Uka Tarsadia University (Diwaliba Polytechnic)
Diploma in Environmental Engineering
Objective Type Questions (Engineering Chemistry)

Sr. no	Questions and answers
1	Which among the following chemical bond were described by Kossel and Lewis? a) Metallic bond b) Polar covalent bond c) Coordinate bond d) Ionic and Covalent bond Ans-d
2	Which among the following is not a property of Ionic bond? a) Losing of electrons b) Gain of electrons c) Sharing of electrons d) Transfer of electrons Ans-c
3	Which among the following formation is not an example of Covalent bond? a) LiF b) NH_3 c) CF_4 d) HF Ans-a

4	State whether the given statement is true or false “Ionic bonds are nondirectional”. a) True b) False ANs-a
5	If a bond is made up of a large number of organic compound, then the bond is termed as? a) Ionic bond b) Metallic bond
	c) Covalent bond d) Dipolar bond Ans-c
6	Which among the following is not an example of hydrogen bond? a) H_20 b) Liquid HCl c) NH_3 d) $CHCl_3$ Ans-b
7	Atoms undergo bonding in order to _____ a) Attain stability b) Lose stability c) Move freely d) Increase energy Ans-a

8	An atom differs from its ion in which among the following? a) Mass number b) Atomic number c) Neutrons d) Number of protons Ans-d
9	Which among the following is NOT both a molecule and a compound? a) C_6 H_{12} O_6 b) H_2O c) CO_2 d) NaCl Ans-d
10	Which element consist FCC type arrangement a-Aluminium b-copper c-gold d-all of the above Ans-d
11	Which element consist BCC type arrangement a-Iron b-Tangston c-Chromium d-all of the above Ans-d

12	Which element consist HCP type arrangement a-Cadmium b-Magnesium c-Zinc d-all of the above Ans-d
13	Which element not consist HCP type arrangement a-Cadmium b-Magnesium c-Zinc d- Iron Ans-d
14	Which element not consist BCC type arrangement a-Cadmium b-Magnesium c-Zinc d-all of the above Ans-d
15	Which element not consist HCP type arrangement a-Aluminum b-copper c-gold d-all of the above Ans-d

16	Melting point of S_8 molecule is__°C a-200 b-199 c-195 d-198 Ans-b
17	Melting point of P_4 molecule is__°C a- 44.5 b-54.5 c-44.1 d-46.5 Ans-c
18	Melting point of diamond is__°C a-3600 b-3400 c-3500 d-4000 Ans-c
19	In haber process manufacture of ammonia which catalyst is used? a-Fe_2o_3 b-pt c-H_2SO_4 d-Ni Ans-a
20	Manufacture of vegetable ghee which catalyst is used? a-Fe2o3 b-pt

	c-H2SO4 d-Ni Ans-d
21	Manufacture of alcohol from glucose which catalyst is used? a-Zymase b-pt c-H2SO4 d-Ni Ans-a
22	All FCC lattice will consist of ____atom a- Fourteen b- Eighteen c- Sixteen d- Nineteen Ans-a
23	All BCC lattice will consist of ____atom a-10 b-9 c-8 d-15 Ans-b

24	____bond is obtained by the simultaneous attractive interaction between the kernels and mobile electrons in a metal crystal. a-Metallic bond b-Covalent bond c-Ionic bond d-none of the above Ans-a
25	Because of which bonding, evaporation of water is slow? a-Metallic bond b-Covalent bond c-Ionic bond d-H-bond Ans-d
Unit-2	
1	What is the neutral value of pH scale? A. Less than 5 B. Equal to 7 C. Less than 8 D. Less than 10 Ans-b
2	Who had invented the pH Scale? A. S.P.L Sorenson B. Benjamin Franklin C. Henry Moseley D. Wilhelm Rontgen Ans-a

3	In which of the following field pH scale is important for measurements? A. Medicine B. Forestry C. Food Science D. All of the above Ans-d
4	What is the pH value of very strong acid solution? A. Less than 7 B. Less than 5 C. Less than 2 D. Less than zero Ans-d
5	Why we measure the pH of sea water? A. It helps in corrosion research. B. It helps in agricultural activity. C. It helps in fermentation. D. It helps in sterilization. Ans-a
6	Which statement is correct regarding Buffer Solution? A. It is a solution whose pH change when small amount of an acid or base is added in it. B. It is a solution whose pH does not change when small amount of an acid or base is added in it. C. It does not use pH value as constant in wide variety of chemical applications. D. The solution of methanoic acid is an example of effective buffer solution. Ans-b

7	What is the pH value of pure water? A. Less than 7 B. Greater than 7 C. Equal to 7 D. Greater than 14 Ans-c
8	How we will come to know that a given solution is acidic? A. If its pH value is less than 7 B. If its pH value is greater than 7 C. If its pH value is less than 5 D. If its pH value is 5 Ans-a
9	What is the pH value of pure alcohol? A. 7 B. 7.33 C. 7.80 D. 8 Ans-b
10	Kw is the ionisation constant for water and its value is: A. 1×10^{-7} B. 1×10^{7} C. 1×10^{14} D. 1×10^{-14} Ans-d

11	An acidic solution has: A. Less concentration of hydrogen ions than hydroxide ions. B. More concentration of hydroxide ions than hydrogen ions. C. More concentration of hydroxyl ions. D. Equal concentration of hydroxide and hydrogen ions. Ans-b
12	If 0.08 mole of a compound is dissolved in water and 0.02 mole of it is ionized, then the degree of ionization of the compound is___ a-0.55 b-0.25 c-0.30 d-0.35 Ans-b
13	If 0.05 mole of a compound is dissolved in water and 0.02 mole of it is ionized, then the degree of ionization of the compound is___ a-0.55 b-0.40 c-0.30 d-0.35 Ans-b
14	If the pH of water having 10^{-7} mole/litre concentration at ____ °C. a-27 b-23 c – 25 d – 29 Ans - c

15	Calculate the pH of a solution having 0.005 M concentration of H3O+ in aqueous solution. a-2.3030 b-2.3010 c-2.2520 d-2.3210 Ans-b
16	Dielectric constant of vaccum is ___ a-1 b-2 c-3 d-4 Ans-a
17	Dielectric constant of Benzene is ___ a-2.5 b-2.3 c-2.6 d-2.9 Ans-b
18	Dielectric constant of water is ___ a-50 b-60 c-80 d-90 Ans-c

19	Dielectric constant of alcohol is ___ a-25 b-30 c-35 d-40 Ans-a
20	Dielectric constant of Ether is ___ a-5.1 b-4.1 c-6.1 d-3.1 Ans-b
21	Which of the following are weak electrolytes? a-NH_3 b-Methylamine c-ammonium hydroxide d-all of the above Ans-d
22	Which of the following are strong electrolytes? a-HCL b-HNO_3 c-H_2SO_4 d-all of the above Ans-d

23	The ionization of an electrolyte in solution depends on_____ a-Temperature b-Dilution of solution c-Nature of ionic compound d-All of the above Ans-d
24	In which field pH is used? a-Agriculture b-Bio medical c-Paper and textile industries d-All of the above Ans- d
25	In which field pH is used? a-chemical laboratory b-city water supply c-electroplating industries d-All of the above Ans-d
Unit-3	
1	Lower is PH , corrosion is, A. Greater B. Lower C. Constant D. None of above Ans-a

2	_____reduces the moisture content of air. a- Dehumidification b- Modification of environment c- Inhibitors d- Hot dipping process Ans-a
3	If iron surface is coated with a thin layer of tin, the process is called____ . a-Tinning b-Galvanising c-Sheradizing d-All of the above Ans-a
4	____involves binding firmly and permanently, a dense, homogeneous layer of a coating metal to the base metal on one or both the sides. a-metal cladding b-metal spraying c- Galvanising d-Sheradizing Ans-a
5	____is a process of cementation, using zinc powder as coating material. a-metal cladding b-metal spraying c- Galvanising d-Sheradizing Ans-d

6	Metals commonly used as sacrificial anodes are ___ a-Zn b-Al c-Mg d-all of the above Ans-d
7	The greater is the content of humidity, the ____is the rate and extent of the corrosion. a- greater b- lower c- both a and b d- none of the above Ans-a
8	Chemical formula of Rust is, a. Fe_2O_3 b. FeO c. Fe_3O_4 D. $Fe_2O_3.XH_2O$ Ans-d
9	Which of following metals could provide cathodic protection to Fe? A. Al & Cu B. Al & Zn C. Zn & Cu D. Al & Ni Ans-b

10	Smaller the grain size, corrosion is, a. Greater b. Lower c. Constant d. Doesn't affected Ans-a
11	Process of corrosion enhanced by, a. AIR & Moisture b. Electrolytes in water c. Metallic impurities d. Gases like CO_2 & SO_2 e. All of above. Ans-e
12	The process of deterioration of a metal due to unwanted chemical or electrochemical interaction of the metal with its environment is called _____ a. Electrolysis b. Electrodialysis c. Corrosion d. Deposition Ans-c
13	Which of the following is an example of corrosion? a. Rusting of iron b. Tarnishing of silver c. Liquefaction of ammonia d. Rusting of iron and tarnishing of silver Ans-d
14	Metals does not exist in nature in the form of _____ a. Nitrates b. Sulphates c. Carbonates d. Oxides Ans-a

15	Due to corrosion, useful properties of metals such as malleability, ductility and electrical conductivity are lost. a) True b) False Ans-a
16	Select the incorrect statement from the following option. a. Replacement of corroded equipment is time-consuming b. Corrosion causes contamination of product c. Corrosion increases the electrical conductivity of metals d. Corrosion causes leakage of toxic liquid or gases Ans-c
17	Corrosion ____the electrical conductivity of metals. a- decreases b- increases c- both a and b d- none of the above Ans-a
18	In wet corrosion _____ are formed at the cathodic areas. a) Organic compounds a. Metallic ions b. Non-metallic ions c. Inorganic compounds Ans-c
19	Which type of reaction occurs in anodic areas? a. Oxidation b. Reduction c. Displacement d. Addition Ans-a

20	Rusting of iron in neutral aqueous solution of electrolyte occurs in the presence of oxygen with the evolution of _____ a. Nitrogen b. Chloride c. Sulphide d. Hydrogen Ans-d
21	Where does corrosion occurs in the rusting of iron? a. At cathode b. At anode c. In electrolytic solution d. Outside the solution Ans-b
22	Which of the following cathodic reaction does not occur due to release of electrons at the anode? a. Oxygen absorption b. Hydrogen evolution c. Electrodialysis d. Electroplating Ans-c
23	Select the incorrect statement about the wet corrosion from the following option. a. It involves the setting up of large number of galvanic cells. b. It is explained by absorption mechanism. c. It occurs only on heterogeneous metal surface. d. It is a fast process. Ans-b

24	Which of the following factor does not contribute to the rusting of iron? a. Presence of acids and electrolytes b. Contact with less reactive metal c. Presence of water and oxygen d. Contact with more reactive metal Ans-d
25	Concentration cell corrosion occurs when a metallic surface is partially immersed in an electrolyte and partially exposed to air. a. True b. False Ans-a
26	Poorly oxygenated part becomes cathode whereas well oxygenated part becomes anode in the differential aeration corrosion. a. True b. False Ans-b
27	Which of the following factor influences the rate and extent of corrosion? a. Nature of metal only b. Nature of the environment only c. Both nature of metal and environment d. Nature of reaction Ans-c
28	Which of the following is not associated with the nature of metal? a. Nature of oxide film b. Nature of electrolyte c. Purity d. Physical state Ans-b

29	Which of the following is not associated with the nature of the environment? a. Humidity b. Temperature c. Effect of pH d. Volatility of corrosion products Ans-d
30	Lesser is the purity of the percentage of metal, faster is the rate of corrosion. a. True b. False Ans-a
31	Rate of corrosion of anodic region is inversely proportional to the _____ a. Cathodic area b. Anodic area c. Product of anodic area and cathodic area d. Sum of anodic area and cathodic area Ans-b
32	Which of the following medium is most corrosive? a. Acidic b. Alkaline c. Neutral d. Both acidic and basic Ans-a
33	Excessive corrosion of metal takes place if corrosion product is _____ a. Volatile b. Non-volatile c. Both volatile as well as non-volatile d. Initially volatile and then non-volatile Ans-a