



The battery hold 3.5 L of the acid during the discharge of the battery. The density of  $\text{H}_2\text{SO}_4$  falls to  $1.139 \text{ gm L}^{-1}$  (20%  $\text{H}_2\text{SO}_4$  by mass)

Q-11. Write the reaction taking place at the cathode when the battery is in use

Q-12. How much electricity in terms of faraday is required to carry out the reduction of one mole of  $\text{PbO}_2$ ?

Q-13. What is the molarity of sulphuric acid before discharge?

In the following questions two statements are given one labeled Assertion (A) and the other labeled Reason (R) Select the correct answer to these question from the codes (a) (b), (c) and (d) as given below

- (a) Both A and R are correct statement and R is the correct explanation of the A
- (b) Both A and R are Correct statements but R is not the correct explanation of the Assertion (A)
- (c) Assertion (A) is correct but Reason (R) is incorrect statement
- (d) (A) is incorrect but (R) is correct statement

Q-14. (A)  $E_{\text{cell}}$  should have a positive value for the cell to function

(R)  $E_{\text{cathode}} < E_{\text{anode}}$

Q-15. (A) Copper sulphate cannot be stored in zinc vessel

(R) Zinc is less reactive then copper

Q-16. (A) The mole cularity of the reaction  $\text{H}_2 + \text{Br}_2 \rightarrow 2 \text{HBr}$  appears to be 2  $\longrightarrow$

(R) Two molecules of the reactants are involved in the given elementary reaction.

Q-17. (A) Order of the reaction can be zero or fractional

(R) We cannot determine order from balanced chemical equation

Q-18. (A) Molarity of solution changes with temperature

(R) Molarity is a colligative property.

Q-19. (A) An ideal solution obeys henry's law

(R) Iran Ideal solution solate – solate as well as solvent solvent interaction Q-20. (A) Osmotic pressure is a colligative property.

(R) Osmotic pressure is directly proportional to molarity

Q-21. State Honery's law. Write its one application. What is the effect of temperature on solution of gases in liquid?

Q-22. calculate the boiling point of solution when 2g of  $\text{Na}_2\text{SO}_4$  ( $M=142 \text{g mole}^{-1}$ ) was dissolved in 50g of water assuming  $\text{Na}_2\text{SO}_4$  undergoes complete ionization ( $K_b$  of water= $0.52 \text{kg mole}^{-1}$ )

Q-23. The resistance of a conductivity cell containing 0.001 M KCl solution at 298 K is 1500 ohm what is the cell constant if conductivity of 0.001 M KCl solution at 298 is  $0.146 \times 10^{-3} \text{ S cm}^{-1}$

Q-24. Explain the reactions occurring during the corrosion of iron in the atmosphere.

Q-25 for a first order reaction show that time required for 99% completion is turce the time required for the completion of 90% of reaction

Or

Define half life of a reaction. Write the expression of half life for

- (i) Zero order reaction and (ii) first order reaction

Q-26. The activation energy of a reaction is  $75.2 \text{ kJ mole}^{-1}$  in the absence of a catalyst lowers to  $50.14 \text{ kJ mole}^{-1}$  with a catalyst how many time will the rate of reaction grow in the presence of a catalyst if the reaction proceeds at  $25^\circ \text{C}$

Q-27. (i) Define the following terms.

- (a) Limiting molar conductivity  
(b) Fuel cell  
(ii) How much electricity is required in coulomb for the oxidation if.  
(i) 1 mole of  $\text{H}_2\text{O}$  to  $\text{O}_2$   
(ii) 1 mole of  $\text{FeO}$  to  $\text{Fe}_2\text{O}_3$