

Seat
No.

B.Sc. (Part - III) (Semester - V) (CBCS) Examination, January - 2023

CHEMISTRY

Physical Chemistry (Paper-XI)

Sub. Code: 79684

Day and Date: Thursday, 05 - 01 - 2023

Total Marks : 40

Time : 2.30 p.m. to 4.30 p.m.

- Instructions :
- 1) All questions are compulsory.
 - 2) Figures to the right indicates full marks.

Q1) A) Answer the following in one sentence only. [4]

- a) Which solution is used in salt bridge?
- b) What is fluorescence?
- c) What is Raman effect?
- d) Write de broglie equation.

B) Choose the most correct alternative for each of the following and rewrite the sentence. [4]

- a) The uncertainty principle was proposed by _____.
 - i) de Broglie
 - ii) Schrodinger
 - iii) Einstein
 - iv) Heisenberg
- b) The quantity $(2S+1)$ is known as _____.
 - i) Spin pairing
 - ii) Spin multiplicity
 - iii) excited state
 - iv) ground state
- c) The process of successive vaporization and condensation is called as _____.
 - i) distillation
 - ii) fractional distillation
 - iii) vaporization
 - iv) none of these
- d) When temperature coefficient of cell becomes zero, ΔG of the cell reaction is _____.
 - i) zero
 - ii) equal to ΔS
 - iii) equal to ΔH
 - iv) equal to ΔA

P.T.O.

Q2) Attempt any two of the following.

- Discuss vibrational spectra of diatomic molecules.
- Derive the equation for potential of a chemical cell without transference.
- State and explain laws of photochemistry.

Q3) Attempt any three of the following.

[12]

- What is wave particale duality? Explain de Broglie's hypothesis.
- Mention various types of partially miscible liquids and explain any one of them.
- Define quantum yield and give reasons for high and low quantum yield.
- Derive Nernst equation for the single electrode potential.
- Discuss distillation of solutions with the system having boiling point maximum.

