C 21517 **(Pages : 2)** **Name.....**

Reg. No.....

FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION, APRIL 2022

Chemistry

CHE 4C 04—PHYSICAL AND APPLIED CHEMISTRY

(2019 Admission onwards)

Time : Two Hours Maximum : 60 Marks

Section A (Short Answer)

Answer at least **eight** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 24.

1. Define Hardy-Schulz law.
2. What is critical micelle temperature ?
3. Define green chemistry.
4. Give two applications of nanomaterial in catalysis.
5. What is the principle of chromatography ?
6. Give the structure and monomer unit of neoprene.
7. What is the condition for a molecule to be microwave active ?
8. Define finger print region.
9. How is water purified for drinking purpose ?
10. Define pollutant and pollution.
11. What is Buna-N ?
12. Give any *two* examples of natural food preservatives and artificial sweeteners.

(8 × 3 = 24 marks)

Turn over

Section B (Paragraph)

Answer at least **five** *questions.*
Each question carries 5 *marks.*
All questions can be attended.
Overall Ceiling 25.

13. Give an account of applications of colloids.
14. Explain the preparation of nanoparticles in detail.
15. Mention advantages and limitations of adsorption chromatography.
16. Give an account on biodegradable polymers.
17. What is greenhouse effect ? Explain its consequences and control measures.
18. Define and give an example of antibiotics, antipyretics and analgesics.
19. Calculate following for radiation of wavelength 200 nm : wavenumber. frequency, energy per photon and energy per mol.

(5 × 5 = 25 marks)

Section C (Essay)

Answer any **one** *question.*
The question carries 11 *marks.*

20. (a) What is the principle of NMR spectroscopy ?

    (b) How will you differentiate the two isomers C_2H_6O using NMR spectroscopy ?

21. (a) Explain terms (a) Chromophore ; and (b) Auxochrome.

    (b) Discuss various theories of colour and constitution.

(1 × 11 = 11 marks)