

20U115

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Name:

Reg.No:

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2020

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U CHE1 C01 - GENERAL CHEMISTRY

(Chemistry - Complementary Course)

(2019 Admission onwards)

Time : 2.00 Hours

Maximum : 60 Marks

Credit : 2

Part A (Short answer questions)

Answer *all* question. Each question carries 2 marks.

1. Define the term molecular mass.
2. Define valency of an element. What is meant by variable valency?
3. What are iodometric titrations? Give an example,
4. What must be the velocity of beam of electrons if they are to display a de Broglie wavelength of 20 Angstroms ?
5. What is a coordinate bond
6. Name a molecule each in which the central atom is (i) sp^2 hybridized, and (ii) $sp^3 d^2$ hybridized
7. Bi-210 decays by β -emission. What is the product formed and in which group of the periodic table will it lie?
8. Calculate the mass defect in the case of a helium nucleus formation if the masses of proton, neutron and helium nucleus are respectively 1.00758 amu, 1.00897 amu and 4.00820 amu
9. Mention any 3 applications of radioisotopes in medicine.
10. Name two iron containing enzymes.
11. What do you mean by dark reactions?
12. What is carboxypeptidase?

(Ceiling: 20 Marks)

Part B (Short essay questions)

Answer *all* question. Each question carries 5 marks.

13. Calculate (a) molarity and (b) molality of an aqueous solution of HCl that contains 37% (W/W) of HCl if its density 1.18 g/ml.
14. Explain the principle of double burette method used in titrimetry with a suitable example.
15. Give a diagrammatic representation of the s-orbital and the five d-orbitals.
16. Draw Born-Haber cycle for NaCl
17. What are isotopes ? Give examples Comment on their physical and chemical properties.
18. Write a short note on nuclear fission.
19. Write a note on essential elements.

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any *one* question. Each question carries 10 marks.

20. Discuss the theory of acid base indicators.
21. State the postulates of VSEPR theory. Apply the theory to predict the shape of ClF_3

(1 × 10 = 10 Marks)
