

KAMARAJ COLLEGE (Autonomous)

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

(3 Pages)

Reg. No:.....

Question Code: 26E00306

Course Code : 24UFCH11/25UFCH11

UG Degree - End Semester Examinations, April 2026

First Semester
B.Sc., CHEMISTRY

Foundation Course for Chemistry

(For those who joined in July 2024 and June 2025 onwards)

Time : 3Hours

Maximum : 75 Marks

PART - A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer :

- CO:1 1. The number of possible values for the magnetic quantum number
K:1 (m) of the d electrons is _____
(a) 2 (b) 3
(c) 4 (d) 5
- CO:1 2. Sub atomic particles behaves as
K:1 (a) Particles (b) Waves
(c) Radiations (d) Both (a) & (b)
- CO:2 3. The hybridization undergone by nitrogen in ammonia is _____
K:2 (a) sp (b) sp²
(c) sp³ (d) sp³d
- CO:2 4. Which of the following molecules has an octahedral shape?
K:2 (a) PCl₅ (b) SF₆
(c) NF₄⁺ (d) CO₃²⁻
- CO:3 5. Which of the following is a primary alcohol?
K:1 (a) CH₃CH₂OH (b) CH₃CHOHCH₃
(c) (CH₃)₃C-OH (d) None of these
- CO:3 6. _____ is named as alkanal.
K:1 (a) Alcohol (b) aldehyde
(c) Ketone (d) Carboxylic acid

- CO:4 7. The following statements is not being covered by kinetic theory of
K:1 gases is
- (a) Gases consist of large number of tiny particles
 - (b) Pressure recorded is due to collisions of molecules at the walls of the vessel
 - (c) All the molecules have the same velocity
 - (d) Molecules are in a state of constant rapid motion
- CO:4 8. The nature of cohesive force in liquid is
K:1
- (a) London force
 - (b) Hydrogen bond
 - (c) Dipole - Dipole attraction
 - (d) All the above
- CO:5 9. Pure rotational spectrum is observed in
K:2
- (a) Visible region
 - (b) IR region
 - (c) UV region
 - (d) Microwave region
- CO:5 10. Electronic spectrum is got from the region of
K:2
- (a) IR light
 - (b) UV light
 - (c) Radio waves
 - (d) X- rays

PART - B (5 X 5 = 25 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 250 words.

- CO:1 11. (a) Define the following terms (i) Isotopes (ii) Isobars (iii)
K:3 Isotones.

(OR)

- (b) What is meant by electron affinity? How does it vary along a group and in a period?

- CO:2 12. (a) Write notes on Ionic bond.

K:3 **(OR)**

- (b) Explain: Hybridization of PCl_5 .

- CO:3 13. (a) What is meant by Isomerism? Explain any two isomerism
K:3 with examples.

(OR)

- (b) Explain aliphatic hydrocarbons with examples.

- CO:4 14. (a) State Boyle's law, Charle's law and Avagadro's law

K:4

(OR)

(b) Discuss the general characteristics of solids.

CO:5 15. (a) Explain the general characteristics of wave.

K:4

(OR)

(b) Write short notes on (i) Wavelength (ii) frequency (iii) Amplitude (iv) Wavenumbers.

PART - C (5 X 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 500 words.

CO:1 16. (a) Discuss the classification of elements on the basis of electronic configuration.

K:4

(OR)

(b) What is quantum number? Explain the four quantum numbers.

CO:2 17. (a) Discuss the postulates of valence bond theory.

K:4

(OR)

(b) Explain the magnetic properties of substances.

CO:3 18. (a) Explain the unique nature of carbon.

K:5

(OR)

(b) Bring out the differences between (i) Enantiomers & Diastereomers (ii) Meso form & Racemic form.

CO:4 19. (a) Outline the postulates of kinetic theory of gases.

K:5

(OR)

(b) Describe Linde's process of liquefaction of gases.

CO:5 20. (a) Explain Born - Oppenheimer approximation and energy level diagram.

K:4

(OR)

(b) Discuss the different types of spectroscopy.