D 52766 (Pages : 2) Name.....

Reg. No.....

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2018

(CUCBCSS—UG)

Complementary Course—Chemistry

CHE 1C 01—GENERAL CHEMISTRY

Time : Three Hours Maximum : 64 Marks

Section A

Answer **all** *questions.*
Each question carries 1 *mark.*

1. Name a suitable indicator for the titration between acetic acid and sodium hydroxide.
2. Predict the shape of SF_6 molecule
3. What is the hybridization of the central atom in PCl_5 ?
4. The bond order in O_2^- is :
5. The nuclides, ^{35}Cl and ^{35}Cl are _____.
6. Name the metal in Myoglobin.
7. Particles responsible for holding the nucleons together is called _____.
8. Predict the stability of He_2^+.
9. Name an indicator used in complexometric titrations.
10. Molarity of 100 ml aqueous solution of NaOH containing 4g of the solute is _____.

(10 × 1 = 10 marks

Section B

Answer any **seven** *questions.*
Each question carries 2 *marks.*

11. Write briefly on radio carbon dating.
12. Explain LCAO principle with suitable example.
13. Define lattice energy. What is its significance ?
14. Write notes on mass defect.
15. What is common ion effect ?
16. Explain the importance of haemoglobin in oxygen transport.

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17. Calculate the wave length associated with a particle of mass 1g. moving with a velocity of 100 m. per sec.
18. Write briefly on redox titrations with suitable example.
19. What are the significance of quantum numbers ?
20. State and explain Group displacement law.

(7 × 2 = 14 marks)

Section C

Answer any **four** *questions.*
Each question carries 5 *marks.*

21. Represent MO energy level diagram of CO molecule.
22. Define electron affinity. How does it vary along a group and period in the periodic table ? What are the factors influencing it ?
23. Discuss sp^3 hybridization with suitable example.
24. Discuss the principle of complexometric titration taking suitable example.
25. Describe the use of Pauli's exclusion principle in finding the electronic configuration of atoms.
26. Write a note on radiocarbon dating and its applications.

(4 × 5 = 20 marks)

Section D

Answer any **two** *questions.*
Each question carries 10 marks.

27. Write notes on :
    (a) Nuclear fission.
    (b) Nuclear fusion.
    (c) Biochemistry of cobalt.
    (d) Co-ordinate bond.
28. Briefly discuss the following :
    (a) Lewis theory of acids and bases with suitable example.
    (b) Nuclear reactors.
29. (a) What is solubility product ? Discuss the application of solubility product.
    (b) Discuss valence bond theory with suitable example.
30. (a) Discuss various applications of radioactive isotopes.
    (b) Discuss the periodicity in the following properties in the light of modern periodic law and the long form of periodic table :
        (i) Atomic radii.
        (ii) Ionic radii.

(2 × 10 = 20 marks)