Graphic Era HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

Term Evaluation (Even) Semester Examination March 2025

Roll no.....

Name of the Course: Diploma
Semester: 2nd
Name of the Paper: Applied Chemistry - II
Paper Code: DTCH 203
Time: 1.5 hour **Maximum Marks: 50**
Note:
(i) Answer all the questions by choosing any one of the sub-questions
(ii) Each question carries 10 marks.

Q1. (10 Marks)

a. Give classification of polymers with suitable examples. List out the difference between LDPE and HDPE. **(CO1)**

OR

b. Write about the disadvantages of hard water. How lime soda process can be used in the softening of water, explain with chemical reactions. **(CO2)**

Q2. (10 Marks)

a. Differentiate in detail between addition and condensation polymerization processes. Explain with suitable examples. **(CO1)**

OR

b. Write in detail about the different mechanisms (Cationic, anionic, & free radical) involved in the process of polymerization. **(CO1)**

Q3. (10 Marks)

a. Explain the principle and procedure involved in the zeolite process for the treatment of hard water. Also write it's the advantages and disadvantages. **(CO2)**

OR

b. How the hardness of the water can be determined by the EDTA method, explain in detail with suitable chemical reactions. **(CO2)**

Q4. (10 Marks)

a. Discuss the properties and applications of thermoplastics and thermosetting plastics. Provide suitable examples of each. **(CO1)**

OR

b. One gram of $CaCO_3$ was dissolved in dil. HCl and the solution diluted to one liter. 100 mL of this solution required 90 mL of EDTA solution, while 100 mL of the sample of water required 40 mL of EDTA. On the other hand, 100 mL of boiled sample water when titrated against EDTA consumed 20 mL of solution. Calculate each type of hardness in ppm. **(CO2)**

Q5. (10 Marks)

a. Describe the synthesis, properties, and uses of important industrial polymers such as Polyethylene (PE), and Polystyrene (PS). **(CO1)**

OR

b. Explain the principle and process of Reverse Osmosis (RO) in water purification. **(CO2)**