

**THIRD SEMESTER B.Sc. DEGREE (SUPPLEMENTARY/IMPROVEMENT)
EXAMINATION, NOVEMBER 2015**

(UG-CCSS)

Chemistry – Complementary Course

CH 3C 05 – ORGANIC AND BIOCHEMISTRY

Time : Three Hours

Maximum : 30 Weightage

*Answer **all** questions from Section A and Section B, any **five** questions from Section C
and any **two** questions from Section D.*

*Each question from Section A carries a weightage of $\frac{1}{4}$, Section B carries a weightage of 1,
Section C carries a weightage of 2 and Section D carries a weightage of 4.*

*Answer all **twelve** questions.*

Each question carries a weightage of $\frac{1}{4}$.

- I. 1. Which of the following is the strongest base?
- (a) $(\text{CH}_3)_3 \text{N}$. (b) $(\text{CH}_3)_2 \text{NH}$.
(c) CH_3NH_2 . (d) NH_3 .
2. Peroxide effect is not observed in the alkene :
- (a) Propene. (b) 1-Butene.
(c) 2-Butene. (d) 3-Hexene.
3. Which vitamin is known as Ascorbic acid?
- (a) D. (b) C.
(c) B. (d) A.
4. An example for a six-membered heterocyclic is :
- (a) Furan. (b) Thiophene.
(c) Pyrrole. (d) Pyran.
5. Give an example for a neutral nucleophile.
6. The pyrimidine bases present in RNA are cytosine and
7. Meso Tartaric acid is optically inactive due to compensation.
8. Among Maleic acid and Fumaric acid the trans form is

Turn over

9. An example for an essential amino acid is
10. Give one example for a thermoplastic.
11. What is the monomer of Neoprene?
12. Give one example for peptide hormone.

(12 x ¼ = 3 weightage)

(Short Answer Type)

Answer all **nine** questions.

Each question carries a weightage of 1.

IL 13. Give two examples for ortho-para orienting substituents.

14. What is Electromeric effect?
15. Which of the following is nmr inactive? Why?
 ^1H , ^{16}O , ^{13}C .
16. What are group frequencies? Give one example.
17. Define Racemisation.
18. Draw the chair and boat conformation of Cyclohexane.
19. Give two examples for synthetic fibres.
20. Indicate the monomers of Buna-N.
21. Give two examples for fat soluble vitamins.

(9 x 1 = 9 weightage)

(Short Paragraph Questions)

Answer any **five** questions.

Each question carries a weightage of 2.

III. 22. Explain steric effect with one example.

23. Write a short note on aromatic nucleophilic substitution.
24. Draw the chair form of methyl cyclohexane. Show all axial and equatorial bonds.
25. Write a short note on theory of enzyme catalysis.
26. Give a brief account of nucleic acids.
27. Distinguish between thermoplastics and thermosetting plastics giving examples.
28. Discuss the general method of isolation of alkaloids.

(5 x 2 = 10 weightage)

(Essay Questions)

Answer any **two** questions.

Each question carries a *weightage* of **4**.

IV. 29. (a) Discuss the structure of proteins.

(b) How proteins can be tested? Give any *four* tests.

30. (a) Explain the extra stability of Propene and Toluene by considering hyperconjugative effect.

(b) Describe the mechanism of aromatic electrophilic substitution of taking bromination as example.

31. (a) What is meant by **chirality**? Give a short account of asymmetric synthesis.

(b) What are essential oils? How can they can be extracted?

(2 x 4 = 8 weightage)