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Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2015

Second Semester

Complementary Course—CHEMISTRY—BASIC ORGANIC CHEMISTRY
(Common for all programmes having Chemistry as Complementary Subject)

[2013 Admission onwards]

Time : Three Hours

Maximum : 60 Marks

Section A

Answer all questions.

Each question carries 1 mark.

1. What do you mean by conformational isomerism ? Explain.
2. Explain the difference between Mesoform and Racemic mixture.
3. Draw the Newmann and Sawhorse representation of 3-Bromo-2-Butanol.
4. Distinguish between Homolytic and Heterolytic fission with example for each.
5. What are co-polymers ? Give one example.
6. How is PVC prepared ? Also write the equations involved.
7. What are free radicals ? Give one method for its formation.
8. What is Mesomeric effect ? Explain.

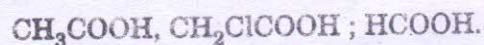
(8 × 1 = 8)

Section B

Answer any six questions.

Each question carries 2 marks.

9. Explain the mechanism of Sulphonation of Benzene.
10. What is Hyperconjugation ? How does it differs from resonance ?
11. Account for the observation that $\text{CH}_3\text{C}(\text{CH}_3)_3 = \text{CH}.\text{CH}_3$ is thermodynamically more stable than isomeric $\text{CH}_3-\text{CH}_2-\text{C}(\text{CH}_3)_2=\text{CH}_2$.
12. State and explain Markownikoff's rule.
13. How are Nylon 6 and Nylon 6, 6 prepared ?
14. Differentiate between Elastomers and Fibres with examples for each.
15. Arrange the following compounds in the increasing order of acid strength and explain your answer :



Turn over

16. How will you account for the greater stability of Tertiary Carbonium ions ?
17. What are the requirements for a compound to be optically active ?
18. Draw the confirmations of ethane and discuss its stability.

(6 × 2 = 12)

Section C

Answer any four questions.

Each question carries 4 marks.

19. Discuss the rule and mechanisms involved when HBr is added to propene in the presence of peroxide.
20. What are carbanions ? Discuss the factors affecting stability of carbanions.
21. Illustrate any two different types of reactions undergone by carbonium ions.
22. Write a note on formaldehyde resins.
23. Write a note on synthetic rubbers.
24. Discuss briefly on the conformations of cyclohexane. What is the preferred conformation of cyclohexane give reason ?

(4 × 4 = 16)

Section D

Answer any two questions.

Each question carries 12 marks.

25. (a) Discuss briefly on the E and Z system of naming a pair of geometrical isomers. What are the advantages of EZ system over conventional, cis-trans isomerism ?
- (b) Discuss the conformational analysis of Butane. What is meant by conformational enantiomers and conformational diastereo isomers ?
26. Illustrate the following with an example :—
 - (i) Enantiomers.
 - (ii) Diastereomers.
 - (iii) Racemisation.
 - (iv) Cis-Trans isomerism.
27. (a) The dehydrohalogenation of $\text{CH}_3\text{CH}(\text{CH}_3) - \text{CHCl} - \text{CH}_3$ can give two types of alkene which one is the major product. Identify the product ? Explain the mechanism involved. Give proper explanation for the unequal yields.
- (b) Write a note on non-biodegradable polymers and related environmental hazards.
28. (a) Differentiate between Addition polymerisation and Condensation polymerisation.
- (b) How are the following prepared :
 - (i) Melamine formaldehyde.
 - (ii) Phenol-formaldehyde.

(2 × 12 = 24)