

C 61257

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Name.....

Reg. No.....

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 × 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 × 2 = 14 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 × 5 = 20 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 and detergents ?

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

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

Explain the principle and applications of column and gas chromatography.

Write a note on the classification of polymers.

(2 × 10 = 20 marks)