

J.J COLLEGE OF ARTS AND SCIENCE (Autonomous)

Svapuram Post, Pudukkottai-622422

DEPARTMENT OF CHEMISTRY

SYLLABUS FOR BRIDGE COURSE (2021-2022)

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

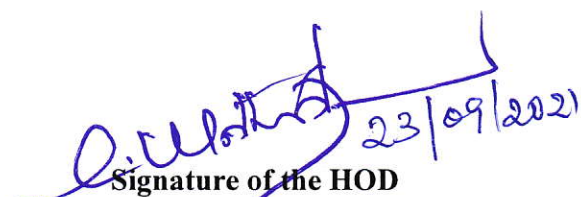
Classification of Organic Compounds - Functional group- Nomenclature- Tautomerism -Types of organic reaction-Electrophile and Nucleophile - Carbocation and Carbanion.

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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I B.Sc CHEMISTRY (2021-2022)

BRIDGE COURSE- MARKS FOR PRE TEST AND POST TEST

| S.No | Name of the Student | 23.9.21 | 24.9.21 | 25.9.21 | 27.9.21 | 28.9.21 | 29.9.21 | 30.9.21 | Pre Test (25) 23.9.21 | Post Test (25) 1.10.21 |
|------|----------------------|---------|---------|---------|---------|---------|---------|---------|-----------------------|------------------------|
| 1 | Dharanya.R | P | P | P | P | P | P | P | 16 | 22 |
| 2 | Durgadevi.V | P | P | P | P | P | P | P | 19 | 21 |
| 3 | Gowsika.M | P | A | P | P | P | P | P | 20 | 23 |
| 4 | Keerthika.M | P | P | P | P | A | P | P | 17 | 21 |
| 5 | Neka.R | P | P | P | P | P | P | P | 22 | 23 |
| 6 | Nivetha.C | P | P | P | P | P | P | P | 20 | 21 |
| 7 | Sobhana.M | P | P | P | A | P | P | P | 19 | 21 |
| 8 | Umapriya.K | P | P | P | P | P | P | P | 20 | 23 |
| 9 | Vaishnavi.D | P | P | P | P | P | P | P | 19 | 22 |
| 10 | Vidhyasri.M | P | P | P | P | P | P | P | 20 | 21 |
| 11 | Balasanthoshkumar.P | P | P | A | P | P | P | P | 19 | 21 |
| 12 | Balasubramanian.S | P | P | P | P | P | A | P | 20 | 23 |
| 13 | Chinnapandi.M | P | P | P | P | P | P | P | 23 | 21 |
| 14 | Kesavan.M | P | P | P | P | P | P | P | 19 | 20 |
| 15 | Kiruba.K | P | P | P | P | P | P | P | 18 | 22 |
| 16 | Mohamed Gani Jamin.A | P | A | P | P | P | P | P | 19 | 22 |
| 17 | Murugan.C | P | P | P | P | A | P | P | 20 | 21 |
| 18 | Nagasurya.K | P | P | P | P | P | P | P | 22 | 22 |
| 19 | Sakthi.R | P | P | P | P | P | P | P | 21 | 22 |
| 20 | Surya.R | P | P | P | P | P | P | P | 18 | 21 |
| 21 | Vasanthakumar.C | P | P | P | P | P | P | P | 21 | 21 |
| 22 | Vignesh.M | P | P | P | P | P | P | P | 19 | 20 |
| 23 | Vinothpandi.G | P | P | P | P | P | P | P | 17 | 20 |
| 24 | Vishal.K | P | P | P | P | P | P | P | 17 | 19 |

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PRE TEST FOR 2021-2022 BATCH

Date: 23.09.2021

Time: 1 Hour

Marks:25

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

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POST TEST FOR 2021-2022 BATCH

Date: 01.10.2021

Time: 1 Hour

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) $E=hv$
- 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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