

F.Y.BSc Semester-1 Chemistry Paper-II Sample questions

Inorganic Chemistry:

1. Lithium shows diagonal relationship with-----
 - a) Al
 - b) Be
 - c) Mg
 - d) Si
2. Which of the following element not belongs to main group?
 - a) K
 - b) Si
 - c) Zn
 - d) Br
3. Identify the basic compound among the following?
 - a) Al_2O_3
 - b) SiO_2
 - c) Na_2O
 - d) P_2O_5
4. Which of the following element only shows +1 oxidation state?
 - a) Tl
 - b) In
 - c) B
 - d) Al
5. Which of the following hydride is more stable and nonpoisonous?
 - a) SbH_3
 - b) NH_3
 - c) AsH_3
 - d) BiH_3
6. Incomplete combustion of carbaneous matter in automobile engines leads to-----
 - a) CO
 - b) CO_2
 - c) CH_4
 - d) C_2H_6
7. Automobile industry leads to gaseous pollutant-----
 - a) CO and CO_2
 - b) CO_2
 - c) NO_2 and NO
 - d) O_3

8. Two stage combustion is used to reduce----
- CO emission
 - CO₂ emission
 - NO₂ emission
 - O₃ emission
9. Building material get affected because of-----
- Photochemical smog
 - Greenhouse effect
 - Oxyacids of N and S
 - Ozone layer depletion
10. The formula of limestone is-----
- CaSO₄
 - MgSO₄
 - Ca(OH)₂
 - CaCO₃
11. Which of the following constituent is used in the manufacture of sodium carbonate?
- Washing soda
 - Caustic Soda
 - Baking soda
 - Soda ash
12. Which of the following is formula for peroxide?
- Li₂O
 - Li₂O₂
 - LiO₂
 - LiO₃
13. Which of the following carbide is most hard?
- Li₂C₂
 - Na₂C₂
 - MgC₂
 - Be₂C
14. Nitrides of alkaline earth metal have formula (M=metal)-----
- Mg₂N₂
 - MgN₂
 - Mg₃N₂
 - MgN₃
15. The +1 oxidation state is most exhibited by which of the following element?
- B
 - Al
 - Ga
 - Tl

16. Hybridization of each carbon in diamond is-----
- a) Sp^3 hybridized
 - b) Sp^2 hybridized
 - c) Sp hybridized
 - d) Sp^3d hybridized
17. Anomalous behavior of O is because of its-----
- a) Gaseous nature
 - b) Its physical state
 - c) Small size and more electronegativity
 - d) Ability to react with another elements
18. Lithium forms lithium nitride because of-----
- a) Electropositive character
 - b) Small size
 - c) High lattice energy
 - d) High ionization enthalpy
19. Which of the following compound is used in purification of bauxite?
- a) Na_2CO_3
 - b) $NaOH$
 - c) $NaCl$
 - d) CaO
20. Binary compounds of first group elements with nitrogen are called-----
- a) Hydrides
 - b) Oxides
 - c) Carbides
 - d) Nitrides

Organic Chemistry:

1. In Flying-wedge formula dotted line indicates atom or group
 - a. Above the plane
 - b. Below the plane
 - c. On the plane
 - d. Towards the observer
2. Which of the following is not a projection formula?
 - a. Fischer
 - b. Newmann
 - c. Sawhorse
 - d. Eclipsed
3. Number of chiral carbon atoms in lactic acid is/are
 - a. One
 - b. Two
 - c. Three
 - d. Zero
4. Asymmetric carbon atom means
 - a. Carbon atom with 4 different groups
 - b. Carbon atom with 4 electrons
 - c. Carbon atom with 4 valency
 - d. Carbon atom with 4 similar groups
5. Number of asymmetric carbon atoms in ethane is/are
 - a. One
 - b. Two
 - c. Three
 - d. Zero
6. Staggered form isthan eclipsed form
 - a. Less stable
 - b. More stable
 - c. Crowded
 - d. Sterically hindered
7. In Fischer projection formula, horizontal lines represent bonds that projects
 - a. Above the plane of paper
 - b. Below the plane of paper
 - c. On the plane
 - d. Away from the observer
8. Cis-trans isomers are also called as
 - a. Structural isomers
 - b. Position isomers
 - c. Geometrical isomers
 - d. Chain isomers

9. d-isomer rotates the plane of plane polarized light in....
- Clock wise direction
 - Anti-clock wise direction
 - Vertical direction
 - Horizontal direction
10. Optical rotation is measured by
- Potentiometer
 - Polarimeter
 - Stalagnometer
 - Nephelometer
11. Diastereoisomers are pair of isomers which.....
- Are mirror images of each other
 - Are not mirror images of each other
 - Do not rotate plane polarized light
 - Has same physical properties
12. Racemic mixture is
- Optically active
 - Optically inactive
 - Unequal amount of d and l – isomers
 - Diastereoisomers
13. Which of the following conformation of n- butane is most stable?
- Antiperiplanar
 - Anticlinal
 - Synclinal
 - Synperiplanar
14. In Z-nomenclature
- High priority groups on same side of C=C double bond
 - High priority groups on opposite side of C=C double bond
 - High priority groups on same side of C- C single bond
 - High priority groups on opposite side of C – C single bond
15. In R-S nomenclature which of following group has least priority?
- CH₃
 - COOH
 - CHO
 - H
16. Number of chiral carbon atoms in Tartaric acid is/are
- One
 - Two
 - Three
 - Zero

17. Lactic acid has isomers
- 1
 - 2
 - 3
 - 4
18. In cis-isomer ...
- Same groups are on same side of ring
 - Same groups are on opposite side of ring
 - Same groups are on opposite side of C=C double bond
 - Same groups are on same side of C-C single bond
19. Configuration means
- Three dimensional arrangement of atoms in space
 - Two dimensional arrangement of atoms in space
 - One dimensional arrangement of atoms in space
 - None of the above
20. l-isomer rotates the plane of plane polarized light in....
- Clock wise direction
 - Anti-clock wise direction
 - Vertical direction
 - Horizontal direction

Physical Chemistry:

- The rate constant of a reaction depends upon
 - temperature of the reaction
 - extent of the reaction
 - initial concentration of the reactants
 - the time of completion of reaction
- Rate of which reaction increases with temperature?
 - Exothermic reaction
 - Endothermic reaction
 - (a) and (b) both
 - None of the above
- The order of reaction is decided by
 - temperature
 - concentration of reactants
 - molecularity
 - pressure
- Rate constant in case of first order reaction is
 - inversely proportional to the concentration units
 - independent of concentration units
 - directly proportional to concentration units
 - inversely proportional to the square of concentration units
- The unit of rate constant for the reaction
$$2\text{H}_2 + 2\text{NO} \rightarrow 2\text{H}_2\text{O} + \text{N}_2$$
which has rate = $k[\text{H}_2][\text{NO}]^2$, is
 - $\text{mol L}^{-1} \text{s}^{-1}$
 - s^{-1}
 - $\text{mol}^{-2} \text{L}^2 \text{s}^{-1}$
 - mol L^{-1}
- If the rate of a reaction is expressed by, rate = $k[\text{A}]^2[\text{B}]$, the order of reaction will be
 - 2
 - 3
 - 1
 - 0

7. The unit of rate and rate constant are same for a
- (a) zero order reaction
 - (b) first order reaction
 - (c) second order reaction
 - (d) third order reaction
8. The number of molecules of the reactants taking part in a single step of the reaction is indicative of
- (a) order of a reaction
 - (b) molecularity of a reaction
 - (c) fast step of the mechanism of a reaction
 - (d) half-life of the reaction
9. A plot of $\log(a - x)$ against time t is a straight line. This indicates that the reaction is of
- (a) zero order
 - (b) first order
 - (c) second order
 - (d) third order
10. In pseudo unimolecular reactions
- (a) both the reactants are present in low concentration
 - (b) both the reactants are present in same concentration
 - (c) one of the reactant is present in excess
 - (d) one of the reactant is non-reactive
11. If the liquid is heated to increase the kinetic energy then the liquid will
- a) Evaporate slowly
 - b) Evaporate faster
 - c) Not evaporate
 - d) Boil
12. When the movement of water molecule in liquid becomes equal to molecule in vapour form a state is called.....
- a) Equilibrium
 - b) Constant
 - c) ideal
 - d) Non-ideal

13. The units in which molar refraction is expressed as.....

a) $\text{cm}^3 \text{mol}$

b) $\text{cm}^{-3} \text{mol}$

c) $\text{cm}^{-3} \text{mol}^{-1}$

d) $\text{cm}^3 \text{mol}^{-1}$

14. Plants get water through the roots because of

a) Capillarity

b) viscosity

c) gravity

d) Elasticity

15. The liquid with high intermolecular attractive forces have Viscosity

a) Low

b) intermediate

c) high

d) none of these

16. Surface tension of liquidwith increase in temperature.

a) remains same

b) Decreases

c) Increases

d) None of these

