E 5642 (Pages : 2) Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2018

Third Semester

Core Course – FUNDAMENTALS OF ORGANIC CHEMISTRY

(Common for the Programmes of B.Sc. Chemistry Model-I and Model-II, B.Sc. Petrochemicals, B.Sc. Chemistry Environmental and Water Management)

[2013 to 2016 Admissions]

Time : Three Hours Maximum Marks : 60

Part A

Answer **all** *questions.*

Each question carries 1 *mark.*

1. Why double headed arrow is used in representing some organic changes?
2. What is Walden inversion?
3. What is Markownikoff's Rule?
4. Draw the structure of a meso form of 1, 3-dichlorocyclopentane.
5. Name the methods used to distinguish geometrical isomers.
6. Draw the orbital picture of benzene.
7. Name two ring activating groups.
8. What are the products obtained when toluene is nitrated ?

(8 × 1 = 8)

Part B

Answer any **six** *questions.*

Each question carries 2 *marks.*

9. Distinguish between hemolytic and heterolytic bond fission.
10. What is Hoffmann Rule?
11. What is steric effect? How is it affects the reaction rate?
12. Distinguish between addition and elimination reactions.
13. What is the product obtained when one mole of hydrogen bromide is added to 1, 3-butadiene? Discuss.
14. What is meant by conformation?
15. Give an example for distinguishing geometrical isomerism using cyclization.

Turn over

16. What is torsional strain? What is its significance?
17. What are the steps involved in a polymerization reaction?
18. $-NH_2$ group in benzene is meta directing. Show its electronic movements.

(6 × 2 = 12)

Part C

Answer any **four** *questions.*
Each question carries 4 *marks.*

19. Discuss the general rules of assigning the IUPAC names of organic compounds.
20. What are the effects of structure and substrate on S_N1 and S_N2 reactions?
21. Discuss the geometrical isomerism in maleic and fumaric acids.
22. Discuss the general rule for determining R and S notations.
23. What is the electronic interpretation of the reaction of the nitration of nitrobenzene?
24. Briefly explain the mechanism of halogenations of aromatic compounds.

(4 × 4 = 16)

Part D

Answer any **two** *questions.*
Each question carries 12 *marks.*

25. (a) What are reactive intermediates? Give two examples each.
    (b) What are the various electron displacement effects? Discuss with suitable examples.
26. (a) What is resolution? Explain the various methods of resolution.
    (b) Discuss the method of racemisation using tautomerism.
27. (a) Explain the conformation analysis of n-butane.
    (b) Explain the aromaticity of cyclopentadienylcation and cyclopropenylcation.
28. (a) Discuss the mechanism of Friedel-Craft's acylation.
    (b) Explain the bimolecular displacement mechanism of aromatic nucleophilic substitution.

(2 × 12 = 24)