B. Sc. DEGREE END SEMESTER EXAMINATION – JULY 2021

SEMESTER – 2: CHEMISTRY (COMPLEMENTARY FOR PHYSICS / BOTANY / ZOOLOGY)

COURSE: 15U2CPCHE2 - BASIC ORGANIC CHEMISTRY

(Common for supplementary 2018/2017/2016/2015 Admissions)

Time: Three Hours   Max. Marks: 60

PART A

Answer all questions. Each question carries 1 mark.

1. 2-Butene exhibits ………………….. isomerism.

2. Maleic acid and fumaric acid are ……….isomers.

3. The dihedral angle between the two C-H bonds in staggered conformation of ethane is
   …………

4. The type of hybridization involved in ethyne is …..

5. Among halides …………….. shows maximum inductive effect.

6. Comparing S_N1 and S_N2 reactions, polar solvents favor ……………… reaction

7. Vulcanized rubber involves ………….… bridges between the polymer chain.

8. Give an example of biodegradable polymer   (1 x 8 = 8)

PART B

Answer any six questions. Each question carries 2 marks.

9. Differentiate between configuration and conformation.

10. Sketch the E and Z configurations of 1-Bromo-1-chloro-2-iodopropene.

11. Draw the most stable and least stable conformations of n-butane.

12. What is the principle of distilation

13. Why ter-butyl chloride favours S_N1 mechanism?

14. What are the health problems caused by the burning of plastics?

15. What is Saytzeff's rule?

16. What is Hoffmann's elimination?   (2 x 6 = 12)

PART C

Answer any four questions. Each question carries 5 marks.

17. Distinguish between (A) homoplymer and copolymer (B) Buna-S and Buna-N rubber.

18. Discuss the optical isomerism observed in lactic acid.

19. Write a short note on hyper conjugation.

20. Name two synthetic rubbers. Discuss their preparation and properties.

21. Draw all isomers of tartaric acid.

22. Compare the stereochemistry of S_N1 and S_N2 reactions.   (5 x 4 = 20)

PART D

Answer any two questions. Each question carries 10 marks

23. a) Write a short note on the purification techniques crystallization and sublimation.

   b) Explain with suitable examples, the effect of geometrical isomerism on (i) melting point and
   (ii) boiling point.

24. a) Discuss briefly the E1 and E2 mechanism of elimination reactions with examples.

   b) Explain Markownikoff's rule with suitable example.

25. Write a note on inductive effect, mesomeric effect, homolytic and heterolytic fission

26. Write notes on synthesis and applications of

   a) Polyethene   b) Nylon 6, 6   c) PVC   d) Phenol-formaldehyde resin.

$$(10 \times 2 = 20)$$

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