

**FIRST SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2020**

Chemistry

CHE 1C 01—GENERAL CHEMISTRY—I

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A

Answer at least eight questions.

Each question carries 3 marks.

All questions can be attended.

Overall Ceiling 24.

1. Define molarity of a solution.
2. What is meant by standard solution ?
3. Mention two advantages of microanalysis.
4. What is meant by common ion effect ?
5. State and explain Pauli's exclusion principle.
6. What is the shape of IF_7 molecule ?
7. What are isotones ? Give an example.
8. What is nuclear fission ? Name two nuclei fissionable by thermal neutrons.
9. Mention any *two* applications of radioisotopes in medicine.
10. What are and how many types of essential elements are there ?
11. Name two metal ion that are needed in relatively large quantities for biochemical process.
12. Mention difference between haemoglobin and myoglobin.

(8 × 3 = 24 marks)

Turn over

Section B

Answer at least five questions.

Each question carries 5 marks.

All questions can be attended.

Overall Ceiling 25.

13. Explain application of solubility product in group separation of cations.
14. Calculate the wavelength of particle of mass 6.6×10^{-17} kg moving with a kinetic energy 7.425×10^{-13} kg. $m^2 s^{-2}$.
15. Define lattice energy. How does it affect solubility of ionic substance ?
16. The amount of ^{14}C present in an old piece of wood is found to be one-sixth of that present in fresh piece of wood. Calculate age of wood if $t_{1/2}$ of carbon is 5668 years.
17. Explain nuclear fusion with example. Why fusion reactions are called thermonuclear reactions ?
18. Write name and functions of three zinc containing enzymes.
19. Explain sodium-potassium pump.

(5 × 5 = 25 marks)

Section C

Answer any one question.

The question carries 11 marks.

20. Discuss various theories and limitations of acids and bases.
21. What are the postulates of molecular orbital theory ? Construct energy level diagram for the electrons in oxygen molecule and account for its paramagnetic behavior.

(1 × 11 = 11 marks)