

J.J COLLEGE OF ARTS AND SCIENCE (Autonomous)

Svapuram Post, Pudukkottai-622422

DEPARTMENT OF CHEMISTRY

SYLLABUS FOR BRIDGE COURSE (2020-2021)

Unit -I: Quantum Number and Periodic Properties

Quantum Numbers-Principal, Azimuthal, Magnetic and Spin Quantum numbers and their significance, Pauli's Exclusion principle, Hund's rule, Aufbau Principle
Periodicity- Periodic law, Atomic and ionic radii, ionisation potential, electron affinity and electronegativity along periods and groups.

Unit -II: Chemical Bonding

Ionic Bond-Properties of ionic compounds-factors affecting formation of ionic compound, Lattice Energy – Born – Haber Cycle, Fajan's rule. **Covalent Bond**-Lewis Theory, Octet rule, Sidgwick-Powell theory, **VSEPR Theory**-Shapes of simple inorganic molecules (BeCl_2 , NH_3 , H_2O , PCl_3 , XeF_4 , SF_4 , BrF_5 , PCl_5 , IF_7) Hydrogen bonding.

UNIT III: Basic Concepts in Organic Chemistry

Classification of Organic Compounds - Functional group- Nomenclature- Tautomerism -Types of organic reaction-Electrophile and Nucleophile - Carbocation and Carbanion.

UNIT-IV: Alcohol, Ether Carbonyl Compounds: Biomolecules

Nomenclature, Classification, Preparation and Properties of alcohols. Ether and Carbonyl Compounds. Biomolecules: Carbohydrates- Protein, Amino acids and Nucleic acids.

Unit - V: Atomic Structure

Dualism of light-Wave nature of radiation classical theory of electromagnetic radiation. Particle nature of radiation-black body radiation and Planck's quantum theory, Photo electric effect and Compton effect of matter – de Broglie hypothesis Heisenberg's uncertainty principle, Concept of atomic orbitals, Schrodinger Equation.

Signature of the HOD

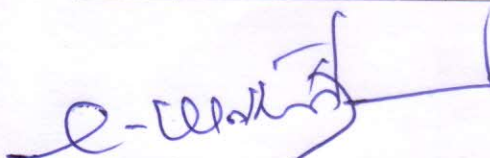
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27	Jayaseelan.G	P	P	P	P	P	P	P	20	22
28	Kalaimukilan.M	P	P	P	P	P	P	P	18	21
29	Kanna.S	P	A	P	P	A	P	P	17	19
30	Karthik Raja.V	P	P	P	P	P	P	P	18	20
31	Karthik Raja.P	P	P	P	A	P	P	P	17	22
32	Madhavan.E	P	A	P	P	P	P	P	18	23
33	Naveenkumar.S	P	P	A	P	P	P	P	17	22
34	Paranjothi.P	P	P	P	P	A	P	P	18	23
35	Parasuraman.K	P	P	P	A	P	P	P	20	22
36	Prakash.M	P	P	P	P	P	A	P	21	23
37	Rajeshkannan.R	P	P	A	P	P	P	P	18	20
38	Riyaskhan.S	P	P	P	P	A	P	P	17	21
39	Saisaran.N	P	P	P	P	P	P	P	16	20
40	Santhosh kumar.M	P	P	P	P	P	P	P	17	22
41	Sesinth Avinesh.E	P	A	P	P	P	P	P	16	21
42	Thivakar.M	P	P	P	P	P	P	P	17	20
43	Vetriselvan.M	P	P	P	P	P	P	P	16	21
44	Vignesh.A	P	A	P	P	P	P	P	18	22
45	Vignesh.S	P	P	P	A	P	P	P	19	21
46	Vijeyan.S	P	P	P	P	P	A	P	18	23
47	Siva.P	P	P	P	P	P	P	P	16	20
48	Hari.K	P	P	P	P	P	P	P	17	20
49	Akash.S	P	A	P	P	P	P	P	18	21


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DEPARTMENT OF CHEMISTRY

PRE TEST FOR 2020-2021 BATCH

Date: 04.09.2020

Marks:25

1. The Shape of p-orbital is
a) Spherical b) Dumb bell c) Clover leaf d) Both a & b
2. Atom is Elliptical shape told by
a) John Dalton b) J.J Thomson c) Rutherford d) Somerfield
3. Same Atomic number and Different mass number is
a) Isotope b) Isobar c) Isotone d) All of these
4. Which of the following gas is most Abundant in Atmosphere
a) O₂ b) CO₂ c) He d) N₂
5. The Negative charged particles is called
(a) Anion (b) Cation (c) Radical (d) Atom
6. The S.I unit of temperature is
(a) Kelvin (b) Celsius (c) Fahrenheit (d) Centigrade
7. The magnetic quantum number specifies
(a) Size of orbitals (b) Shape of orbitals (c) Orientation of orbitals (d) Nuclear Stability
8. In the ground state, an element has 13 electrons in its M-shell. The element is
(a) Copper (b) Chromium (c) Nickel (d) Iron
9. The element with atomic number 35 belongs to
(a) d – Block (b) f – Block (c) p – Block (d) s – Block
10. Representative elements are those which belong to
(a) p and d – Block (b) s and d – Block (c) s and p – Block (d) s and f – Block
11. Which of the following properties generally decreases along a period?
(a) Ionization Energy (b) Metallic Character (c) Electron Affinity (d) Valency.
12. The electronic configuration of halogen is
(a) ns² np⁶ (b) ns² np³ (c) ns² np⁵ (d) ns²
13. Displacement of electrons in multiple bond in presence of attacking reagent is called
(a) Inductive effect (b) Electromeric effect (c) Resonance (d) Hyper conjugation
14. Pure Methane can be prepared by
(a) Soda lime decarboxylation (b) Kolbeselectrolytic (c) Wurtz reaction (d) Reduction
15. Which of the following alkali metals has the least melting point?
(a) Na (b) K (c) Rb (d) Cs.
16. Bauxite has the Composition
a) Al₂O₃ b) Al₂O₃.nH₂O c) Fe₂O₃ d) None of these
17. Zinc is obtained from Zinc oxide by
a) Carbon reduction b) Silver Reduction c) Electrochemical d) Acid leaching
18. Oxidation of Carbon in its hydride
a) +4 b) -4 c) +2 d) -2
19. Duralumin is an alloys of
a) Cu, Mn b) Cu, Al, Mg c) Al, Mn d) Cu, Al, Mn, Mg
20. The Basicity of Pyrophosphorous acid (H₄P₂O₅)
a) 4 b) 2 c) 3 d) 5
21. Most easily liquefiable gas is
a) Ar b) Ne c) He d) Kr
22. The magnetic moment of Mn²⁺ ion
a) 5.92 BM b) 2.80 BM c) 8.95 BM d) 3.90 BM
23. The Most common Oxidation state of Actinoids is
a) +2 b) +3 c) +4 d) +6
24. Solid CO₂ is an example of
a) Covalent Solid b) Metallic Solid c) Molecular Solid d) Ionic Solid
25. The ratio of close packed atoms to Tetrahedral hole in cubic packing is
a) 1:1 b) 1:2 c) 2:1 d) 1:4

Signature of the HOD

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POST TEST FOR 2020-2021 BATCH

Date: 11.09.2020

Marks:25

- Cathode rays are deflected by
a) an electric field b) Magnetic field c) by both d) by none
- Which of the following have largest size?
a) F^- b) O^{2-} c) Al^{3+} d) N^{3-}
- Who modified Bohr's theory by introducing elliptical orbits for electron path?
a) Hund b) Thomson c) Rutherford d) Sommerfield
- Which of the following is related with both wave nature and particle nature?
a) Interference b) $E=mc^2$ c) Diffraction d) $E=h\nu$
- An ion has 18 electrons in the outermost shell, it is
a) Cu^+ b) Th^{4+} c) Cs^+ d) K^+
- For Azimuthal quantum number $l=3$, the maximum number of electrons will be
a) 2 b) 6 c) 0 d) 14
- Electron in paramagnetic compounds are
a) Shared b) Unpaired c) donated d) paired
- Who developed long form of the periodic table?
a) Lothar Meyer b) Neils Bohr c) Mendeleev d) Moseley
- The elements in which 4f orbitals are progressively filled up are called as
a) Actinoids b) Transition metals c) Lanthanoids d) Halogens
- The only nonmetal which is liquid at ordinary temperature is
a) Hg b) Br_2 c) NH_3 d) None of these
- Electron affinity is maximum for
a) Cl b) F c) Br d) I
- Which of the following pairs will form most stable ionic bond?
a) Na and Cl b) Mg and F c) Li and F d) Na and F
- Strongest hydrogen bond is shown by
a) Water b) Ammonia c) Hydrogen Fluoride d) Hydrogen sulphide
- The molecule which has zero dipole moment?
a) CH_3Cl b) NF_3 c) BF_3 d) ClO_2
- Which of the following does not have tetrahedral structure?
a) BH_4^- b) BH_3 c) NH_4^+ d) CH_4
- In methane the bond angle is
a) 180° b) 90° c) 109° d) 120°
- Molecular orbital theory was given by
a) Kossel b) Mosley c) Mulliken d) Werner
- Which of the following molecules exhibit diamagnetic behaviour?
a) N_2 b) O_2 c) S_2 d) None of these
- Cation and anion combines in a crystal to form following type of compound?
a) Ionic b) Metallic c) Covalent d) Dipole
- Nucleophile is
a) Negative charged species b) Positive Charged c) Neutral d) None of these
- Carbocation is
a) Negatively Charged b) Positive Charged c) Neutral d) None of these
- Functional group of Carboxylic acid is
a) COOH b) CHO c) CO d) COOR
- Hydrocarbon contains only
a) C and H b) C and N c) C and O d) None of these
- Carbohydrates contains
a) C,H,O b) C,N,O c) C,N,H d) C,O,N
- Molecular formula of Glucose is
a) $C_6H_{12}O_6$ b) $C_5H_{12}O_6$ c) C_2H_5OH d) $C_{12}H_{22}O_{11}$

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