Chemistry Model Question Paper -2 Key Answers

Question 1: Which of the following possess net dipole moment?

(A)SO_2

(B)BF_3

(C)$BECL_2$

(D)CO_2

Answer 1: (A)

Question 2: The number of π -bonds and d α bonds present in naphthalene are respectively

(A) 6, 19

(B) 5, 19

(C) 5, 11

(D) 5, 20

Answer 2: (B)

Question 3: The reaction In Which △H> △U is

(A) $N_2(g)+ O_2(g) \rightarrow 2N0(g)$

(B) $CaCO_3(S) \rightarrow CaO(S)+ C0_2(g)$

(C)$N_2(g)+3H_2(g) \rightarrow 2NH_3(g)$

(D) $CH_4(g)+20_2(g) \rightarrow CO_2(g)\ 2H_2O(I)$

Answer 3: (B)

Question 4: The number of moles of electron required to reduce 0.2 mole of $Cr_20_3^{-2}$, to Cr^{+3}

(A) 1.2

(B) 6

(C) 12

(D) 0.6

Answer 4: (A)

Question 5: In the reaction $B(OH)_3 + 2H_20 \rightarrow [B(OH)_4\ ] + H_20\ B(OH)_3$ functions are

(A) Protonic acid

(B) Lewis base

(C) Bronsted acid

(D) Lewis acid

Answer 5: (D)

Question 6: Match the following acids with their pKa values:

Acid		pka	
a.	Phenol	i.	16
b.	p-Nitrophenol	ii.	0.78
c.	Ethanol	iii.	10
d.	Picric acid	iv	7.1

	A	B	c	d
(A)	Iii	Iv	I	Iii
(B)	Ii	i	ii	iv
(C)	Iii	i	Iv	ii
(D)	Iv	Ii	iii	I

Answer 6: (A)

Question 7: Which of the following can be used to test the acidic nature of ethanol?

(A) Blue litmus

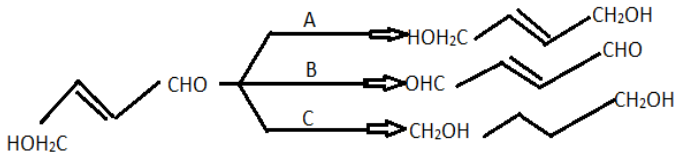
(B) Na_2CO_3

(C) $NaHCO_3$

(D) Na metal

Answer 7: (D)

Question 8:



The reagents A, B and c respectively areCH2OH

(A) H_2/pd, PCC, $NaBH_4$
(B) $NaBH_4$, alk, $KMnO_4$, H_2/pd
(C) $NaBH_4$, PCC, H_2/pd
(D) H_2/pd, alk, $KMnO_4$, $NaBH_4$

Answer B:(C)

Question 9: Propanoic acid undergoes HVZ reaction to give chloropropanoic acid. The product

Obtained is

(A) Stronger acid than propanoic acid

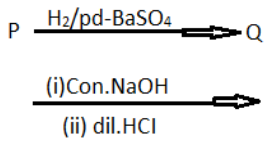
(B) As stronger as propanoic acid

(C) weaker acid than propanoic acid

(D) Stronger than dichloropropanoic acid

Answer 9:(A)

Question 10:



R and S form benzyl benzoate when treated with each other. Hence P is

(A) C_6H_5CHO

(B) $C_6H_5CH_2OH$

(C) C_6H_5COCl

(D C_6H_5COOH

Answer 10:(C)

Question 11: Among the following main reactions occurring in blast furnace during extraction of iron from haematite are

(i) $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

(ii) $FeO + SiO_2 \rightarrow FeSiO_3$

(Ill) $Fe_2O_3 + 3C \rightarrow 2Fe + 3CO$

(iv) $CaO + SiO_2 \rightarrow CaSiO_3$

(A) (i) and (ii)

(B) (iii) and (iv)

(C) (ii) and (iii)

(D) (i) and (iv)

Answer 11:(D)

Question 12: Which of the following pair contains 2 long pair of electrons on the central atom?

(A) $I_3^+.H_2O$

(B) H_2O, NF_3

(C) XeF_4, NH_3

(D) SO^2_4, H_2S

Answer 12:(A)

Question 13: Which of the following statement is correct?

(A) Cl_2 oxidises H_2O to O_2 but F_2 does not.

(B) Cl_2 is a Stronger oxidizing agent than F_2.

(C) F_2 oxidises H_2O TO O_2, but Cl_2 does not

(D) Fluoride is a good oxidising agent.

Answer 13:(C)

Question 14: 0.1 mole or XeF_6 is treated with l.8 g of water. The product obtained is

(A) XeO_3

(B) XeO_2F_2

(C) $XeOF_4$

(D) Xe + XeO_3

Answer l4: (C)

Question 15: In the reaction of gold with aquaregia, oxidation state of Nitrogen changes from"

(A) +4 to +2

(B) +6 to +4

(C) +5 to +2

(D) +3 to +1

Answer 15: (C)

Question 16: The vitamin tha1 helps to clotting of blood is

(A) A

(B)C

(C) B_2

(D) K

Answer 16: (D)

Question 17: The polymer containing five methylene groups in Its repeating unit is

(A) Nylon 6, 6

(B) NyIon 6

(C) Dacron

(D) Bakelite

Answer 17:(B)

Question 18: Cis -1, 4 -polyisoprene is called

(A) Buna -N

(8) Neoprene

(C) Buna-S

(0) Natural rubber

Answer l8: (D)

Question 19: Which cleansing agent gets precipitated in hard water?

(A) Sodium lauryl sulphate

(B) Sodium Stearate

(C) Cetyl trimethyl ammonium bromide

(D) Sodium dodecyl benzene sulphonate

Answer 19: (B)

Question 20: Anti-histamine among the following is

(A) Bromopheneramine

(B) Morphine

(C) Amoxycillin

(D) Chloroxylenol

Answer 20: (A)

Question 21.: The elements in which electrons are progressively filled in 4f 0rbital are called"

(A) Actinoids

(B)Transition elements

(C) Lanthanoids

(D) Halogens

Answer 21:(C)

Question 22: incorrect Statement with reference to Ce (Z=58)

(A) Ce^{4+} is a reducing agent.

(B)Ce in +3 oxidation state Is more stable than in +4.

(C) Atomic size of Ce is more than that or Lu.

(D) Ce shows common oxidation states or +3 and +4

Answer 22:(A)

Question 23: A mixture of NaC/and $K_2Cr_2O_7$ is heated with conc. H_2S0_4, deep red vapours and formed. Which of the following statements is false?

(A) The vapours give a yellow solution with NaOH.

(B) The vapours contain CrO_2Cl_2 only.

(C) The vapours contain CrO_2Cl_2 and Cl_2.

(D) The vapours when passed into lead acetate in acetic give a yellow precipitate.

Answer 23:(C)

Question 24: Which of the following statements is wrong?

(A) In highest oxidation states, the transition metals show acidic character.

(B) Mn^{3+} and CO^{3+} are oxidizing agents in aqueous solution.

(C) metals in highest oxidation states are more stable in oxide then in fluorides.

(D) All elements of 3d series exhibit variable oxidation states.

Answer 24:(D)

Question 25: Which among the following is the strongest solid?

(A) CN

(B) NH_3

(C) CO

(D) en

Answer 25:(C)

Question 26: Which of the following is a network crystalline solid?

(A)I_2

(B) AIN

(C) NaCI

(D) Ice

Answer 26:(B)

Question 27: The number of atoms in 2.4 g of body centred cubic crystal with edge length 200 pm is

(density =10 g cm^{-3}, N_A= 6 x 10^{23} atoms/mol)

(A) 6 x 10^{22}

(B)6 x 10^{20}

(C) 6x 10^{23}

(D) 6 x 10^{19}

Answer 27:(A)

Ques1ion 28: 1mole of NaCl is doped with 10^{-5} mote of $SrCl_2$. The number of cationic vacancies

In the crystal Lattice will be

(A) 6.022 x 10^{18}

(B) 6,022 x 10^{15}

(C) 6.022 x 10^{23}

(D) 12,044 x 10^{20}

Answer 28:(A)

Question 29: a non-volatile solute 'A' tetramerises in water to the extent of 80%, 2.5g of 'A' in 100g of water, lower the freezing point by 0.3 degree celceices. The molar A mass of A in mol L^{-1} is (k, for water = 1.86 k kg mol^{-2})

(A) 62

(B) 221

(C) 155

(D) 354

Answer 29:(A)

Question 30: Solution 'A' contains acetone dissolved in chloroform and solution 'B' contains acetone dissolved in carbon disulphide. The type of deviations from Raoult's law shown by solutions A and B respectively are

(A) Positive and Positive.

(B) Positive and negative

(C) negative and negative

(D) negative and Positive

Answer 30:(d)

Question 31: The mass of AgCI precipitated when solution containing 11.70g of NaCl is added to solution containing 3.4g of $AgNO_3$ is [Atomic mass of Ag = 108, Atomic mass of Na=23]

(A) 5.74 g

(B) 1.17g

(C) 2.87 g

(D) 6.8 g

Answer 31:(C)

Question 32: Two particle A and B are in motion. If the wavelength associated with ‘A’ is 33.33nm, the wavelength associated with ‘B’ whose momentum is 1/3rd of 'A’ is

(A) 1.0×10^{-8} m

(B) 2.5×10^{-8} m

(C) 1.25×10^{-7}m

(D) 1.0×10^{-7}m

Answer 32:(D)

Question 33: The first ionization enthalpy of the following elements are in the order:

(A) C < N < Si< P

(B) P <Si < N < C

(C) P < Si < C < N

(D) Si < P < C < N

Answer 33:(D)

Question 34: solubility of AgCI fs least In

(A) 0.1 M NaCL

(B) Pure water

(C) 0.1 M $BaCl_2$

(D) 0.1 M $AlCl_3$

Answer 34:(D)

Question 35: which of the following equation does Not required Charles’s law of given mass of gas at constant pressure?

(A) V/T=k

(B) l09V = log K +log T

(C) log K= log V+ log T

(D)

$$\frac{d(\ln V)}{dt} = \frac{1}{T}$$

Answer 35:(C)

Question 36:Which is the most suitable reagent for the following conversion?

(A) Tollen's reagent

(B) I_2 and NaOH solution

(C) Benzoyl peroxide

(D) Sn and NaOH Solution

Answer 35:(B)

Question 37: Which of the following is least soluble in water at 298K?

(A) CH_3NH_2

(B) $(CH_3)_3N$

(C) $(CH_3)2NH$

(D) $C_6H_5NH_2$

Answer 37:(B)

Question 38: If Aniline is treated with 1:1 mixture of con. HNO_3 and con. H_2SO_4, p-nitroaniline and mnitroaniline are formed nearly in equal amounts. This is due to

(A) m-directing property of $-NH_2$ group

(B)Protonation of $-NH_2$ which causes deactivation of benzene ring

(C) m and p directing property of $-NH_2$ group

(D) lsomerisation of some p-nitroaniline into m-nitroaniline

Answer 38:(B)

Question 39: In nucleic acids, the nucleotides are joined together by

(A) Phosphoester linkage

(B) Phosphodiester linkage

(C) Phosphodisulphide linkage

(D)Sulphodister linkage

Answer 39:(B)

Question 40: Which of the following is generally water insoluble?

(A) Fibrous protein

(B) Vitamin-C

(C) Amylose

(D) Glycine

Answer 40:(A)

Question 41: Relative lowering of vapour pressure of dilute solution glucose dissolved In

1kg of water is 0.002. The molarity of the solution is

(A) 0.004

(0) 0.222

(C) 0.111

(0) 0.021

Answer 41:(C)

Question 42: one litre solution of $MgCl_2$ is electrolyzed completely by passing a current of 1A for 16 min 5 sec. The original concentration of $MgCl_2$ solution was (Atomic mass of Mg = 24)

(A) $5x\ 10^{-3}M$

(B)$5 \times 10^{-2}M$

(C) $0.5 \times 10^{-3}M$

(D) $1.0 \times 10^{-2}M$

Answer 42:(A)

Question 43: All aqueous solution of $CuSO_4$ is subjected to electrolysis using inert electrodes.

The pH of 1he solu1ion will

(A) increase

(B)remains uncharged

(C) decrease

(D) increase or decrease depending on the strength of the current

Answer 43:(C)

Question 44: Give $E^{n}_{mn\text{-}2|mn}{}^{+3}$ = 15V and $E^{n}_{mn}{}^{-4}{}_{|Mn}{}^{2}$ =1.2V then $E^{2}_{Mn}{}^{-7}{}_{|Mn}{}^{+4}$ is

(A) 0.3V

(B) 0.1 V

(C) 1.7 v

(D) 2.1V

Answer 44 :(C)

Question 45: The plot of $t_{1/2}$ v/s $[R]_0$ for a reaction is a straight-line parallel to x-axis. The unit for the rate constant of this reaction ls

(A) mol $L^{-1}S$

(B) mol $L^{-1}S^{-1}$

(C) L $mol^{-1}S^{-1}$

(D) S^{-1}

Answer 45:(D)

Question 46: The metal nitrate that liberates NO_2 on heating

(A) $NaNO_3$

(B) $LiNO_3$

(C) KNO_3

(D) $RbNO_3$

Answer 46:(B)

Question 47: Which of the following is NOT true regarding the usage of hydrogen as a fuel?

(A) High calorific value

(B)The combustible energy of hydrogen can be directly converted to electrical energy in fuel cell

(C)Combustion product Is eco-friendly

(D) Hydrogen gas can be easily liquefied and stored.

Answer 47:(D)

Question 48: Resonance effect is not observed in

(A) CH_2 = CH-CH = CH_2

(B) CH_2 = CH-C = N

(C) CH_2 = CH-CI

(D) CH_2 = CH- CH_2 -NH_2

Answer 48:(D)

Question 49: 2-butyne is reduced to trans-but -2-ene using

(A) H_2|Ni

(B)Na in liq. NH_3

(C) H_2 |Pd-C

(D) Zn in dil. HCI

Answer 49:(B)

Question 50: Eutrophication causes

(A) Increase of nutrient in water

(B) Reduction in water pollution

(C) Reauction in dissolved oxygen

(D) Decreases BOD

Answer 50:(C)

Question 51: Addition of excess of $AgNO_3$ to an aqueous solution of 1mole of $PdCl_2.4NH_2$

gives 2 moles of AgCI. The conductivity of this solution corresponds co

(A) 1:1 electrolyte

(B) 1:3 electrolyte

(C) 1:2 electrolyte

(D) 1:4 electrolyte

Answer 5l: (C)

Question 52: The formula of penta aquanitrato chromium (lll) nitrate is.

(A) $[Cr(H_2O)_6(NO_2)_3$

(B) $[Cr(H_2O)_6(NO_2)_2$

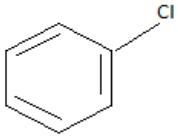
(C) $[Cr(H_2O)_5NO_3](NO_3)_2$

(D) $[Cr(H_2O)_5NO_2]NO_3$

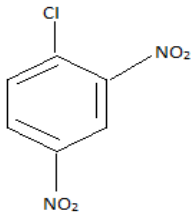
Answer 52:(C)

Question 53: Which of the following HALIDE undergoes hydrolysis on warming with water/aqueous NaOH?

(A)



(B)



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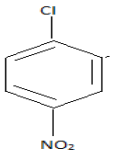
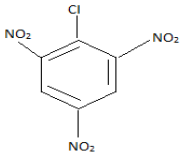
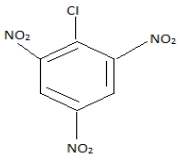




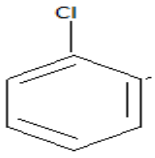
(D)



Answer 53:(D)

Question 54: The compound having longest C- Cl bond is

(A)



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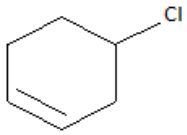

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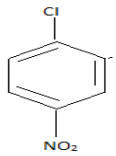
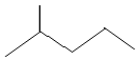
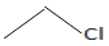


(D) CH2= CH -Cl

Answer 54:(B)

Question 55: The alkyl halides required to prepare by  Wurtz reaction are

(A) 

and 

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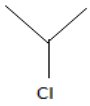
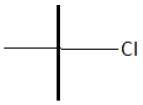
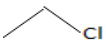


(C)

and 

(D)



and 

Answer 55:(C)

Question 56: Which is a wrong statement?

(A) Rate constant k =Arrhenius constant A : if Ea=0

(B) $e^{Ea/rt}$ gives the fraction of reactant molecules that are activated al the given temp

(C) In k vs 1/T plot is a straight line

(D) Presence of catalyst will not alter the value of Ea

Answer 56:(D)

Question 57: 1L of 2 M CH_3COOH is mixed with 1L of 3M C_2H_5OH to form an ester. The rate of reaction with respect to the initial rate when each solution is diluted with an equal volume of water will be

(A) 0.25 times

(B) 2 times

(C) 0.5 times

(D) 4 times

Answer 57:(A)

Question 58: Which of the following is an example of homogeneous catalysis?

(A) Oxidation of NH_3 Ostwald's process

(B)oxidation of SO_2 In contact process

(C) oxidation SO_2 in lead chamber process

(D) Manufacture of NH_3 by Haber's process

Answer 58:(C)

Question 59: Critical Micelle concentration for a soap solution is $l.5x\ 10^{-4}$ mol L^{-1} Micelle formation is possible only when the concentration of soap solution in mol L^{-1} is

(A) 2.0×10^{-3}

(B)4.6×10^{-5}

(C) $7.5 X\ 10^{-5}$

(D) 1.1×10^{-4}

Answer 59:(A)

Question 60: Oxidation State of copper is +1 in

(A) Malschite

(B) Cuprite

(C) Azurite

(D) Chalcopyrite

Answer 60:(B)