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ACS 554

IV Semester M.Sc. Degree Examination, September/October 2022
(CBCS Scheme 2016 – 17 Syllabus)
(Freshers and Repeaters)
APPLIED CHEMISTRY
Synthetic Polymers, Dyes and Pesticides

Time : 3 Hours

Max. Marks : 70

PART – A

1. Answer **all** the following sub-questions : **(9×2=18)**
- a) Write any four differences between addition and condensation polymerization.
 - b) Explain the relative tensional strength of polyethene and polystyrene using the concepts of bonding and flipping power.
 - c) Explain ring opening polymerization using an example.
 - d) Write the structure and application of Naphthol blue black-6B.
 - e) What are optical brighteners ? Give an example.
 - f) Write the structure and explain uses of methyl orange.
 - g) Write the structure and general application of Beygon.
 - h) Explain the toxicity of insecticides with examples.
 - i) What are systemic fungicides ? Give examples.

PART – B

Answer **any four full** questions : **(4×13=52)**

2. a) Write the mechanism of coordination polymerization using an example.
- b) How are polymers classified based on response to heat ? Write their properties and applications of such polymer types.
- c) Write a note on structure and properties of polycarbonates and polyamides.

(3+5+5)

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3. a) Describe the various methods used for controlling molecular weight of polymers.
- b) Give an account of types of copolymerization. How do you estimate monomer reactivity ratio ? Explain the factors affecting reactivity of monomer during free radical polymerization.
- c) Write the preparation, properties and applications of epoxy resin and urea-formaldehyde resins. (3+5+5)
4. a) Outline the synthesis of Bismark brown.
- b) Describe Witt's theory of colour and constitution of dyes.
- c) Write the synthesis of Chrysoidin G and Crystal violet. (3+5+5)
5. a) Describe the classification of dyes using suitable examples.
- b) Explain the synthesis and applications of Cyanin blue and Quinaldine.
- c) Write a note on optical brighteners. (3+5+5)
6. a) Explain the structure, isolation and application of natural pyrethrins.
- b) Write the synthesis and properties of heptachlor and parathion.
- c) Write a note on sulphonyl urea and heterocyclic sulphonamides. (3+5+5)
7. a) Give classification and general mode of action of insecticides.
- b) Write the synthesis of Diazinon and chlordane.
- c) Explain the synthesis and use of grandisol. (3+5+5)
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