23U117 (Pages: 2) Name: .....

Reg.No: .....

FIRST SEMESTER B.Sc./ M.Sc. INTEGRATED GEOLOGYDEGREE EXAMINATION, NOV. 2023

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U CHE1 C01 / CC23I CHE1 IC01 - GENERAL CHEMISTRY

(Chemistry - Complementary Course)

(2019 Admission onwards)

Time : 2.00 Hours Maximum : 60 Marks

Credit : 2

Part A (Short answer questions)

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

1. Define molarity of a solution.
2. Define normality of a solution.
3. Iodine solution is prepared by dissolving it in KI solution. Why?
4. What is a coordinate bond?
5. Explain the structure of XeF_6.
6. What is a sigma bond?
7. How can the three types of radioactive rays be distinguished?
8. The mass lost during the formation of Li nucleus is 0.02609 amu. Calculate the binding energy per nucleon in $^{7}Li_3$.
9. What is a fission chain reaction? Mention how it can be used for peaceful purposes.
10. What is Cooperativity?
11. What is chlorophyll?
12. What is Sodium Potassium pump?

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

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

13. Define the term atomic mass, molecular mass and atomic mass unit on the basis of the C-12 standard.
14. Define the terms oxidant and reductant on the basis of the oxidation number concept.
15. Explain the significance of Heisenberg's uncertainty principle.

16. Write a short note on dipole-dipole forces.

17. What are isotopes? Give examples. Comment on their physical and chemical proper ties.

18. Explain the use of radiotraces in radiodiagnosis.

19. Taking suitable examples, discuss the role of metal ions in biochemical processes.

(Ceiling: 30 Marks)

Part C (Essay questions)

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

20. Discuss briefly the principle underlying the separation of cations into groups in qualitative analysis.

21. Write down the Born-Haber cycle for $BaCl_2$, What are the applications of Born Haber cycle?

(1 × 10 = 10 Marks)

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