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Winter, 2024

M.Pharm 2nd Semester Examination

ADVANCED ORGANIC CHEMISTRY - II

Course Code: MPC202T

Full Marks – 75 **Time – 3 hours**

1. **Answer the following Questions:** **2x5=10**

   a) Explain the principal laws of photochemistry.

   b) Explain the term catalytic promoter with example.

   c) Write down two reactions using Wilkinson catalyst and Ziegler Natta catalyst.

   d) Differentiate HOMO and LUMO in frontier molecular orbital theory.

   e) Draw the structures of two biocatalysts.

2. **Answer the following Questions:(Any seven)** **7x5=35**

   a) Classify pericyclic reaction. Differentiate [2+2] and [4+2] cycloaddition reaction.

   b) Synthesise a dipeptide in solid phase using resins and explain the mechanism step wise.

   c) Describe the side chain reactions of peptide synthesis.

   d) Explain enzymatic catalysis in organic synthesis citing proper example.

   e) Differentiate homogeneous and heterogeneous catalysis with advantages and disadvantages.

   f) List out and explain various application of synthetic peptides.

   g) Explain R &S and E&Z system of nomenclature citing proper example.

   h) Explain the theory and application of phase transfer catalysis citing example.

   i) Explain the term cavitation in sono chemistry. Write down the principle and application of ultrasound in organic synthesis.

3. **Answer the following Questions:(Any three)** **10x3=30**

   a) Calculate atom economy of any two reactions compared with green chemistry approach and conventional method. Explain the principle of microwave synthesis. 6+4=10

   b) Describe the Methods of asymmetric synthesis using chiral pool and chiral auxiliaries. Write down four methods of resolution of racemates. 8+2=10

c) Explain any five principles of green chemistry citing proper example.(10)

d) Explain the principle and instrumentation of continuous flow reactor with diagram. Write down any two drugs synthesis using continuous flow reactor. (6+4=10)