Reg. No ..... Name **18P119**

M.Sc DEGREE END SEMESTER EXAMINATION - NOVEMBER 2018

SEMESTER 1 : CHEMISTRY / PHARMACEUTICAL CHEMISTRY

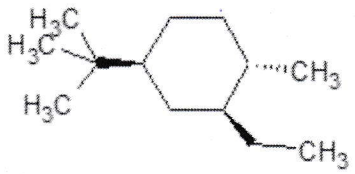
COURSE : **16P1CHET02 / 16P1CPHT02 ; BASIC ORGANIC CHEMISTRY**

(For Regular - 2018 Admission & Supplementary - 2016 / 2017 Admissions)

Time : Three Hours Max. Marks: 75

Section A
Answer any 10 (2 marks each)

1. Explain Norrish type II reaction citing an example.
2. Explain any one photochmical reaction of azo group.
3. Draw the preferred conformation of propanal. Justify your answer
4. The most stable conformation of ethylene chlorohydrin is gauche. Why?
5. View a butane molecule along the C2-C3 bond and provide a Newman projection of the lowest energy conformer.
6. In the lowest energy conformation of the compound below, how many alkyl substituents are axial?



7. Differentiate between isometric and anisometric molecules. Give examples.
8. Apply Hammod postulate to explain the geometry of the TS in a S_N2 reaction.
9. What is β-kinetic isotope effect ?
10. Write Hammett equation and explain the terms involved.
11. What is hyperconjugation? Give an example.
12. Give the structural formula of
    a) 3-ethyl-2-methyl pentane b) Bicyclo [1.1.0] butane
13. Explain sterric inhibition of resonance with suitable example?

(2 x 10 = 20)

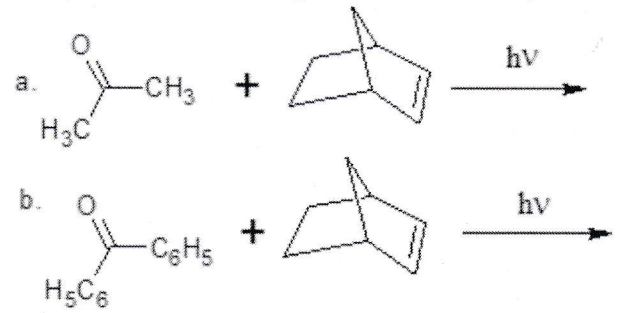
Section B
Answer any 3 (5 marks each)

14. For a pair of diastereomers, meso form is stable than the active form. Prove that this concept is true taking a suitable example.,
15. What are the different methods for the determination of configuration of geometrical isomers? Explain with examples.
16. What are crossover experiments? Illustrate with an example how this tool can be used to elucidate reaction mechanisms in Organic chemistry.
17. Give a detailed account of solvent isotope effect

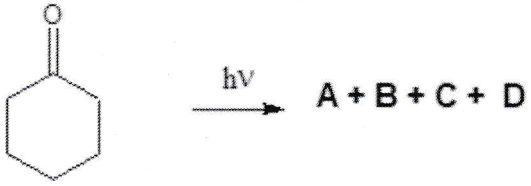
Section C

Answer any 2 (5 marks each)

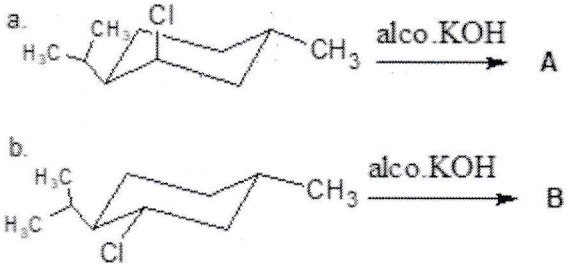
18. Complete the following reactions and explain the theory behind them.



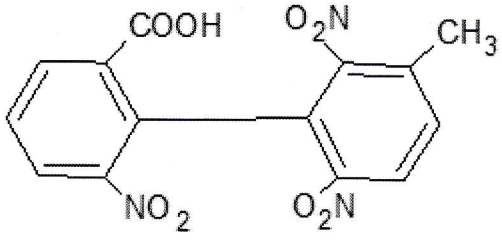
19. Complete the reaction:-



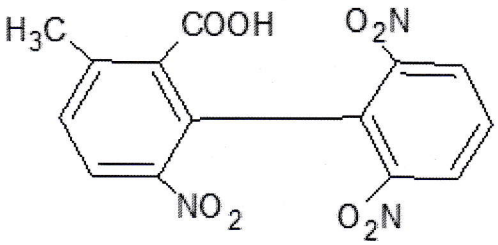
20. Comment on the relative rates of the following reactions . Draw the configuration of the products A and B formed. How are they related?



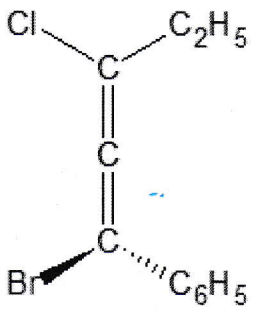
21. Classify the following molecules into optically active and optically inactive. Rationalise your answer.



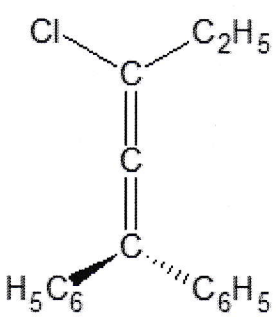
a.



b.



c.



d.

(5 x 2 = 10)

Section D

Answer any 2 (15 marks each)

22. Discuss in detail the effect of conformation on dehydration, dehydrohalogenation and pyrolitic eliminations taking any two examples for each type of reactions.

23. Discuss the stereochemistry of sulphur compounds, cyclophanes, intramolecular overcrowded molecules and cycloalkenes

24. Explain the prominent mechanisms based on base catalyzed ester hydrolysis and acid catalyzed acetal formation with suitable examples.

25. (a) Explain Huckel's rule of aromaticity and Craigs rule?
    (b) Discuss NMR and aromaticity.

(15 x 2 = 30)