

D 73143

(Pages : 2)

Name.....

Reg. No.....

**FIRST SEMESTER B.A./B.Sc. DEGREE EXAMINATION
NOVEMBER 2019**

(CUCBCSS—UG)

Chemistry

CHE 1C 01—GENERAL CHEMISTRY

Time : Three Hours

Maximum : 64 Marks

Section A

Answer all questions.

Each question carries 1 mark.

1. In terms of electron transfer ——— is oxidation.
2. Name the external indicator for dichrometric titrations.
3. Write the Schrödinger wave equation for a three-dimensional box.
4. What is the hybridization of SF_6 ?
5. ——— is the principle of hydrogen bomb.
6. The oxidation state of iron on myoglobin is ———.
7. The metal ion present in vitamin B_{12} is ———.
8. A beta particle is equivalent to ———.
9. Write the electronic configuration of Cu – 29.
10. The SI unit for molality is ———.

(10 × 1 = 10 marks)

Section B

Answer any seven questions.

Each question carries 2 marks.

11. Outline the Pauling scale of electronegativity.
12. Explain the theory of acid-base indicators.
13. State Pauli's exclusion principle with an example.
14. What is the significance of n/p ratio ?
15. What is the role of chlorophyll in photosynthesis ?
16. What is the importance of zinc in biological systems ?

Turn over

17. Differentiate between nuclear fission and nuclear fusion.
18. Discuss the hybridization and structure of IF_7 ?
19. Differentiate between accuracy and precision.
20. Calculate the mass of 24.092×10^{23} molecules of SO_2 ?

(7 × 2 = 14 marks)

Section C

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

21. Explain how oxygen is transported inside the body.
22. Comment on the nuclear reactors in India.
23. Construct the energy level diagram for the electrons in CO and calculate the bond order.
24. Explain the mechanism of action of sodium potassium pump.
25. What are quantum numbers? Discuss the significance of each.
26. With suitable examples, explain Arrhenius theory and Bronsted—Lowry theory of acids and bases.

(4 × 5 = 20 marks)

Section D

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

27. Briefly explain, with examples, the different applications of radioactive isotopes.
28. What are the postulates of VSEPR theory? Illustrate the shapes of NH_4^+ and SO_4^{2-} with the help of VSEPR theory.
29. State modern periodic law. Define and explain the periodicity of ionization potential and electron affinity.
30. What are common ion effect and solubility product. Explain its applications in inorganic qualitative analysis?

(2 × 10 = 20 marks)

D 52766

(Pages : 2)

Name.....
Acc No.....
Reg. No.....
Kakkai, Malappuram

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 ^{37}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.

Turn over

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)