

15U119

Name.....

Reg. No.....

FIRST SEMESTER BSc DEGREE EXTERNAL EXAMINATION DEC/ JAN 2015-16
CC15UCHE1CO1 – GENERAL CHEMISTRY (Complementary Course)

Time: 3 Hours

Maximum Marks : 64

SECTION – A

(Answer all questions. Each question carries 1 mark)

1. According to Pauling scale, the least electronegative element is
2. Among halogens, the element having highest electron affinity is
3. N-phenyl anthranilic acid belongs to the class ofindicator.
4. In inorganic qualitative analysis, group III cations are precipitated as their.....
5. The magnetic quantum number value for the valence electron of sodium atom ($Z=11$) is....
6. A molecule which possess trigonal planar shape is
7. Isobars are substances having the same.....
8. To treat thyroid cancer, the radioactive isotope used is.....
9. The metal ion present in Chlorophyll is.....
10.is a copper containing enzyme.

(10 x 1=10 marks)

SECTION – B

(Answer any seven questions. Each question carries 2 marks)

11. Define the term 'molar volume'.
12. Calculate the molarity of an aqueous solution obtained by dissolving 180g of glucose in 4 litres of water.
13. Distinguish between 'absolute error' and 'relative error' with regard to an analytical determination.
14. Give the structural formula of EDTA. Mark its donor sites.
15. Give the four major conditions that favour ionic bond formation.
16. Give the MO configurations of B_2 and C_2 molecules.
17. Give the equation connecting half-life period and decay constant.
18. Define mass defect. How is it related to the stability of a nucleus?
19. Compare the oxygen binding capacities of haemoglobin and myoglobin.
20. Explain the toxic effect of CO and CN^- on haemoglobin.

(7x2=14 Marks)

SECTION – C

(Answer any four questions, each questions carries 5 marks)

21. Give five factors which influences ionization enthalpy of an element.
22. Distinguish between the terms electro negativity and electron affinity.
23. State and explain Heisenberg's Uncertainty Principle. What is its significance?
24. Define Lattice energy of an ionic compound. Write down the Born-Lande equation for calculating the lattice energy per mole of an ionic crystal.
25. Give five applications of radioisotopes in medicine.
26. Explain the principles regarding the choice of suitable indicators in different acid base titrations.

(4x5=20 Marks)

SECTION – D

(Answer any two questions. Each question carries 10 marks)

(2x10=20 Marks)

27. a) Explain the Lowry-Bronsted concept of acids and bases with suitable examples. (4 Marks)
b) Mention two advantages of Lowry-Bronsted Concept. (2 Marks)
c) Discuss Lewis theory of acids and bases giving suitable examples. (4 Marks)
28. a) Explain the term hybridization. (2 Marks)
b) Explain the following types of hybridization with illustrative examples.
(1) sp^3d hybridization (2) sp^3d^2 hybridization (3) sp^3d^3 hybridization (6 Marks)
c) Explain briefly hydrogen bonding with suitable examples (2 Marks)
29. a) Explain the rock dating technique used for determining the ages of rocks and Minerals. (5Marks)
b) A sample of Uranium ore is found to contain 0.277g of ^{206}Pb and 1.667g of ^{238}U . Calculate the age of the ore assuming that all the ^{206}Pb had accumulated due to the Decay of ^{238}U . Half-life period of ^{238}U is 4.5×10^9 years. (5 Marks)
30. a) Explain 'sodium-potassium pump'. (5 Marks)
b) Explain photosynthesis. What are light dependent reactions and light-independent reactions? (5 Marks)