(d) Examine whether $[2\pi s + 2\pi s]$ cycloaddition reactions are thermally or photochemically allowed using correlation diagram and PMO method. 8

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2024

M.Sc. 2nd Semester Examination (Old)

CHEMISTRY (CCAE)

PAPER : CEM-202

Full Marks : 40

Time : 2 hours

1. Answer *any* **four** questions : 2×4=8

(a) What do you mean by synthon? Give an example.

(b) What is Chichibabin reaction? Give an example.

(c) What do you mean by axial chirality? Give an example.

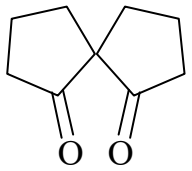
(d) What do you mean by asymmetric induction?

(e) What is Birch reduction? Explain with an example.

(f) What do you mean by Hückel and Mobius array?

2. Answer *any* **four** questions : 4×4=16

(a) Give the retrosynthetic analysis as well as the forward synthesis for the following compound :



(b) How will you synthesize anti-diol using Prevost reaction and syn-diol using Woodward modification of the same reaction?

(c) What is cycloreversion reaction? Give two examples of cycloreversion reaction.

(d) Discuss the Woodward Hoffmann rules for cycloaddition reactions.

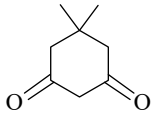
(e) Explain 2-alkyl ketone effect with an example.

(f) How can peptides be synthesized using Merrifeld resin? What is Bayer Villiger oxidation reaction?

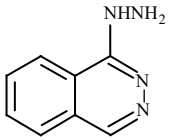
3. Answer *any* **two** questions : 8×2=16

(a) Using retrosynthetic approach, how will you synthesize the following compounds? 4+4

(i)

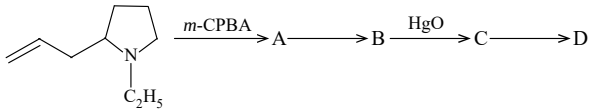


(ii)

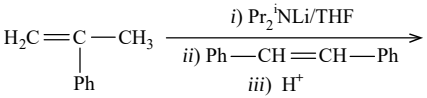


(b) Predict the product(s) with plausible mechanism : 4+4

(i)



(ii)



(c) *(i)* What is Sharpless Assymetric epoxidation? 4

(ii) What do you mean by atropisomerism? Explain with an example. 4