

**17P414**

(Pages: 2)

Name.....

Reg. No.....

**FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2019**

(CUCSS - PG)

(Chemistry)

**CC15P CH4 E06 - NATURAL PRODUCTS AND POLYMER CHEMISTRY**

(Regular/Improvement/Supplementary)

(2015 Admission onwards)

Time: Three Hours

Maximum: 36 Weightage

**Section A**

Answer *all* questions. Each question carries 1 weightage.

1. Briefly discuss the classification of prostoglandins.
2. Explain the significance of Flory–Reiner equation in determination of degree of crosslinking in polymers.
3. What are spherulites?
4. Write a note on carotene.
5. Define the term copolymer composition drift.
6. What are squarenes?
7. Distinguish between photoresponsive and photorefractive polymers.
8. What is PEEK? Mention its application.
9. How can the presence of OH group in natural products detected?
10. Give the application of polymers in wave guide devices.
11. What is aromatherapy?
12. Explain Tg and Tm of polymers.

**(12 x 1 = 12 Weightage)**

**Section B**

Answer any *eight* questions. Each question carries 2 weightage.

13. Describe the synthesis of abietic acid.
14. Explain tacticity of polymers with suitable examples.
15. Discuss the kinetics and mechanism of free radical polymerisation.
16. How will you elucidate the structure of progesterone?
17. Briefly discuss atom transfer radical polymerisation.
18. Write a note on
  - (a) Diene rubbers
  - (b) Acrylic polymers.
19. Give the properties and application of polymers with NLO properties.

20. Discuss the synthesis and applications of polyurethane.
21. Explain the conversion of cholesterol to androsterone.
22. Briefly discuss the importance of oleoresins of ginger and turmeric.
23. Write a note on dyes and pigments. Explain indigo and cyanine dyes.
24. Give the important constituents of clove oil and sandal oil. Discuss isolation of these two oils.

**(8 x 2 = 16 Weightage)**

### **Section C**

Answer any *two* questions. Each question carries 4 weightage.

25. Describe the biosynthesis and structure elucidation of quinine.
26. (a) Write a note on liquid crystalline polymers.  
(b) Discuss second and third harmonic generation with respect to polymers.
27. Write a brief introduction to supramolecular chemistry and molecular recognition.
28. Explain with an example the role of the following catalyst in polymer chemistry.  
(a) Zeigler-Natta catalyst (b) Kaminsky Catalyst (c) Metal oxide catalyst

**(2 x 4 = 8 Weightage)**

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