

IMU-CET SAMPLE QUESTIONS

Chemistry 03

- Chlorine atom differs from chloride ion in the number of
 - Proton
 - Neutron
 - Electrons
 - Protons and electrons
- The mass of an atom is constituted mainly by
 - Neutron and neutrino
 - Neutron and electron
 - Neutron and proton
 - Proton and electron
- An atom has 26 electrons and its atomic weight is 56. The number of neutrons in the nucleus of the atom will be
 - 26
 - 30
 - 36
 - 56
- Which one of the following constitutes a group of the isoelectronic species
 - $\text{NO}^+, \text{C}_2^{2-}, \text{CN}^-, \text{N}_2$
 - $\text{CN}^-, \text{N}_2, \text{O}_2^{2-}, \text{C}_2^{2-}$
 - $\text{N}_2, \text{O}_2^-, \text{NO}^+, \text{CO}$
 - $\text{C}_2^{2-}, \text{O}_2^-, \text{CO}, \text{NO}$
- The electronic configuration $1s^2 2s^2 2p^6 3s^2 3p^6 3d^9$ represents:
 - Metal atom
 - Non metal atom
 - Non metallic anion
 - Metallic cation

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6. In a given shell the order of screening effect is :
- $s > p > d > f$
 - $s > p > f > d$
 - $f > d > p > s$
 - $s < p < d < f$
7. The correct order of electron affinity of the halogen atoms are :
- $F < Cl < Br > I$
 - $F < Cl \sim Br > I$
 - $F > Cl > Br > I$
 - $F < Cl > Br > I$
8. Which of the following orders regarding ionization energy is correct?
- $N > O > F$
 - $N < O < F$
 - $N > O < F$
 - $N < O > F$
9. The bond order in O_2^- ion is
- 2
 - 1
 - 2.5
 - 1.5
10. Unusually high B.P. of water is result of
- Inter molecular hydrogen bonding
 - Intra molecule hydrogen bonding
 - Both intra and inter molecular hydrogen bonding
 - High specific heat

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11. Which one of the following has one unpaired electrons?

- (a) KO_2
- (b) AlO_2^-
- (c) BaO_2
- (d) NO_2^{+1}

12. Which one of the following has minimum dipole moment?

- (a) Butene - 1
- (b) cis-Butene -2
- (c) trans-Butene - 2
- (d) 2-methyl propene

13. $q = -W$ is true for a process which is

- (a) adiabatic
- (b) cyclic
- (c) isochoric
- (d) isothermal

14. For a cyclic process

- (a) $Q = 0$
- (b) $\Delta U = 0$
- (c) $W = 0$
- (d) $PdV = 0$

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15. Work done when one mole of gas expands from 5 lit to 20 lit at constant pressure of 1 atm is
- (a) 15 lit-atm
 - (b) -15 lit-atm
 - (c) 4 lit-atm
 - (d) 0.4 lit-atm
16. A gas expands from 4 lit to 6 lit at a pressure of 76 cm of Hg. The work done in joule is nearly
- (a) 76×2
 - (b) $\frac{76 \times 6}{4}$
 - (c) 2
 - (d) 202.8
17. Which of the following is not a crystalline solid?
- (a) Common salt
 - (b) Sugar
 - (c) Iron
 - (d) Rubber
18. Which of the following is a non-crystalline solid?
- (a) CsCl
 - (b) NaCl
 - (c) CaF₂
 - (d) Glass

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19. Amorphous solids
- (a) poses sharp melting points
 - (b) undergo clean cleavage with knife
 - (c) do not undergo clean cleavage with knife
 - (d) possess orderly arrangement over long distances
20. A pseudo solid is
- (a) Glass
 - (b) pitch
 - (c) KCl
 - (d) glass and pitch
21. The molarity of pure water is
- (a) 55.55
 - (b) 18
 - (c) 100
 - (d) 50
22. The osmotic pressure (π) is given as equal to
- (a) M/RT
 - (b) MR/T
 - (c) MRT
 - (d) RT/M
23. The plant cell will shrink when it is placed in
- (a) A hypertonic solution
 - (b) A hypotonic solution
 - (c) An isotonic solution
 - (d) None of these

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24. The molal elevation constant is the ratio of the elevation of boiling point to
- (a) Molarity
 - (b) Molality
 - (c) Normality
 - (d) Mole fraction of solute
25. Critical temperature for A, B, C and D gases are 25°C , 10°C , -80°C and 15°C respectively. Which gas will be liquefied more easily?
- (a) A
 - (b) B
 - (c) C
 - (d) D
26. 'a' and 'b'; are van der Waal's constants for gases, chlorine is more easily liquefied than ethane because :
- (a) a and b for $\text{Cl}_2 >$ a and b for C_2H_6
 - (b) a and b for $\text{Cl}_2 <$ a and b for C_2H_6
 - (c) a for $\text{Cl}_2 <$ a for C_2H_6 but b for $\text{Cl}_2 >$ b for C_2H_6
 - (d) a for $\text{Cl}_2 >$ a for C_2H_6 but b for $\text{Cl}_2 <$ b for C_2H_6
27. The molecular velocity of any gas is :
- (a) Inversely proportional to absolute temperature
 - (b) Directly proportional to square of temperature.
 - (c) Directly proportional to square root of temperature.
 - (d) Inversely proportional to the square root of temperature

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28. When r , p and M represent rate of diffusion, pressure and molecular mass respectively. Then ratio of rates of diffusion $\left(\frac{r_A}{r_B}\right)$ of two gases A and B, is given as :
- (a) $(P_A/P_B)(M_B/M_A)^{1/2}$
 - (b) $(P_A/P_B)^{1/2}(M_B/M_A)$
 - (c) $(P_A/P_B)(M_A/M_B)^{1/2}$
 - (d) $(P_A/P_B)^{1/2}(M_A/M_B)$
29. Alkali metals lose electrons in
- (a) s-orbitals
 - (b) p-orbitals
 - (c) d-orbitals
 - (d) f-orbitals
30. The valence shell electronic configuration of alkali metals is
- (a) ns^2np^1
 - (b) ns^{-1}
 - (c) $(n-1)p^6ns^2$
 - (d) $(n-1)d^2ns^2$
31. Alkali metals are strong reducing agent because
- (a) These are monovalent
 - (b) Their ionization potential are very high.
 - (c) Their standard electrode potential are very much negative.
 - (d) These are metals.

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32. In the Castner's process for the extraction of sodium, the anode is made ofmetal
- (a) copper
 - (b) Iron
 - (c) sodium
 - (d) nickel
33. The function of fluorspar in the electrolytic reduction of alumina dissolved in fused cryolite (Na_3AlF_6) is
- (a) As a catalyst
 - (b) To lower the temperature of the melt and to make the fused mixture very conducting.
 - (c) To decrease the rate of oxidation of carbon at the anode
 - (d) None of the above
34. Borax is used as cleansing because on dissolving in water it gives
- (a) Alkaline solution
 - (b) Acidic solution
 - (c) Bleaching solution
 - (d) Colloidal solution
35. Purification of aluminium done by electrolytic refining is known as
- (a) Serpeck's process
 - (b) Hall's process
 - (c) Baeyer's process
 - (d) Hoop's process

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36. Heating an aqueous solution of aluminium chloride to dryness will give
- (a) AlCl_3
 - (b) Al_2Cl_6
 - (c) Al_2O_3
 - (d) $\text{Al}(\text{OH})\text{Cl}_2$
37. Which is not amphoteric
- (a) Al^{3+}
 - (b) Cr^{3+}
 - (c) Fe^{3+}
 - (d) Zn^{2+}
38. Which does not form amalgam
- (a) Fe
 - (b) Co
 - (c) Ag
 - (d) Zn
39. The number of unpaired electrons in ferrous ion is
- (a) 5
 - (b) 4
 - (c) 3
 - (d) 2

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40. Identify the incorrect statement among the following
- (a) d-block elements show irregular and erratic chemical properties among themselves
 - (b) La and Lu have partially filled d orbitals and no other partially filled orbitals.
 - (c) The chemistry of various lanthanoids is very similar
 - (d) 4f and 5f orbitals are equally shielded
41. Hydrogen can be fused to form helium at
- (a) High temperature and high pressure
 - (b) High temperature and low pressure
 - (c) Low temperature and high pressure
 - (d) Low temperature and low pressure
42. Hydrogen can be prepared by mixing steam, and water gas at 500 °C in the presence of Fe_3O_4 and Cr_2O_3 and C_2O_3 . This process is called
- (a) Nelson process
 - (b) Serpeck's process
 - (c) Bosch process
 - (d) Parke's process
43. Which of the following explanation is best for not placing hydrogen with alkali metals or halogen
- (a) The ionization energy of hydrogen is high for group of alkali metals or halogen
 - (b) Hydrogen can form compounds
 - (c) Hydrogen is much lighter element than the alkali metals or halogens
 - (d) Hydrogen atom does not contain any neutron

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44. Hydrogen is not obtained when zinc reacts with
- Cold water
 - Hot NaOH solution
 - Conc. sulphuric acid
 - Dilute HCl
45. $-C\equiv C-$ bond is found in
- Ethene
 - Butene
 - Ethyne
 - Glycerine
46. Which compound shows dipole moment
- 1,4-dichloro benzene
 - 1,2-dichloro benzene
 - Trans-1, 2-dichloro ethene
 - Trans-2-butene
47. Compound which shows positive mesomeric effect
- $CH_2 = CH - Cl$
 - $C_6H_5 - N - Me_3$
 - $CH_2 = CH - CH_2Cl$
 - $C_6H_5 - CH = CHCl$
48. Which of the following is most reactive towards nucleophilic substitution reaction
- $CH_2 = CH - Cl$
 - C_6H_5Cl
 - $CH_3CH = CHCl$
 - $ClCH_2 - CH = CH_2$

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49. In the course of a chemical reaction an oxidant
- (a) Loses electrons
 - (b) Gains electrons
 - (c) Both loses and gains electron
 - (d) electron change takes place
50. H_2O_2 reduces $\text{K}_4\text{Fe}(\text{CN})_6$
- (a) In neutral solution
 - (b) In acidic solution
 - (c) In non-polar solvent
 - (d) In alkaline solution

1.C	11. A	21.A	31.C	41.A
2. C	12. C	22.C	32.C	42.C
3. B	13.D	23.A	33.B	43.C
4. A	14.B	24.B	34.A	44.C
5.D	15.B	25.A	35.D	45.C
6.A	16.D	26.D	36.C	46.B
7.D	17) D	27.C	37.C	47.D
8.C	18) D	28.A	38.A	48.D
9. D	19) A	29.A	39.B	49.B
10. A	20) A	30.B	40.D	50.B