



SAIVA BHANU KSHATRIYA COLLEGE
(Aruppukottai Nadargal Uravinmurai Pothu Abi Viruthi Trustukku Pathiyapattathu)
ARUPPUKOTTAI
DEPARTMENT OF CHEMISTRY
QUESTION BANK

Name of the Department :	Chemistry	UG / PG :	UG
Semester (UG - III & V; PG - III) :	UG-III	Subject Code :	SCHJC31
Name of the Subject :	Physical Chemistry-I		

Section A (Multiple Choice Questions)

Unit I: (Properties of matter)

- is an example of intermolecular forces in liquids.
(a) Tension (b) Surface Tension (c) Viscosity (d) H-Bonding
- having zero dipole moment..
(a) CO₂ (b) Water (c) Ammonia (d) O-isomers
- P-isomers are having -----dipole moment
(a) more (b) less (c) Zero (d) negative
- Presence of unpaired electron in magnetic field is termed as -----
(a) Diamagnetic (b) Paramagnetic (c) ferromagnetic
(d) Antiferromagnetic
- is an electrical properties
(a) Dipole moment (b) Surface tension (c) Tension (d) Viscosity

Unit II: (Solid State)

- Fe₃O₄ is an example of-----
a) Spinel b) Inversed Spinel c) Fluorite d) Perovskite.
2. Bragg's equation is-----
a) $n\lambda = 2d \sin\theta$ b) $n = 2d \sin\theta$ c) $n\lambda = 2 \sin\theta$ d) $\lambda = 2d \sin\theta$
- The smallest unit in crystal structures are known as -----
a) Defects b) Lattice point c) Unit cell d) Primitive
- The Unit of cell constant
a) m² b) m⁻¹ c) m d) m⁻²
- is an example of Frenkel defect.
a) FeO b) CsCl c) ZnO d) NaCl

Unit III: (Colloids)

- is dispersed phase in Ice Cream
a) Solid b) Liquid c) Gas d) Both a & b.
- The Zig-Zag motion of colloidal particles named as -----
a) Tyndal effect b) Brownian motion c) Electrophoresis d) Osmosis
- is dispersion medium Foam
a) Solid b) Liquid c) Gas d) Both a & b.
- is example of Colloid
(a) NaCl+Water (b) Curd (c) KCl+Water (d) Water
- Dispersion medium+dispersed phase=
(a) Solution (b) Colloids (c) Solvent (d) Non aqueous solvent

Unit IV: (Catalysis & Adsorption)

- In Haber's Ammonia manufacturing process-----is used as catalyst.
a) Mo b) Fe c) As d) NO
- In Contact process, Oxidation of SO₂ to SO₃ in presence of-----catalyst



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a)Mo b) Fe c)As d) Pt

3. -----is weak adsorption
(a) Physorption (b) Chemisorption (c) Both a & b (d)None of these
4. -----is an example of adsorbent
(a) Silica Gel (b) H₂gas (c) N₂gas (d)All the above
5. -----is an example of adsorbate
(a) Silica Gel (b) H₂gas (c) N₂gas (d)All the above

Unit –V (Ionic equilibria)

1. The unit of molar conductance is _____
a) S m² b) S mol⁻¹ c) S m²mol⁻¹ d) S m² mol
2. Transference number of ion is _____
a) less than unity b) equal to unity c) greater than unity d) zero
3. The degree of ionisation of weak electrolyte is _____
a) less than unity b) equal to unity c) greater than unity d) zero
4. The Debye-Huckel-Onsager equation is _____
a) $\Lambda_m = \Lambda_m^0 - (A + B \Lambda_m^0)$ b) $\Lambda_m^0 = \Lambda_m - (A + B \Lambda_m)$
c) $\Lambda_m = \Lambda_m^0 - (A + B \Lambda_m^0) \sqrt{C}$ d) $\Lambda_m^0 = \Lambda_m - (A + B \Lambda_m) \sqrt{C}$
5. The ionic product of water at 25 °C is _____
a) 10⁻⁷ b) 10⁷ c) 10¹⁴ d) 10⁻¹⁴

Section B (7 mark Questions)

Unit I: (Properties of matter)

1. Define Surface tension. What are the factors affecting surface tension?
2. Write notes on Viscosity.ii)Illustrate the effect of temperature on viscosity.
3. Discuss intermolecular & intra molecular H-bond with examples.
4. Describe dipolemoment.write its applications.
5. Write notes on intermolecular forces in liquids.

Unit II: (Solid state)

1. What are the types of crystals?
2. Discuss intermolecular forces in liquids.
3. Describe Bravais Lattice & miller indices with suitable examples.
4. Write notes on powder method.
5. Describe Liquid crystal types and its applications.

Unit III: (Colloids)

1. Write the classification of colloids.
2. Write notes on dispersed phase & dispersion medium with suitable example.
3. Describe Tyndall effect.
4. Write notes on Brownian motion with example
5. Listout the applications of colloids.

Unit IV: (Catalysis & Adsorption)

1. Write notes on positive & negative catalysis with suitable example.
2. Write notes on homogeneous & heterogeneous catalysis with suitable example.



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3. What are the characteristics of catalyst?
4. Distinguish Physisorption & Chemisorption
5. Derive Michelis Menton equation.

Unit V: (Ionic Equilibria)

1. Explain the terms conductance, equivalent conductance and molar conductance. In which units are these quantities expressed?
2. State and explain Kohlrausch's law
3. Compare weak and strong electrolytes
4. Illustrate how the solubility of a sparingly soluble salt can be determined with the help of conductance measurements
5. Write note on conductometric titration

Section C (10 mark Questions)

Unit I: (Properties of matter)

1. State & explain Trouton's rule and its significance.
2. Explain associative & dissociative properties in liquids.

Unit II: (Solid state)

1. Discuss in details about Schottky defect with suitable example.
2. Discuss in details about Frenkel defect with suitable example.

Unit III: (Collids)

1. Explain Electrophoresis method
2. Explain Reverse Osmosis method.

Unit IV: (Catalysis & Adsorption)

1. Explain the modern and adsorption theory of catalysis with suitable example.
2. i) What are the factors affecting the adsorption
ii) List out the applications of catalyst

Unit V: (Ionic Equilibria)

1. Define the term transference number. Give its experimental determination using Hittorf method
2. Explain in details about the Debye- Huckel – Onsager theory of strong electrolytes