Chemistry (P.G.)

[CBCS]

M.Sc. Fourth Semester End Examination-2024

(Regular & Supplementary Paper)

PAPER- CEM 403

Advanced Organic Chemistry-IV (Organic Spl.)

Full Marks: 40 ***Time: 02 Hrs***

The figures in the right hand margin indicate marks.

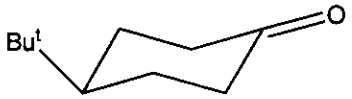
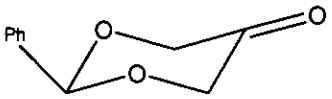
Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Group-A

Answer any four of the following question **4x2=8**

1. Explain the relative yields of axial product formation using modern concept of nucleophilic addition

Relative yields of axial attack		
CH_3MgBr	45	98
EtMgBr	31	98

2. What do you mean by cofactor of enzyme? Give a suitable example.

3. Write down the basic differences between enzymes and general reaction catalysts.
4. What are the advantages of Ionic Liquid Technology in enzyme catalyzed reaction?
5. What is/are the symmetry elements present in trans-decalin?
6. How many stereoisomers are possible for perhydroanthracenes?
7. Write down the basic differences between CD and ORD.

Group-B

Answer any four of the following question **4x8 = 32**

8. a). Explain graphically the change of activity of enzyme with temperature.

   b). What is the difference between catalytic site and active site of enzyme?

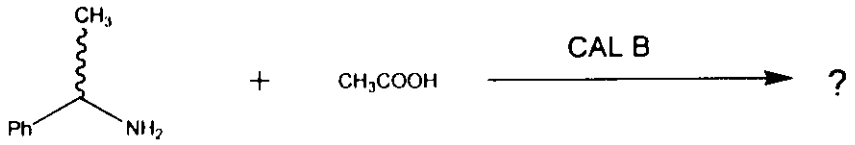
   c). Write a short note on induced fit model of enzyme. 3+2+3 = 8

9. a). Briefly discuss three ways by which enzymes can activate some biological reactions.

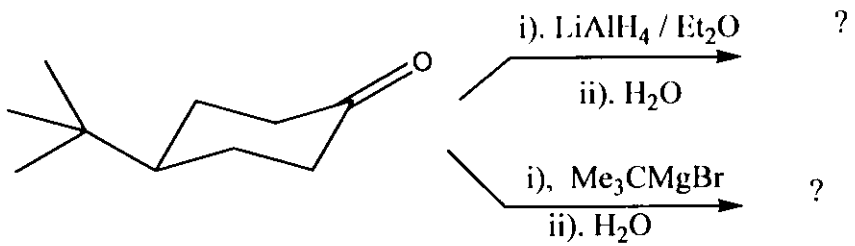
   b). What is E factor and EC number? What does EC number signify for a enzyme catalysed reaction? Cite one example.

   3+(2+3)=8

10. a). What is CAL B? Predict the product and explain its high enantioselectivity.



b). Predict the product(s) and explain the stereoselectivity indicating major product.



3+5=8

11. a). What kind of information can be obtained from CD spectrum of a substance? What are the basic contaminants found during the sample preparation of CD?

    b). Explain how chirality of a molecule can be interpreted by the CD and ORD spectra of a molecule.

    c). What is Brewster's angle? 3+3+2=8

12. a). What kind of information can be obtained from CD spectrum of a substance? What are the basic contaminants found during the sample preparation of CD?

    b). Define mean residue ellipticity. Explain it by drawing a CD curve. What is its unit? What is crossover point in a ORD curve?

    3+(1+2+1+1)=8

13. a). Briefly describe the "Felkin-Anh model" for nucleophilic addition to carbonyl group.

b). Draw the structures of cis (c) cis and trans (c) trans perhydrophenanthrenes and discuss their stere-ochemical features.

4+4=8