

Name:

Enrolment No:



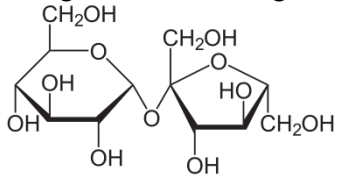
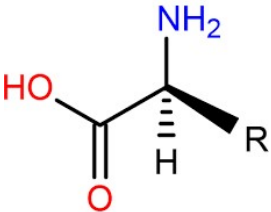
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2023,

Set 2

Course: Nutritional Biochemistry
Program: M.Sc. (FND)
Hours Course Code: HSND7001
100

Semester: 1st
Duration: 3
Max. Marks:

Instructions: Read all questions carefully.

S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
Q			
1	Define the Mutarotation.	1.5	CO 1
2	Discriminate between D and L Isomers.	1.5	CO 1
3	Sketch the structure of Glucose.	1.5	CO 1
4	Give the example of Disaccharide sugar.	1.5	CO 1
5	Recognize the following structure: 	1.5	CO 1
6	Write where the Beta-oxidation of fatty acids occurs.	1.5	CO 1
7	Identify the below structure: 	1.5	CO 1
8	Predict the LDL related disorders.	1.5	CO 1
9	How many total molecules of ATP are synthesized in glycolysis of a single molecule of glucose?	1.5	CO 1
10	Draw the triglyceride structure.	1.5	CO 1
11	Write the name of the gland which is responsible for producing the hormone insulin.	1.5	CO 1
12	The thyroid gland produces two important hormones called.....	1.5	CO 1
13	Outline the main function of the Enzyme.	1.5	CO 1

14	Define the function of phospholipids in biological membranes?	1.5	CO 1
15	State the primary function of triglycerides in the body.	1.5	CO 1
16	Which type of lipid is the primary component of the lipid bilayer in cell membranes?	1.5	CO 1
17	What is the final electron acceptor in the Electron Transport Chain?	1.5	CO 1
18	In the Electron Transport Chain, electrons are passed through a series of protein complexes, write their names.	1.5	CO 1
19	What is the significance of vitamins in nutrition?	1.5	CO 1
20	Name the hormone regulates blood sugar levels and which is produced by the pancreas?	1.5	CO 1

Section B (4Qx5M=20 Marks)			
1	Sketch the krebs cycle and write the step by step intermediates formation and highlight the enzymes name.	5	CO 3
2	Classify the proteins. Point out the function of protein in the human body.	5	CO 2
3	Discuss the major categories of hormones based on their chemical structure and provide examples for each category.	5	CO 3
4	Explain the functions of lipids in the human body, including energy storage, insulation, and cell membrane structure.	5	CO 2
Section C (2Qx15M=30 Marks)			
1	<p>Mayra, a 35-year-old women, has recently been diagnosed with Type 2 Diabetes. She had been experiencing symptoms such as increased thirst, frequent urination, and unexplained weight loss, prompting him to seek medical attention.</p> <p>(a) Define the test need to be conducted, which confirmed the diagnosis of Type 2 Diabetes. (b) How does Type 2 Diabetes affect glucose metabolism. (c) Suggest the Lifestyle Modification need to be followed by the person.</p>	15	CO 3
2	<p>Smitha, a 39-year-old woman, presented to her healthcare provider with complaints of fatigue and shortness of breath during routine activities. She has a family history of heart disease and was recently diagnosed with a lipid disorder.</p> <p>(a) Analyze the potential causes of her lipid disorder. (b) How are lipid storage diseases diagnosed and treated? (c) State the impact on her cardiovascular health due to the high level of LDL.</p>	15	CO 3
Section D (2Qx10M=20 Marks)			
1	Describe the process of glycolysis. Explain the significance of glycolysis in cellular energy production, and discuss any key enzymes and molecules that play a critical role in this pathway.	10	CO 2
2	<p>Explain the ETC in cellular respiration in detail, highlighting its organization and function within the mitochondria. (5)</p> <p>Discuss the role of each of the protein complexes, coenzymes, and electron carriers involved in the ETC. (5)</p>	10	CO 2