

Reg. No. :

Name :

Fourth Semester M.Sc. Degree Examination, May 2020

Chemistry

CH 242(b) – ORGANIC CHEMISTRY IV

(2016 Admission onwards)

Time : 3 Hours

Max. Marks : 75

SECTION – A

Answer **any two** among (a),(b) and (c) from Each question. Each question carries **2** marks.

1. (a) Suggest a method for acetylinic coupling.

(b) What is a lead compound in drug discovery?

(c) Give any two examples of polymer supported catalyst.
2. (a) Write any one synthetic application of organo lithium reagents.

(b) What is Gilman reagent? Give it's preparation.

(c) What are molecular receptors?
3. (a) What are flourous solvents? Give it's advantage.

(b) Write the non-covalent interactions in biopolymer structure organisation.

(c) What is a pharmacophore?

P.T.O.



4. (a) What are hallucinogens? How are they classified?
(b) Distinguish between Atactic and Syndiotactic polymers.
(c) What are protecting groups? Give an example of a carboxy protecting group.
5. (a) Write the Hammett equation and explain the terms in it.
(b) Draw the structures of phenobarbital, chloramphenicol.
(c) What are cyclophanes? Give one example.

(2 × 10 = 20 Marks)

SECTION – B

Answer (a) or (b) of each question and each question carries 5 marks.

6. (a) Write a short note on Lithium halogen exchange reaction.
(b) Discuss various steps involved in the synthesis of a dipeptide using SPPS.
7. (a) Illustrate the industrial applications of supramolecular chemistry.
(b) Explain the role of self organisation and self association in living systems.
8. (a) Calculate atom economy of a typical (i) Wittig and (ii) Diels Alder reaction. Use simple example.
(b) Discuss the synthetic steps involved in the preparation of phenobarbital.
9. (a) Write a short note on the structure of starch and chitin.
(b) What are the different forces involved in drug receptor interaction?
10. (a) Explain the use of green solvents in organic synthesis.
(b) Write a short note on the classification of drugs.

(5 × 5 = 25 Marks)



SECTION – C

Answer **any three** questions. Each question carries **10** marks.

11. Write a short note on the twelve principles in green chemistry.
12. Explain with suitable example. the use, advantages and disadvantages of polymers as supports for reagents and catalyst.
13. Discuss in detail the various stages involved in discovery and development of a drug.
14. Write briefly on the type of interactions used in supramolecular chemistry and include one example for each.
15. (a) Write a note on the applications of silane carbanions.
(b) Discuss the preparation and application of Benzenetricarbonyl chromium.

(3 × 10 = 30 Marks)



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Fourth Semester M.Sc. Degree Examination, May 2020

Chemistry

CH/CL/CA 241 : CHEMISTRY OF ADVANCED MATERIALS

(2016 Admission onwards)

Time : 3 Hours

Max. Marks : 75

SECTION – A

Answer any two among (a), (b) and (c) from each question. Each sub question carries 2 marks.

1. (a) Explain hydrothermal method of synthesis of nanomaterials.
(b) What 2D and 3D nanomaterials with eg?
(c) Explain Sol-Gel method of preparation of nano materials.
2. (a) Differentiate Single crystal XRD and powder XRD.
(b) What are applications of SEM?
(c) Explain two methods for functionalization of CNT?
3. (a) Explain anionic polymerisation.
(b) Explain degree of crystallinity.
(c) What is bulk polymerisation?

P.T.O.



4. (a) Explain one method for synthesis of polyaniline.
(b) What are photoresponsive polymers?
(c) What are hetrochain polymers?
5. (a) What is electrochromism?
(b) Give example for pH responsive polymers.
(c) What are self-healing polymers?

(2 × 10 = 20 Marks)

SECTION – B

Answer either (a) or (b) of each question. Each question carries **5** marks.

6. (a) How properties of nanomaterials varies with size?
(b) Explain quantum confinement.
7. (a) Explain any two methods for the synthesis of fullerene.
(b) Discuss the applications of nano-technology in effluent treatment.
8. (a) Explain GPC method for molecular weight determination.
(b) Explain Emulsion polymerisation.
9. (a) What is photorefractive polymer?
(b) Explain phase morphology.
10. (a) Give short notes on Photochromic Coordination compounds.
(b) Explain polymorphism.

(5 × 5 = 25 Marks)



SECTION – C

Answer any **three** questions and each question carries **10** marks. :

11. Give short note on optical property of nanoparticle. Explain role of metal nanoparticles in catalysis.
12. With the help of a neat diagram explain the principle, working and applications of AFM.
13. Explain the thermal stability of polymers and how DSC is used for detecting the stability.
14. What are conducting polymers? Explain the synthesis and applications of polyacetylenes?
15. Write short notes on shape memory polymers and dielectric elastomers?

(3 × 10 = 30 Marks]

