

20U406

(Pages: 2)

Name:

Reg.No:

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2022

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U CHE4 C04 - PHYSICAL AND APPLIED CHEMISTRY

(Chemistry - Complementary Course)

(2019 Admission onwards)

Time : 2.00 Hours

Maximum : 60 Marks

Credit : 2

Part A (Short answer questions)

Answer *all* questions. Each question carries 2 marks.

1. Define isoelectric point.
2. Mention two applications of colloids in the field of medicine.
3. What are quantum dots? Give an example.
4. Comment on an important limitation of the GLC technique.
5. Calculate the wavelength of a radiation that has an energy $4.95 \times 10^{-3} \text{J}$.
6. How many vibrational modes of CO_2 are infrared-active? How many peaks will they totally yield in an IR spectrum of CO_2 ?
7. Define a hypsochromic shift.
8. How do industrial effluents pollute water?
9. Mention two adverse consequences of thermal pollution.
10. What is CNG? Mention its important use.
11. Write the structural formula of the dye alizarin.
12. What are food preservatives? Give two examples for commonly used food preservatives.

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

Answer *all* questions. Each question carries 5 marks.

13. Explain how nanomaterials are classified on the basis of their dimensionality.

14. Explain how a green synthesis of ibuprofen can be carried out.
15. How is adsorption column chromatography carried out?
16. Give one example each for i) polyester and in) polyamide. ii) Give the preparation and one use for each
17. What is PGA? Explain its significance and discuss its applications.
18. Distinguish between the terms analgesics and antipyretics with example.
19. Name three different types of glasses and mention their uses.

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any *one* question. The question carries 10 marks.

20. Discuss, with schematic sketches, the PMR spectra of (i) ultrapure ethanol and (ii) propanal
21. (i) Discuss the pollution of air by oxides of C, S and N.
(ii) What are the control measures to check air pollution?

(1 × 10 = 10 Marks)
