of cerebrospinal fluid (CSF) aids in the diagnosis of diseases related to central nervous system.

2.1 a) State the normal value of glucose in CSF? (01 mark)

.....

b) What is the relationship between plasma glucose and CSF glucose? (01 mark)

.....

.....

2.2 List four (04) changes that can occur in a CSF sample on standing. (02 marks)

.....

.....

.....

.....

2.3 Briefly describe how you differentiate between CSF specimens obtained from patients with a traumatic tap and subarachnoid hemorrhage. (04 marks)

	Traumatic hemorrhage	Subarachnoid hemorrhage
Reason		
Distribution of blood in three tubes		
Clot formation		
Colour of supernatant following centrifugation		

2.4 Briefly discuss the diagnostic value of CSF lactate. (02 marks)

.....

.....

.....

(Total 10 marks)

Q3. Fluid was collected from a diagnosed patient with right lower lobe pneumonia by thoracentesis and was sent to the laboratory for investigation.

3.1 What is the type of fluid collected in above mentioned patient? (01 mark)

.....

3.2 Fill the table given below including the differences between a transudate and an exudate. (04 marks)

Feature	Transudate	Exudate
Mechanism of formation		
Protein concentration		
Presence of a clot		
Cell count		
LDH level		

3.3 Define the term steatorrhea? (0.5 mark)

.....

3.4 a) List three (03) types of faecal fat? (1.5 marks)

.....

.....

b) Mention one indication for measurement of each type mentioned in 3.4 (a). (1.5 marks)

.....

.....

c) How do you differentiate between the different types of faecal fat mentioned in 3.4 (a)? (1.5marks)

.....

.....

.....

(Total 10 marks)

Q4.

4.1 Fill the table given below including the required details of four (04) hormones related to female reproductive system. (04 marks)

Hormone				
Specimen				
Precautions during sample collection if relevant				

4.2 Briefly describe the changes that occur in the hormones mentioned in "4.1." during the normal menstrual cycle. (02 marks)

.....

.....

.....

.....

.....

.....

4.3 List (04) causative factors that results in subfertility in a female giving two (02) clinical conditions for each factor. (02 marks)

.....

.....

.....

.....

.....

.....

.....

4.4 State the clinical significance of the anti-sperm antibody test. (02 mark)

.....

.....

(Total 10 marks)

Part C: Essay Question. (30 marks)

Answer the question within the space provided.

Q1. Write an account on lipid profile. (15 marks)

Q2. Write short notes on

a) patient preparation and specimen collection for feacal occult blood (Guaiac test). (10 marks)

b) specimen collection for seminal fluid analysis. (5 marks)

****