1B1N24235 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester Integrated M.Sc Geology Degree Examination, November 2024

CHE1IC01 – General Chemistry

(2022 Admission onwards)

Time: 2 hours Max. Marks : 60

Section A (Short answers)
(Answer questions up to 20 marks. Each question carries 2 marks)

1. State and explain de Broglie relationship.
2. Why bond angle in NH_3 is 107^0 though the state of hybridization of N is sp^3?
3. Why do isotopes have almost identical chemical properties but different physical properties?
4. Name two Zinc containing enzymes.
5. Explain the significance of Heisenberg's uncertainty principle.
6. What are the conditions that favor the formation of ionic bond?
7. List out the difference between accuracy and precision.
8. Explain the toxic effect of CO on hemoglobin.
9. Mention the advantages of double burette method of titration.
10. Define critical mass.
11. Explain why NaCl is soluble in water and $BaCl_2$ is insoluble in water.
12. Discuss any two applications of radioisotope in medicine.

[Ceiling of marks: 20]

Section B (Paragraph)
(Answer questions up to 30 marks. Each question carries 5 marks)

13. What is N/P ratio and explain how it is related to stability.
14. Explain sodium - potassium pump.
15. Explain the theory of complexometric titration.
16. What are quantum numbers? Mention the significance of azimuthal quantum number and magnetic quantum number.
17. a) What is a primary standard in volumetry? b) Discuss the role of metal ions in biochemical process.
18. Predict the structure of a) ClF_3 b) SO_4^{2-} using VSEPR theory
19. Explain meson field theory of nuclear forces.

[Ceiling of marks: 30]

Section C (Essay)
(Answer any one. Each question carries 10 marks)

20. a) Discuss the functions of Hemoglobin & Myoglobin. (5 marks)

    b) Draw the MO diagram of Carbon monoxide. (5 marks)

21. Discuss the principles of solubility product and common ion effect in the separation of cations in qualitative analysis.

[1x10=10 marks]