C 61257   (Pages : 2)   Name...

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FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL/MAY 2018

(CUCBCSS—UG)

Chemistry

CHE 4C 04—PHYSICAL AND APPLIED CHEMISTRY-I

Time : Three Hours   Maximum : 64 Marks

Section A

Answer all questions.

Each question carries 1 mark.

1. The nuclear fission reactions follow ————— order.

2. The stationary phase in thin layer chromatography is —————.

3. ————— is the electronic transition in unsaturated compounds.

4. What is the monomer of neoprene ?

5. Draw the structure of indigo.

6. Write any *two* greenhouse gases.

7. Colloid with liquid dispersed phase and solid dispersion medium is called —————.

8. Write the selection rule for infrared spectroscopy.

9. Write the unit of rate constant of a second order reaction.

10. The process of settling down of colloids by losing charge is called —————.

                                              $(10 \times 1 = 10$ marks$)$

Section B

Answer any seven questions.

Each question carries 2 marks.

11. Give the structure of BHT and BHA.

12. Define gold number.

13. What is greenhouse effect ?

14. Write the structure and any *two* applications of Buns-S.

15. What is Tyndall effect ?

16. What are inorganic fertilizers ?

                                              Turn over

17. Differentiate between adsorption and partition chromatography.

18. What are biodegradable polymers ?

19. Derive the half life period of a first order reaction.

20. Draw the NMR spectrum of acetone.

$(7 \times 2 = 14 \text{ marks})$

Section C

Answer any **four** *questions.*

Each question carries 5 marks.

21. Write a note on water pollution.

22. Explain the theories of colour and constitution of dyes.

23. What is chemical shift ? What are the factors affecting chemical shift values ?

24. Distinguish between thermoplastics and thermosetting plastics.

25. Briefly explain the applications of colloids.

26. What are the theories of catalysis ?

$(4 \times 5 = 20 \text{ marks})$

Section D

Answer any **two** *questions.*

Each question carries 10 marks.

27. (i) Explain the cleansing action of soap. What are the advantages and disadvantages of soaps and detergents ?

    (ii) Write a note on the manufacture of cement.

28. Give brief account on the origin of charge and electrical properties of colloids.

29. Explain the principle and applications of column and gas chromatography.

30. Write a note on the classification of polymers.

$(2 \times 10 = 20 \text{ marks})$