MDU M.Sc Entrance: 2018

Chemistry

Note: Owing to the combined nature of the entrance for Haryana universities, this paper was also for the following universities: Kurukshetra University, Kurukshetra; Chaudhary Devi Lal University, Sirsa; Bhagat Phool Singh Mahila Vishwavidyalya, Khanpur Kalan; Indira Gandhi University, Meerpur; Chaudhary Ranbir Singh University, Jind; Chaudhary Bansi Lal University, Bhiwani.

❖ Question Paper

All questions are compulsory (One mark each) **Total Marks: 100 (1.5 Hours)**

Q.1 What is the wavelength of a ball weighing 200g and moving at a speed of 5m/h?

(a) 1.6×10^{-24} m (b) 2.3×10^{-30} m (c) 3.2×10^{-28} m (d) 4.8×10^{-26} m

Q.2 Which set of quantum numbers is not suitable to an electron?

(a) 1, 0, 0, +1/2 (b) 2, 0, 0, +1/2 (c) 1, 0, 0, –1/2 (d) 1, 1, 1, +1/2

Q.3What is the correct order of radii?

(a) $O^{2-} > F^{-} > O > F$ (b) $O^{2-} > F^{-} > F > O$ (c) $F^{-} > O^{2-} > F > O$ (d) $O^{2-} > O > F^{-} > F$

Q.4 Effective nuclear charge of an ion is:

(a) Nuclear charge (b) Nuclear charge + Screening constant

(c) Nuclear charge – Screening constant (d) Nuclear charge + Charge on ion

Q.5 Which of the following molecule does not possess permanent dipole moment?

(a) NH_3 (b) CH_2Cl_2 (c) NO_2 (d) BF_3

Q.6 According to VSEPR theory shape of ClF_3 is:

(a) T-shaped (b) Triangular (c) Tetrahedral (d) Square planar

Q.7 Maximum number of water molecules that one water molecule can hold through hydrogen bonding is:

(a) Two (b) Four (c) Six (d) Eight

Q.8 Which of the following has highest lattice energy?

(a) *KF* (b) *NaF* (c) *CsF* (d) *RbF*

Q.9 Glauber's salt is:

(a) $MgSO_4.7H_2O$ (b) $Na_2SO_4.10H_2O$ (c) $CuSO_4.5H_2O$ (d) $FeSO_4.7H_2O$

Q.10 KO_2 is used in oxygen cylinders in space as it:

(a) Absorbs CO_2 (b) Produces O_3

(c) Absorbs moisture (d) Absorbs CO_2 and increases O_2

Q.11 In "Inorganic benzene" hybridization of B and N respectively is:

(a) Both have sp^2 (b) sp^2 and sp^3 (c) Both have sp^3 (d) sp^3 and sp^2

Q.12 Three oxygen atom of $[SiO_4]^{4-}$ are shared in:

(a) Pyrosilicate (b) Linear chain silicate (c) Sheet silicate (d) 3-D silicate

Q.13 Number of P-O-P bonds in cyclic metaphosphoric acid are

(a) zero (b) two (c) three (d) four

Q.14 Oxyacid of sulphur which contains lone pair on Sulphur is:

(a) Sulphuric acid (b) Pyrosulphuric acid (c) Peroxy disulphuric acid (d) Sulphurous acid

Q.15 Order of acidity of the following is:

(a) $HClO_4 < HClO_3 < HClO_2 < HClO$ (b) $HClO < HClO_4 < HClO_3 < HClO_2$

(c) $HClO < HClO_2 < HClO_3 < HClO_4$ (d) $HClO_4 < HClO_2 < HClO_3 < HClO$

Q.16 Which of the following have same number of electron pair on Xenon atom?

(I) XeO_3 (II) $XeOF_4$ (III) XeF_6

(a) Only I and II (b) Only II and III (c) Only I and III (d) I, II and III

Q.17 Which of the following is not coloured?

(a) $KMnO_4$ (b) $K_2Cr_2O_7$ (c) $CuCl_2$ (d) TiO_2

Q.18 Which of the following shows magnetic moment 1.74 BM?

(a) $[CoCl_4]^{4-}$ (b) $[Ni(CN)_6]^{2-}$ (c) $TiCl_4$ (d) $[Cu(NH_3)_4]^{2+}$

Q.19 Cis and Trans complexes of $[PtA_2X_2]$ are distinguished by;

(a) Kurnakov test (b) Ring test (c) Chromyl chloride test (d) Carbylamines test

Q.20 IUPAC name of $[Ni(NH_3)_4][NiCl_4]$ is:

(a) Tetra chloro nickel(II) – Tetra ammine nickelate(0)

(b) Tetra ammine nickel(II) –Tetra chloro nickelate(II)

(c) Tetra chloro nickel(II) – Tetra ammine nickel(II)

(d) Tetra ammine nickel(II) – Tetra chloro nickel (II)

Q.21 Term symbol of Ni^{2+} is:

(a) $^3F_4$ (b) $^3F_2$ (c) $^2D_0$ (d) $^2D_{5/2}$

Q.22 Lowest energy transition in $[Ti(H_2O)_6]^{3+}$ is:

(a) $^2T_{2g} \rightarrow {}^2E_g$ (b) $^2E_g \rightarrow {}^2T_{2g}$ (c) $^2A_{2g} \rightarrow {}^2T_{2g}$ (d) $^2T_{2g} \rightarrow {}^2A_{2g}$

Q.23 In octahedral field which of the following has zero CFSE?

(a) Co^{2+} (low spin) (b) Fe^{3+} (low spin) (c) Fe^{3+} (High spin) (d) Cr^{3+} (High spin)

Q.24 +7 oxidation state is shown by following actinoids:

(a) *U, Np* (b) *Pu, Am* (c) *Am, Cm* (d) *Np, Pu*

Q.25 Which of the following lanthanide is paramagnetic?

(a) Sm^{3+} (b) La^{3+} (c) Lu^{3+} (d) Yb^{3+}

Q.26 The complex which does not obey 18 electron rule is:

(a) $Fe_2(CO)_9$ (b) $Fe_2(CO)_5$ (c) $V(CO)_6$ (d) $Ni(CO)_4$

Q.27 Which of the following will give cross linked silicone polymer on hydrolysis?

(a) $RSiCl_3$ (b) R_3SiCl (c) R_4Si (d) R_2SiCl_2

Q.28 Among all which is not a lewis acid?

(a) $AlCl_3$ (b) SO_2 (c) SbF_5 (d) CN^-

Q.29 The donor atoms of the hard bases have:

(a) Low polarization (b) High electronegativity

(c) Low electronegativity (d) Both (a) and (b)

Q,30 The behaviour shown by urea in following solvent(a) and (b) liquid ammonia (c) anhydrous H_2SO_4 is respectively:

(a) base, acid, non-electrolyte (b) non-electrolyte, base, acid

(c) non-electrolyte, acid, base (d) acid, base, non-electrolyte

Q.31 $AgNO_3$ on treatment with hypo gives white ppt which changes to black after some time black ppt is:

(a) AgS_2O_3 (b) AgS_2O_4 (c) Ag_2S (d) $Ag_2S_4O_6$

Q.32 Which of the following is used to remove SO_4^{2-} ions from a mixture of SO_4^{2-}, $C_2O_4^{2-}$ and Cl^- ions?

(a) $Ba(OH)_2$ (b) $NaOH$ (c) KOH (d) $BaSo_4$

Q.33 The myoglobin is:

(a) Monomer (b) Dimer (c) Trimer (d) Tetramer

Q.34 Residual entropy is:

(a) The entropy possessed by crystalline substance at –273°C

(b) The entropy in excess over the normal value

(c) The entropy arising out of the defects in crystalline substance

(d) None of these

Q.35 Which of the following is correct one?

(a) 1 eV = 80.656 cm^{-1} (b) 1 eV = 806.56 cm^{-1} (c) 1 eV = 8065.6 cm^{-1} (d) 1 eV = 8.0656 cm^{-1}

Q.36 Critical temperature, T_C is related to vander waal's constants 'a' and 'b' by relation;

(a) $T_c = \frac{27Ra}{8b}$ (b) $T_c = \frac{8ab}{27R}$ (c) $T_c = \frac{8a}{27Rb}$ (d) $T_c = \frac{27R}{8ab}$

Q.37 The Boyle temperature is that at which second Virial coefficient of real gas is;

(a) 1 (b) 2 (c) 3 (d) 0

Q.38 The average momentum of a particle can be estimated quantum mechanically using relation:

(a) $< \hat{p}_x >= \frac{<\Psi\Psi^@>}{<\Psi\hat{p}_x\Psi^@>}$ (b) $< \hat{p}_x > = < \Psi\hat{p}_x\Psi^@ >$

(c) $< \hat{p}_x >= \frac{<\Psi\hat{p}_x\Psi^@>}{<\Psi\Psi^@>}$ (d) $< \hat{p}_x >= \frac{<\hat{p}_x\Psi\Psi^@>}{<\Psi\Psi^@>}$

where represent average momentum of a particle moving in a direction parallel to x-axis

Q.39 50 ml of 0.1 *NaOH* is added to 49 ml of 0.1 M *HCl*. The pH of the resulting solution is:

(a) 11 (b) 9 (c) 8 (d) 13

Q.40 Henry's law is applicable to real gases, if;

(a) Pressure is high (b) Solubility of gas is appreciable

(c) Dissolved gas reacts with solvent (d) Temperature is not too low

Q.41 The operator for energy is:

(a) $h\frac{\partial}{\partial t}$ (b) $\hbar.\frac{\partial}{\partial t}$ (c) $i\hbar.\frac{\partial}{\partial t}$ (d) $-i\hbar.\frac{\partial}{\partial t}$

Q.42 The rate law for the multiple chain reaction

$$H_2 + Br_2 \rightarrow 2HBr \text{ is}$$

$$\frac{d[HBr]}{dt} = \frac{kr_1[H_2][Br_2]^{3/2}}{[Br_2] + kr_2[HBr]}$$

Which of the following represent rate law in the high pressure of bromine?

(a) Rate = $kr_1[Br_2]$ (b) Rate = $kr_1 = [H_2]$

(c) Rate = $kr_1[H_2][Br_2]$ (d) Rate = $kr_1[H_2][Br_2]^{1/2}$

Q.43 If $\left(\frac{\partial P}{\partial T}\right)_V = \frac{\alpha}{\beta}$; then according to Maxwell's relation:

(a) $\left(\frac{\partial S}{\partial V}\right)_T = -\frac{\alpha}{\beta}$ (b) $\left(\frac{\partial S}{\partial V}\right)_T = \frac{\alpha}{\beta}$ (c) $\left(\frac{\partial S}{\partial V}\right)_T = \frac{\beta}{\alpha}$ (d) $\left(\frac{\partial S}{\partial V}\right)_T = -\frac{\beta}{\alpha}$

Q.44 Saturated solution of KNO_3 is used to make a salt bridge because:

(a) velocities of K^+ and NO_3^- ions are nearly same. (b) velocities of K^+ is greater than that of NO_3^- ions

(c) velocities of NO_3^- is greater than that of Na^+ ions (d) None of the above

Q.45 Stefen law states that the total amount of energy E radiated by perfectly black body per unit area time is directly proportional to:

(a) T (b) T^2 (c) T^3 (d) T^4

Q.46 The BET equation relating to adsorption is expressed as:

(a) $\frac{P}{v_{total}(P_0-P)} = \frac{1}{v_{mono}C} - \frac{C-1}{v_{mono}}\left(\frac{P}{P_0}\right)$ (b) $\frac{P}{v_{total}(P_0-P)} = \frac{1}{v_{mono}C} + \frac{C-1}{v_{mono}}\left(\frac{P}{P_0}\right)$

(c) $\frac{P}{v_{total}(P_0-P)} = \frac{1}{C} + \frac{C-1}{v_{mono}C}\left(\frac{P}{P_0}\right)$ (d) $\frac{P}{P_0-P} = \frac{1}{v_{mono}C} + \frac{C-1}{v_{mono}C}\left(\frac{P}{P_0}\right)$

where all symbols have their usual meanings.

Q.47 An organic fatty acid forms a surface film on water that obeys two-dimensional ideal gas law. Of the surface tension lowering is 10 m N^{-1} at 25°C, then the surface excess concentration is given by:

(a) $40.4 \times 10^{-6}\ mol\ m^{-2}$ (b) $4.04 \times 10^{-6}\ mol\ m^{-2}$ (c) $404 \times 10^{-6}\ mol\ m^{-2}$ (d) $.404 \times 10^{-6}\ mol\ m^{-2}$

Q.48 The molecule which is IR inactive but Raman active is:

(a) HCl (b) SO_2 (c) N_2 (d) Protein

Q.49 In the lead-acid battery during charging, the cathode reaction is:

(a) Reduction of Pb^{2+} to Pb (b) Formation of $PbSO_4$

(c) Formation of PbO_2 (d) None of these

Q.50 The number of α and β particles emitted by $^{218}_{81}Ra$ in changing to a stable isotope of $^{206}_{82}Pb$ will be:

(a) 1 and 2 (b) 2 and 4 (c) 1 and 4 (d) 3 and 4

Q.51 Select the correct statement from the following:

(a) Work is a state function
(b) Delayed fluorescence is phosphorescence
(c) Quantum yield of any reaction is always positive
(d) The molar extinction coefficient is unitless

Q.52 There cannot be a quadrupole point on the phase diagram for one-component system, because the degree of freedom is:

(a) 3 (b) 4 (c) –1 (d) 0

Q.53 Milk is a/an:

(a) Gel (b) Emulsion (c) Suspension (d) Solution

Q.54 Isotonic solutions have the same:

(a) Viscosity (b) Surface tension (c) pH (d) Osmotic pressure

Q.55 The rotational spectra of *HCl* molecule suggest that rotational lines are equally separated by 22.70 cm^{-1}. The internuclear bond length will be estimated by (all notations have their usual meanings):

(a) $\left[\frac{h\times10^{-2}}{8\pi^2\mu C\times11.35}\right]^{1/2}$ (b) $\left[\frac{h\times10^{-2}}{8\pi^2\mu C\times22.70}\right]^{1/2}$ (c) $\left[\frac{h\times10^{-2}}{8\pi^2\mu^2 C\times11.35}\right]^{1/2}$ (d) $\left[\frac{h\times10^{-2}}{8\pi^2\mu C^2\times22.70}\right]^{1/2}$

Q.56 Cellulose nitrate relates to which of the following category of the polymers?

(a) Synthetic polymers
(b) Natural polymer
(c) Semi Synthetic polymers
(d) None of these

Q.57 Which of the following monomers are not suitable for condensation polymerisation?

(a) Butane-dioic acid and glycol
(b) Propanoic acid and ethanol
(c) Diamine and dicarboxylic acid
(d) Hydroxy acid

Q.58 The transition zone for Raman spectra is:

(a) between electronic levels (b) between magnetic levels of nuclei

(c) between magnetic levels of unpaired electron (d) between vibrational and rotational levels

Q.59 Dry ice is used for fire extinguishers. It is stored in the cylinder in solid dorm. When sprayed on a fire, it quickly changes into gas called CO_2. The changes of state is called:

(a) Sublimation (b) Evaporation (c) Condensation (d) Distillation

Q.60 For an isentropic change of state:

(a) dH = 0 (b) dT = 0 (c) dS = 0 (d) dS = 1

Q.61 Which of the following is a correct relation?

(a) $pH = ½ [pk_w + pk_a + pk_b]$ (b) $pH = ½ [pk_w + pk_a - pk_b]$

(c) $pH = ½ [pk_w + k_a - k_b]$ (d) $pH = ½ [pk_w - k_a + k_b]$

Where all the notation has their usual meanings.

Q.62 The IR absorption at 1665 cm^{-1} in salicylic acid is due to:

(a) C – H bending (b) O – H bending (c) O – H stretching (d) C = O stretching

Q.63 No Bragg reflection of X-rays form a crystal will be observed, if d_{hkl} is less than:

(a) λ (b) λ/2 (c) λ/3 (d) λ/4

Q.64 The number of collisions, Zn between the reacting molecules per sec dm^3, according to kinetic theory of gases is expressed as:

(a) $Z_{11} = \frac{1}{\sqrt{2}}\pi\sigma^2(n)^2\bar{C}$ (b) $Z_{11} = \sqrt{2}\pi\sigma^2(n)^2\bar{C}$

(c) $Z_{11} = \frac{1}{\sqrt{2}}\pi\sigma(n)^2\bar{C}$ (d) $Z_{11} = \sqrt{2}\pi\sigma^2(n)\bar{C}$

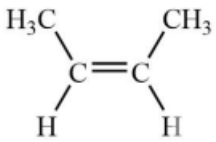
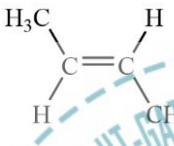
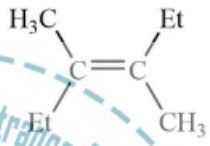
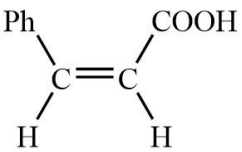
Q.65 In a closed room of 500 m^3 a perfumed bottle is opened. The room develops smell. This is due to opened. The room develops smell. This is due to:

(a) Diffusion (b) Absorption (c) Desorption (d) Viscosity

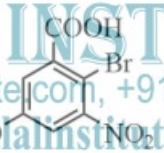
Q.66 $\Psi_{21(-1)}$ represents:

(a) 2 p_x orbital (b) 2 p_y orbital (c) 2 p_z orbital (d) None of these

Q.67 Which of the following will give meso form with Baeyer's reagent?

(a)  (b)  (c)  (d) 

Q.68 The IUPAC name of compound is:



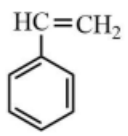
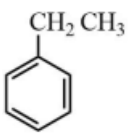
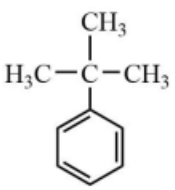
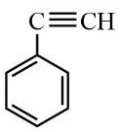
(a) 2-bromo-3-carboxy-5-hydroxy-1-nitrobenzene (b) 2-bromo-5-hydroxy-3-nitrobenzoic acid

(c) 4-bromo-3-carboxy-5-nitrophenol (d) 4-bromo-3-carboxy-5-nitro-1-hydroxybenzene

Q.69 In structural representation of molecules, the prefixes Z and E stands for:

(a) Zeigler-Erythro (b) Zurammen-Estrogen (c) Zeigler-Erhard (d) Zusamann-Enteggen

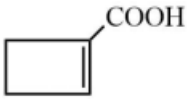
Q.70 β-phenylethyl chloride is the minor product obtained by reaction of chlorine with:

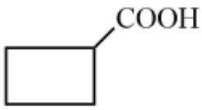
(a)  (b)  (c)  (d) 

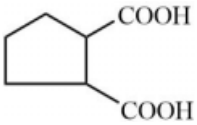
Q.71

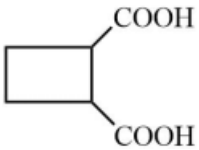
$$CH_2(COOEt)_2 + (CH_2)_3Br_2 \xrightarrow[EtOH]{NaOEt} I \xrightarrow{H_3O^+} II$$

II is:

(a) 

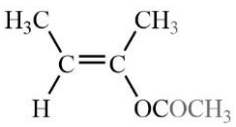
(b) 

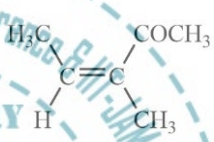
(c) 

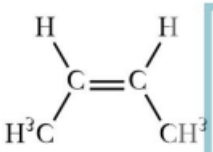
(d) 

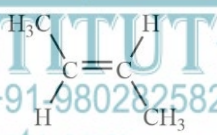
Q.72 $CH_3 - C \equiv C - CH_3 + B_2H_6 \longrightarrow A \xrightarrow{CH_3COOH} B$

B is:

(a) 

(b) 

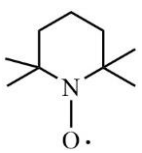
(c) 

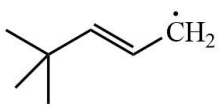
(d) 

Q.73 A solution of (+)-2-chloro-2-phenylethane in toluene racemises slowly in presence of small amount of $SbCl_5$ due to formation of:

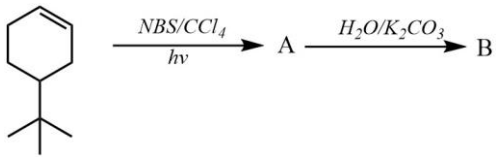
(a) Carbanion (b) Carbene (c) Carbocation (d) Free radical

Q.74 Which of the following radicals exists in free state?

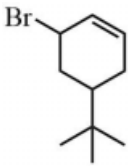
(a) $(C_6H_5)_3 - \dot{C}$ (b) $(CH_3)_3 - \dot{C}$ (c) 

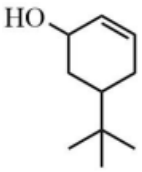
(d) 

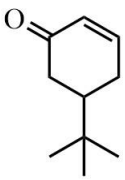
Q.75 In the given reaction:

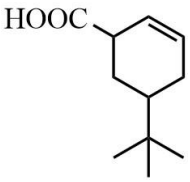


B will be:

(a) 

(b) 

(c) 

(d) 

Q.76 Carbenes give which of the following reactions?

1. Addition with alkenes
2. Insertion into C – H bonds
3. Addition with arynes
4. Insertion into C – P bonds

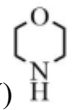
(a) Only 4 (b) 3 and 1 (c) 2 and 4 (d) 1, 2 and 3

Q.77 Which one of the following yildes give cyclopropane derivative with α, β-unsaturated carbonyl compounds?

(a) Phosphorus ylide (b) Sulphoxonium ylide

(c) Sulphonium yelide (d) Nitrogen ylide

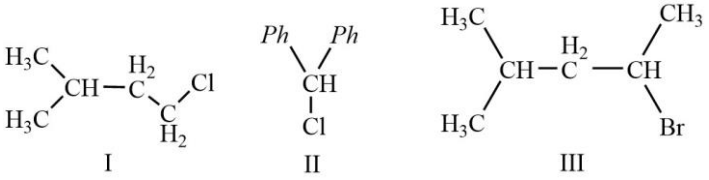
Q. 78 Carbonyl compounds react with which of the following compounds to form enamines?

(I) $C_6H_5NH_2$ (II) $C_6H_9NHCH_3$ (III)  (IV) 

Select the correct answer from the codes given below:

(a) Only I (b) Only III and IV (c) I, III and IV (d) II, III and IV

Q.79 Arrange the following compounds in order of increasing reactivity towards aqueous formic acid:



I II III

order is:

(a) III < II < I (b) II < I < III (c) I < III < II (d) I < II < III

Q.80 Arrange the following reactions in order of decreasing amount of isocyanide formed:

(I) $EtCl + NaCN \rightarrow EtCN + NaNC$

(II) $EtCl + AgCN \rightarrow EtCN + NaNC$

(III) $EtI + NaCN \rightarrow EtCN + NaNC$

(a) III < II < I (b) III < I < II (c) I < II < III (d) II < I < III

Q.81 Arrange the following compounds in decreasing order of reactivity with *NBS/CCl_4/hv*:

(1) $PhCH_3$ (2) $PhCH_2CH_2CH_3$ (3) $PhCH_2CH = CH_2$ (4) Ph $C(CH_3)$ CH = CH_2

(a) 4, 3, 1, 2 (b) 4, 3, 2, 1 (c) 1, 2, 3, 4 (d) 1, 3, 2, 4

Q.82 Which of the following will undergoes free radical bromination most readily?

(a) CH_3COOH (b) CH_3COCl

(c) $CH_3\,CH_2\,COOH$ (d) $HOOC\,CH_2\,CH_2\,COOH$

Q.83 In which compound electrophilic addition takes place according to anti-Markovnikov rules?

(1) $CH_2 = CH - NO_2$ (2) $CH_2 = CH - CHO$ (3) $CH_2 = CH - CN$ (4) $CH_2 = CH - CH_3$

(a) 1, 2 and 3 (b) 1, 2, 3 and 4 (c) Only 4 (d) Only 1

Q.84 For electrophilic addition HX which pair is correctly matched?

(1) $CH_3 - CH = CH_2$: alkyl carbocation

(2) $CH_3 - C \equiv CH$: vinyl carbocation

(3) $CH_2 = CH - CH = CH_2$: alkyl carbocation

(4) $C_6H_5 - CH = CH - CH_3$: benzyl carbocation

Select the correct answer:

(a) 1 and 4 (b) 1, 2 and 4 (c) 2, 3 and 4 (d) 1, 3 and 4

Q.85 Which among the following reagents gives syn-addition with alkenes:

(1) Br_2 (2) Dil. $KMnO_4/OH^-$ (3) $OsOH/NaSO_3H/HOH$ (4) $H_2/Ni/\Delta$

Select the correct answer:

(a) Only 1 (b) 2 and 3 (c) 2, 3 and 4 (d) Only 4

Q.86 In the given reaction:

$$CH_3 - CH = CH_2 \xrightarrow[HOH]{Hg(OAc)_2} [X]$$

[X} will be:

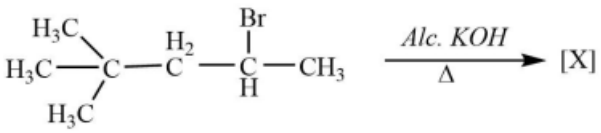
(a) $CH_3\,CH_2\,CH_2OH$ (b) $CH_3\,CH(OH)\,CH_3$

(c) $CH_3\,CH(OH)\,CH_2OAc$ (d) $CH_3\,CH_2\,CH_2OAc$

Q.87 Which one of the following compounds undergoes thermal elimination reaction?

(a) Acetate (b) Chlorides (c) Bromide (d) Alcohols

Q.88 In the given reaction:



[X} will be:

(a) $CH_3 - C(CH_3)_2 - CH = CH - CH_3$ (b) $CH_3 - C(CH_3)_2 - CH_2 - CH = CH_2$

(c) $CH_3 - C(CH_3) = C(CH_3) - CH_2 - CH_3$ (d) $CH_2 = C(CH_3) - CH(CH_3) - CH_2 - CH_3$

Q.89 Arrange reactivity of alcohols in decreasing order for dehydration reaction:

(I) $CH_3\ CH(OH)\ CH_3$ (II) $CH_3\ C(CH_3)(OH)\ CH_3$

(III) $C_6H_5\ C(CH_3)(OH)\ CH_3$ (IV) $CH_3\ CH_2OH$

Select the answer:

(a) 3, 2, 4,1 (b) 2, 3, 4, 1 (c) 2, 3, 1, 4 (d) 3, 2, 1, 4

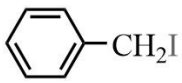
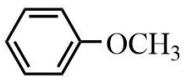
Q.90 Arrange acidity of given alcohols in decreasing order:

(I) 4-nitro-1-butanol (II) 2-nitro-1-butanol (III) 3-nitro-1-butanol (IV) 1-butanol

Correct answer is:

(a) I, II, IV, III (b) I, II, III, IV (c) II, III, I, IV (d) II, III, IV, I

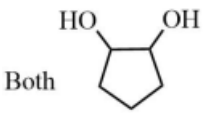
Q.91 Product of the following reaction is:

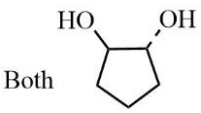
(a)  (b)  (c)  (d) 

Q.92 Formaldehyde does not undergo following reaction:

(A) Reduction (b) Aldol condensation (c) Polymerisation (d) oxidation

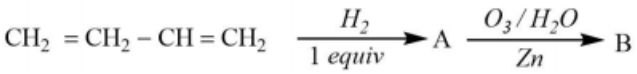
Q.93 A and B are:

(a) 

(b) 

(c) A is trans, B is cis (d) A is cis, B is trans

Q.94



A and B are:

(a) $CH_2 = CH - CH_2 - CH_3$, CH_3CH_2CHO or HCHO

(b) $CH_3 - CH = CH - CH_3$, CH_3CHO

(c) Both correct

(d) None is correct

Q.95 Dehydration will be maximum in:

(a) $CH_3 - CH(OH) - CH_2 - CH_3$

(b) $CH_3 - CO - CH(OH) - CH_2 - CH_3$

(c) $CH_3 - CH(OH) - COOH$

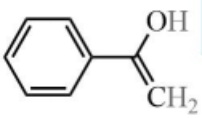
(d) $CH_3 - C(CH_3)_2 - OH$

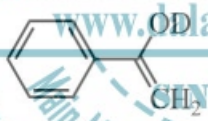
Q.96 In which case, product is same in the absence and pressure of peroxide when HBr reacts with;

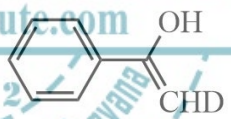
(a) 1-butene (b) 2-butene (c) Isobutene (d) 2-pentene

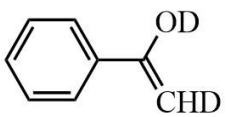
Q.97 Following reaction is acid catalysed;

If D^+(deutertium) is taken, product can be:

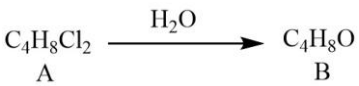
(a) 

(b) 

(c) 

(d) 

Q.98 B forms oximes but negative haloform test, hence A and B are:



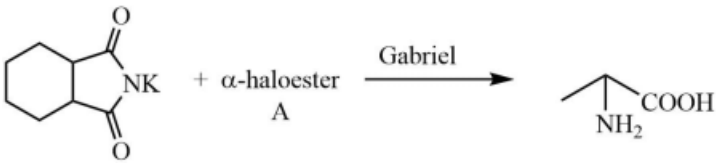
(a) $CH_3CH_2CH_2CHCl_2$, $CH_3COCH_2CH_3$

(b) $(CH_3)_2CHCHCl_2$, $(CH_3)_2CHCHO$

(c) $CH_3CH_2CCl_2CH_3$, $CH_3CH_2CH_2CHO$

(d) None

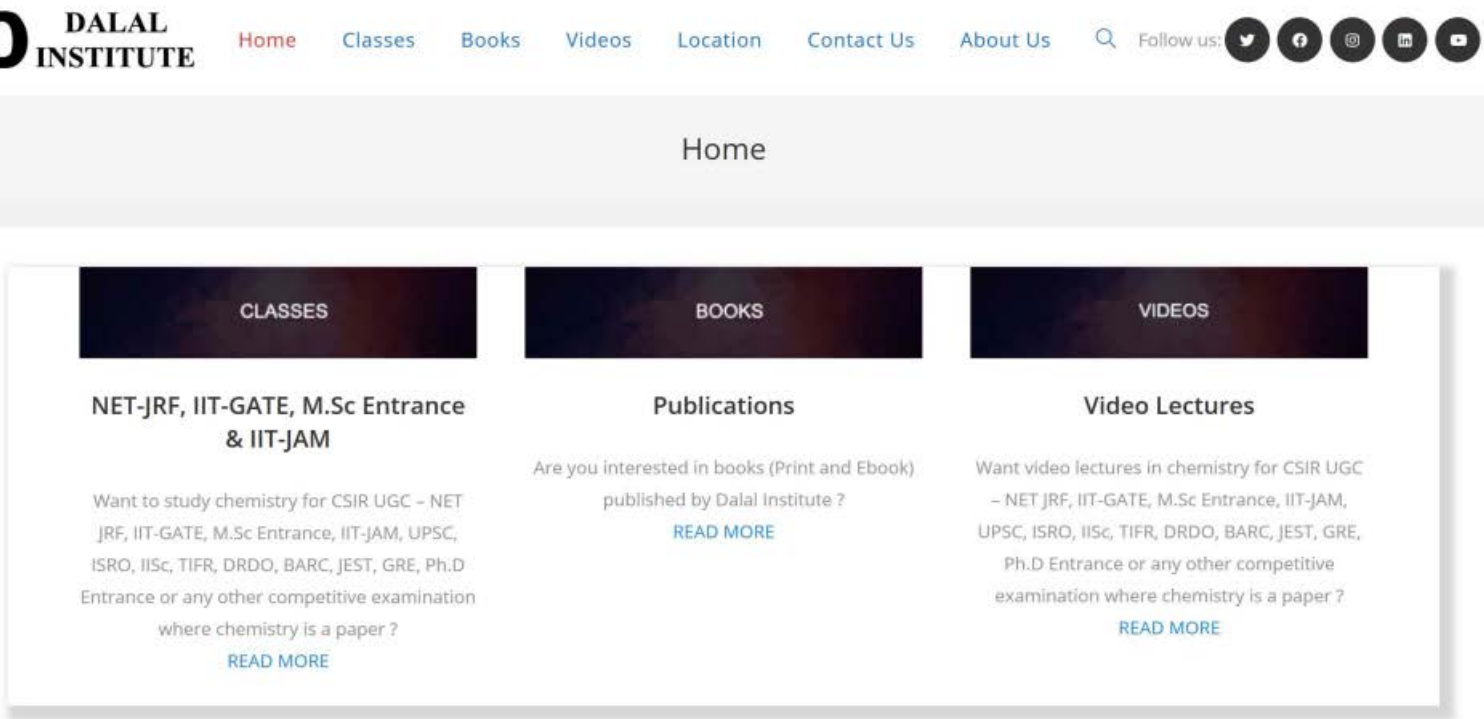
Q.99 Required product is obtained when A is:



(a) Ethyl-3-chlorobutyrate
(b) Ethyl-3-chloropropionate
(c) Ethyl-2-chloropropionate
(d) Ethylchloroacetate

Q.100 Cinnamic acid can be prepared form benzaldehyde by:

(a) Perkin condensation
(b) Grignard reaction
(c) Cannizarro reaction
(d) Aldol condensation



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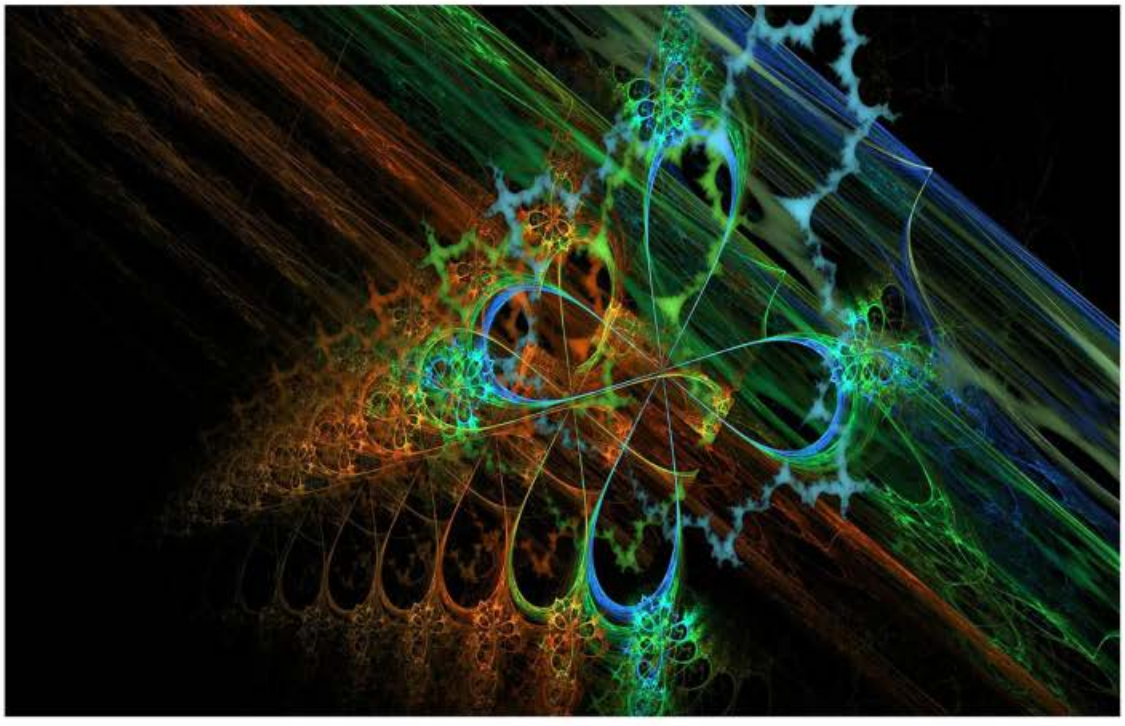

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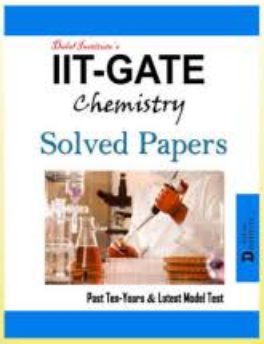

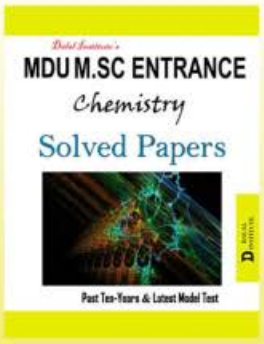

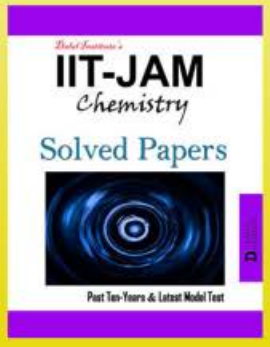

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