

D 103032

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Name.....

Reg. No.....

**FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION  
APRIL 2024**

Chemistry

CHE 4C 04—PHYSICAL AND APPLIED CHEMISTRY

(2019 Admission onwards)

Time : Two Hours

Maximum : 60 Marks

**Section A (Short Answers)***Answer questions up to 20 marks.**Each question carries 2 marks.*

1. Distinguish between true solutions and colloidal solutions.
2. What are lyophilic colloids ? Give an example.
3. Explain 1D nanomaterials with an example.
4. What is  $R_f$  value ? How is it used in the identification of a compound ?
5. Name any *one* biodegradable polymer and write its application.
6. Give any *two* applications of nanomaterials in medicine.
7. Which are the monomers of Buna-S and Bakelite.
8. Write any *two* examples each for artificial sweeteners and permitted food colours.
9. Define octane number and cetane number.
10. What is eutrophication ?
11. What are chromophores and auxochromes ?
12. What is greenhouse effect ? Name any *two* greenhouse gases.

[Ceiling of marks : 20]

**Turn over**

**Section B (Paragraph)**

*Answer questions up to 30 marks.*

*Each question carries 5 marks*

13. Explain briefly the cleaning action of soap.
14. Differentiate between thermoplastics and thermosetting plastics.
15. What is meant by green chemistry? Describe the principles of green chemistry.
16. Describe the principle and applications of gas chromatography.
17. Briefly explain UV-Visible spectroscopy.
18. Write a short note on the causes and effects of water pollution.
19. Explain any two methods for purification of colloids.

[Ceiling of marks : 30]

**Section C (Essay)**

*Answer any **one** question.*

*The question carries 10 marks.*

20. (i) Discuss the principle of NMR spectroscopy.  
(ii) Draw the NMR spectrum of ethanol and explain.
21. Briefly explain the manufacture of cement.

(1 × 10 = 10 marks)