

Reg. No.:



Name:

University of Kerala

U9045

Second Semester FYUGP Degree Examination, April 2025

Discipline Specific Core Course

CHEMISTRY

UK2DSCCHE106 - GENERAL CHEMISTRY - II

Academic Level: 100-199

Time: 1 Hour 30 Minutes(90 Mins.)

Max. Marks: 42

Part A. 6 Marks.Time:6 Minutes.(Cognitive Level:Remember(RE)/Understand(UN)) Objective Type. 1 Mark
Each.Answer all questions

Qn No.	Question	CL	CO
1	List the types of carbon nanotubes based on their structure	RE	1
2	What is producer gas?	RE	4
3	What are lipids?	UN	3
4	Explain atom economy.	UN	2
5	How is the calorific value of a fuel measured, and why is it important?	UN	4
6	Explain the classification of nanomaterials based on dimension.	UN	1

Part B.8 Marks.Time:24 Minutes.(Cognitive Level:Understand(UN)/Apply(AP))Short Answer. 2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	Explain protein denaturation.	UN	3
8	Discuss a short note on Lycurgus cup.	UN	1
9	Calculate the atom economy of the following substitution reaction: $\text{CH}_3\text{CH}_2\text{OH} + \text{HBr} \rightarrow \text{CH}_3\text{CH}_2\text{Br} + \text{H}_2\text{O}$ (Molar masses: C = 12, H = 1, O = 16, Br = 80)	AP	2
10	Differentiate Chemical Oxygen Demand with Biological Oxygen Demand.	AP	4

Part C. 28 Marks.Time:60 Minutes (Cognitive Level:Apply(AP)/Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer.7 marks each.Answer all 4 Questions choosing among options * within each question

Qn No.	Question	CL	CO
11	A) Why are carbon nanotubes considered a groundbreaking scientific achievement of modern nanotechnology? Explain their applications OR B)	AP	1, 1

Qn No.	Question	CL	CO
	Apply your knowledge of nanoscience to identify and explain examples of nanosystems in nature, and describe how these natural systems inspire technological innovations.		
12	A) Analyze the structure of following disaccharides:(i) Maltose and (ii) Lactose OR B) Analyse on the primary, secondary, tertiary and quaternary structure of proteins and explain its functions.	AN	3, 3
13	A) Evaluate the application of green chemistry principles contribute to sustainable development by promoting environmentally friendly and economically viable chemical process. OR B) Chemical industries contribute a lot to environmental pollution. Evaluate the importance of green chemistry in reducing the pollution.	EV	2, 2
14	A) Devise a low-cost water purification system using synthetic resins to remove pollutants from wastewater and create a diagram and workflow model of an electrodialysis-based treatment plant for saline water. OR B) Design a strategy to reduce pollution in your area. Include innovative solutions to improve air and water quality.	CR	4, 4