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FIRST SEMESTER B.A./B.Sc. DEGREE EXAMINATION, NOVEMBER 2019

(CBCSS—UG)

Chemistry

CHE 1C 01—GENERAL CHEMISTRY

(2019 Admissions)

Time: Two Hours

Maximum: 60 Marks

Section A (Short Answers)

Answer questions up to 20 marks. Each question carries 2 marks.

- 1. What is meant by a standard solution?
- 2. Calculate the momentum of a particle which has de Broglie wavelength of 2.5×10^{-10} m. $[h = 6.6 \times 10^{-34} \text{Js}]$
- 3. Define lattice energy of ionic compound. What does it indicate?
- 4. State Hunds rule of maximum multiplicity
- 5. What are nuclear forces? What are the different types?
- 6. What are isotones? Give an example.
- 7. Write nuclear equation for (i) emission of an α -particle from Th-232 ; (ii) emission of β -particle from Ra-228.
- 8. What are metalloenzymes? Give an example.
- 9. What is the oxidation state and coordination number of Fe in haemoglobin?
- 10. Name two zinc containing enzyme.
- 11. Explain hybridization and shape of ethylene.
- 12. Briefly explain the term photosynthesis.

(Ceiling of marks: 20)

Section B (Short Answer)

Answer questions up to 30 marks. Each question carries 5 marks.

- 13. Distinguish between accuracy and precision.
- 14. Discuss the principles of iodimetric and iodometric titrations.
- 15. Molecular nitrogen is diamagnetic while molecular oxygen is paramagnetic. Explain this on the basis of MOT.
- 16. Discuss the difference between sigma and pi bond.
- 17. Explain the difference between nuclear fission and nuclear fusion.
- 18. A wooden fossil shows 14 C activity which is 60% of the activity found in fresh piece of wood. Calculate the age of sample. Half life of 14 C = 5770 years.
- 19. Briefly outline the role of haemoglobin in transport of oxygen and carbondioxide.

(Ceiling of marks: 30)

Section C (Essay)

Answer any one question.

Each question carries 10 marks.

- 20. (a) Explain the action of diphenyl amine as a redox indicator.
 - (b) Which indicator can be used for titration of (i) Oxalic acid Vs KOH? (ii) Na₂CO₃ Vs H₂SO₄? Explain
- 21. What are the different types of hybridization involving s, p and d orbitals? Explain and give one example for each.

 $(1 \times 10 = 10 \text{ marks})$