

Anjuman Islam Janjira Degree College of Science
Murud-Janjira, Raigad-402401
Affiliated to University of Mumbai
As per NEP 2020

Class: -F.Y.B.Sc.(G.S)	Subject: - Basics in Physical, Inorganic and Organic Chemistry-II
Semester:- II	Course code: - M3-2
Exam Event:- Summer 2026 (FH)	Marks: - 30
Date: - 10/03/2026	Duration: - 01:00 Hours

N.B:

1. **All** questions are compulsory.
2. **Figures** to the right indicate full marks.
3. Use of log-table/non programmable calculator is allowed.
4. Answer for the same question as far as possible should be written together.



Q1. A) Select the correct option and complete the following sentences. (any four)

04

1. Surface tension is determined by -----.
a) drop number method b) Flow method c) Ostwald's method
2. According to Kinetic Theory of Gases forces of attraction between neighbouring molecules are
a) negligible b) greater c) unequal
3. According Avogadro's law
a) $V \propto n$ b) $PV = K$ c) $PV = nRT$
4. On increasing dilution, molar conductance -----.
a) decreases b) remains same c) increases
5. Hot water in equilibrium with its vapour, kept in a sealed metallic container is
a) open system b) closed system c) isolated system
6. Molar entropy is
a) extensive property b) intensive property c) colligative property

B) Attempt any two of the following.

06

1. Explain Maxwell's distribution of velocities.
2. Discuss factors affecting electrolytic conductance.
3. Write a note on different types of boundaries.

Q2. A) Select the correct option and complete the following sentences. (any four)

04

1. From the following which one is the acidic gas
a) ammonia b) hydrogen c) carbon dioxide
2. Starch iodide paper is used to detect
a) sulphites b) halogens c) Ni^{2+}
3. For the formation of precipitate of a particular substance its
a) ionic product = solubility product b) ionic product > solubility product
c) ionic product < solubility product
4. Ionic compounds are bad conductors of electricity in
a) liquid state b) molten state c) solid state
5. The bond which is formed by mutual sharing of electrons between the two atoms in a molecule called as
a) covalent bond b) ionic bond c) metallic bond
6. According to VSEPR theory the shape of IF_7 molecule is
a) tetrahedral b) square pyramidal c) linear

B) Attempt any two of the following.

06

1. How will you prepare potassium dichromate and dimethyl glyoxime papers in qualitative analysis.
2. Write a note on characteristic properties of covalent bond.
3. Discuss the assumptions of VSEPR theory.

Q3. A) Select the correct option and complete the following sentences. (any four)

04

1. Heterolytic fission of covalent sigma bond in alkyl halide leads to formation of
a) carbocation b) carbanion c) free radical
2. The order of stability of carbanions is
a) primary > secondary > tertiary b) secondary < primary < tertiary
c) tertiary > secondary > primary
3. From the following ----- is the electrophile.
a) NH_3 b) CN^- c) AlCl_3
4. Which of the following hybridizations has the highest percentage of s-characters
a) sp-hybridization b) sp^2 hybridization c) sp^3d hybridization
5. NH_3 molecule has the shape
a) Tetrahedral b) pyramidal c) linear
6. In the hybridization of carbon correct bond length order is
a) $\text{sp} > \text{sp}^2 > \text{sp}^3$ b) $\text{sp} < \text{sp}^2 < \text{sp}^3$ c) $\text{sp} > \text{sp}^2 < \text{sp}^3$

B) Attempt any two of the following.

06

1. Define reagent. Discuss different types of reagents.
2. Explain sp^2 hybridization of carbon with suitable example.
3. Give the difference between sigma bond and pi bond.