End Sem Examination -2025

Paper Code: SEC0324603N/SEC0311903/SEC0322503N

Green Chemistry

Full Marks: 30 *Time: 2 h*

1. Answer any **Five** of the following question 1×5 = 5
   a) Give an example of solvent suitable for microwave assisted reaction.
   b) What is atom economy?
   c) What is zero-waste technology?
   d) Give an example of green alternative for polyacrylate (PAC).
   e) State 11th principle of green chemistry.
   f) From which compound, we can synthesize Catechol in greener way?
   g) Mention two uses of Paracetamol.

2. Answer any **Five**. 2×5 = 10
   a) What is homogeneous catalyst? Give one example with reaction.
   b) Write a green method for synthesizing anisole (methoxybenzene) from phenol.
   c) $CH_3CH_2OH + SOCl_2 \rightarrow CH_3CH_2Cl + SO_2 + HCl$
   Despite of 100% yield the above reaction is not considered green. Explain.
   d) How nitrous oxide cause the destruction of ozone layer? Write the necessary reactions.
   e) Explain the health concerns related to the conventional synthesis of Adipic Acid.
   f) Write Down the scheme of Synthesis of Benzyl Bromide that gives 100% yield.
   g) Write a short note on the following **(any one)**
      i) Bhopal gas tragedy.
      ii) Minamata disease
      iii) Chernobyl disaster

3. Answer any **Three**. $3 \times 5 = 15$

a) Write differences between conventional heating and microwave heating.

b) What is atom utilization? With example show that addition reactions are more economical than substitution reaction.

c) What is E-factor? Why catalytic oxidation process is environmentally more benign than stoichiometric oxidation?

d) Write down the conventional method of synthesis of Adipic Acid and write down the greener method. Why the conventional method is not generally preferred? (2+ 2 +1)

e) Write down the conventional method and green method of synthesis of Methyl Methacrylate. Mention the atom economy of both the processes. (2+ 2 + 1)

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