

Roll No.

Total No. of Pages : 02

Total No. of Questions : 19

M.Sc. (Chemistry) (Campus) (2015 to 2017) (Sem.-3)
PHOTOCHEMISTRY AND PERICYCLIC REACTIONS
Subject Code : CHL-501
M.Code : 74888

Time : 3 Hrs.

Max. Marks : 70

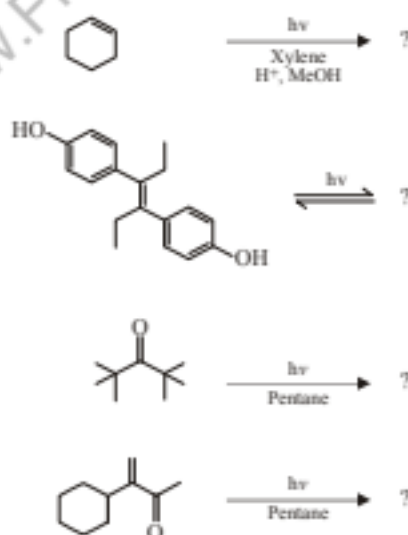
INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying FIVE marks each and students have to attempt ALL questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. What is the function of actinometry?
2. What do you mean by Quantum yield?
3. Write statement of Franck-Condon principle.
4. Draw HOMO and LUMO orbitals of 1,3-butadiene.
5. What is Fluxional Tautomerism?
6. What do you mean by electrocyclic reaction?

(7-10) Write the possible product(s) for following reaction :



SECTION-B

11. Discuss *cis-trans* isomerization of alkene with suitable examples.
12. Discuss cyclization reaction of alkene by citing suitable examples.
13. What is Norrish type II reaction? Explain possible pathways available for photoexcited carbonyl compounds to convert into different products by taking suitable example(s).
14. Discuss rearrangement reactions of cyclohexadienones.
15. Draw correlation diagram for photochemical ring closure of hexa-1,3,5-triene to cyclohexa-1,3-diene.
16. Write brief explanatory note on followings :
 - a) 1,3 -Dipolar cycloaddition
 - b) Conrotatory and disrotatory motions

SECTION-C

17. Discuss in detail various radiative and non-radiative processes by which a molecule in the excited state can return to ground state with special emphasis on kinetics and lifetime of the process. Also discuss concept of intermolecular energy transfer.
18. Write short notes on :
 - a) Sigmatropic rearrangement
 - b) Ene reaction
 - c) Molecular orbitals of 1,3,5-hexatriene
 - d) Cheletropic reaction
19. Write detailed notes on followings :
 - a) Photochemical formation of Smog
 - b) Photochemistry of vision

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.