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PG CBCS
M.SC. Semester-II Examination, 2021
CHEMISTRY
 PAPER: CEM 202
 (ORGANIC SPECIAL)

Full Marks: 40**Time: 2 Hours****Answer any FOUR questions:****10X4=40**

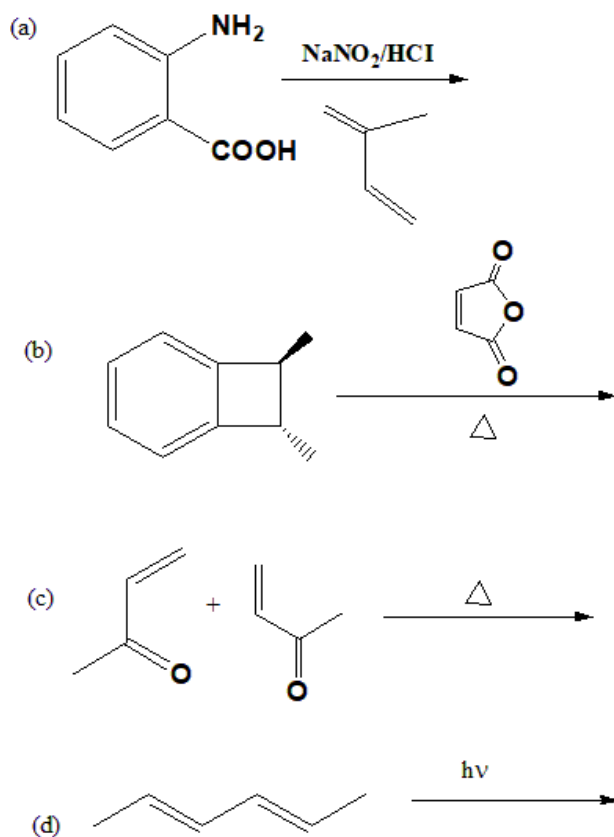
1. Draw the pi-molecular orbitals of (a) ethylene and (b) 1,3-butadiene. Show the configuration of pi electrons in the ground state and the first excited state and identify the HOMO and LUMO of each states. Write down the characteristic features of cycloaddition reactions. 7+3
2. Write down the Woodward-Hoffmann selection rules for cycloaddition reaction. What do you mean by Regioselectivity, Site-selectivity and Peri-selectivity of Diels-Alder reaction? 4+2+2+2
3. Write Short notes on
 (a) Cram's rule (b) Karabatsos rule and (c) Felkin-Anh model. What do you mean by Re-face and Si-face of carbonyl compounds? 3+3+3+1
4. Write notes on 3+3+3+1
 (a) Enantioselectivity, (b) Diastereoselectivity, (c) Stereospecific reaction. What do you mean by Asymmetric induction?
5. Write notes on 5+2.5+2.5
 (a) Sharpless epoxidation, (b) Chichibabin reaction. What do you mean by AD-mix.

(P.T.O.)

(2)

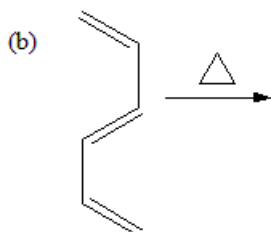
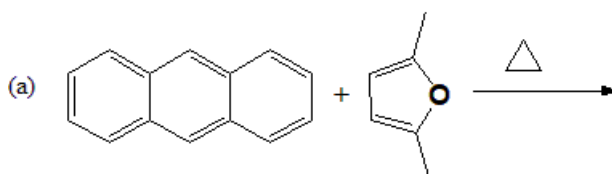
6. Predict the product/s of the following reaction indicating F.O.I

2.5X4



7. Draw Fisher projections for (2R, 3S)-2-bromo-3-chlorobutane and (2S, 3R)-2-bromo-3-chlorobutane. Define Conformational and configurational enantiomers with examples.

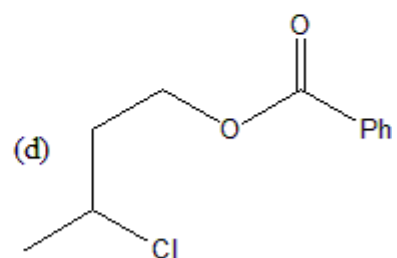
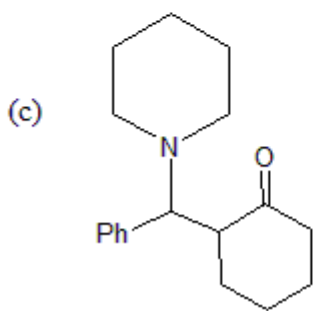
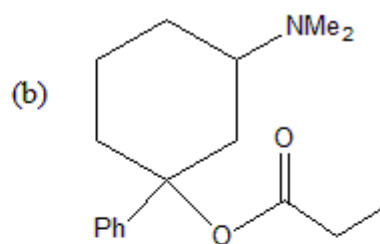
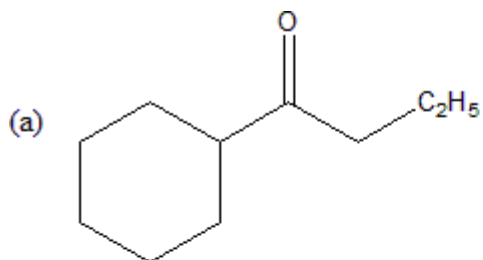
8. Define site selectivity and hence predict the products of the following reaction indicating reason in each case. 2+2+2+4



(P.T.O.)

(3)

8. Propose the retrosynthetic analysis of following compounds: 2.5x4



(b)
