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Total No. of Printed Pages : 17

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Professor
Dept. of Chemistry
M.D. University, Rohtak

CPG-EE-2018 (Chemistry)-(SET-X)

A

10365

Sr. No. .....

Time : **1½ Hours** Total Questions : **100** Max. Marks : **100**

Roll No. (in figures) _____ (in words) _____

Candidate's Name _____ Date of Birth _____

Father's Name _____ Mother's Name _____

Date of Exam : _____

_____ _____

(Signature of the Candidate) (Signature of the Invigilator)

CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

1. All questions are ***compulsory*** and carry equal marks. The candidates are required to attempt all questions.
2. The candidates ***must return*** the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means/misbehaviour will be registered against him/her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
3. In case there is any discrepancy in any question(s) in the Question Booklet, the same may be brought to the notice of the Controller of Examinations in writing ***within two hours*** after the test is over. No such complaint(s) will be entertained thereafter.
4. The candidate ***must not*** do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers ***must not*** be ticked in the question booklet.
5. ***Use only black or blue ball point pen of good quality in the OMR Answer-Sheet.***
6. There will be ***negative*** marking. Each correct answer will be awarded ***one*** full mark and each incorrect answer will be negatively marked for which the candidate will get ¼ discredit. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
7. *Before answering the questions, the candidates should ensure that they have been supplied correct & complete question booklet. Complaints, if any, regarding misprinting etc. will not be entertained* **30** *minutes after starting of the examination.*

1. What is the wavelength of a ball weighing 200 g and moving at a speed of 5 m/h ?
   (1) 1.6×10^{-24} m (2) 2.3×10^{-30} m
   (3) 3.2×10^{-28} m (4) 4.8×10^{-26} m

2. Which set of quantum numbers is not suitable to an electron ?
   (1) 1, 0, 0, +½ (2) 1, 0, 0, –½
   (3) 2, 0, 0, +½ (4) 1, 1, 1, +½

3. What is the correct order of radii ?
   (1) $O^{2-} > F^- > O > F$ (2) $O^{2-} > F^- > F > O$
   (3) $F^- > O^{2-} > F > O$ (4) $O^{2-} > O > F^- > F$

4. Effective nuclear charge of an ion is :
   (1) Nuclear charge
   (2) Nuclear charge + Screening constant
   (3) Nuclear charge – Screening constant
   (4) Nuclear charge + Charge on ion

5. Which of the following molecule does not possess permanent dipole moment ?
   (1) NF_3 (2) CH_2Cl_2 (3) NO_2 (4) BF_3

6. According to VSEPR theory shape of ClF_3 is :
   (1) T-shaped (2) Triangular (3) Tetrahedral (4) Square planar

7. Maximum number of water molecules that one water molecule can hold through hydrogen bonding is :
   (1) Two (2) Four (3) Six (4) Eight

8. Which of the following has highest lattice energy ?
   (1) KF (2) NaF (3) CsF (4) RbF

9. Glauber's salt is :
   (1) $MgSO_4.7H_2O$ (2) $Na_2SO_4.10H_2O$
   (3) $CuSO_4.5H_2O$ (4) $FeSO_4.7H_2O$

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

(1) absorbs CO_2 (2) produces O_3

(3) absorbs moisture (4) absorbs CO_2 and increases O_2

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

(1) Both have sp^2 (2) sp^2 and sp^3

(3) Both have sp^3 (4) sp^3 and sp^2

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

(1) Pyrosilicate (2) Linear chain silicate

(3) Sheet silicate (4) Three dimensional silicate

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

(1) Zero (2) Two (3) Three (4) Four

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

(1) Sulphuric acid (2) Pyrosulphuric acid

(3) Peroxy disulphuric acid (4) Sulphurous acid

15. Order of acidity of the following is :

(1) $HClO_4 < HClO_3 < HClO_2 < HClO$

(2) $HClO < HClO_4 < HClO_3 < HClO_2$

(3) $HClO < HClO_2 < HClO_3 < HClO_4$

(4) $HClO_4 < HClO_2 < HClO_3 < HClO$

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

(a) XeO_3 (b) $XeOF_4$ (c) XeF_6

(1) Only (a) & (b) (2) Only (b) & (c)

(3) Only (a) & (c) (4) (a), (b) & (c)

17. Which of the following is not coloured ?

(1) $KMnO_4$ (2) $K_2Cr_2O_7$ (3) $CuCl_2$ (4) TiO_2

18. Which of the following shows magnetic moment 1.74 BM ?
(1) $[CoCl_4]^{4-}$ (2) $[Ni(CN)_6]^{2-}$
(3) $TiCl_4$ (4) $[Cu(NH_3)_4]^{2+}$

19. Cis and trans complexes of $[PtA_2X_2]$ are distinguished by :
(1) Kurnakov test (2) Ring test
(3) Chromyl Chloride test (4) Carbylamine test

20. IUPAC name of $[Ni(NH_3)_4][NiCl_4]$ is :
(1) Tetra chloro nickel (II) – Tetra ammine nickelate (0)
(2) Tetra ammine-nickel (II) – Tetra chloro nickelate (II)
(3) Tetra chloro nickel (II) – Tetra ammine nickel (II)
(4) Tetra ammine nickel (II) – Tetra chloro nickel (II)

21. Term symbol of Ni^{2+} is :
(1) $^3F_4$ (2) $^3F_2$ (3) $^2D_0$ (4) $^2D_{5/2}$

22. Lowest energy transition in $[Ti(H_2O)_6]^{3+}$ is :
(1) $^2T_{2g} \rightarrow {}^2Eg$ (2) $^2Eg \rightarrow {}^2T_{2g}$
(3) $^2A_{2g} \rightarrow {}^2T_{2g}$ (4) $^2T_{2g} \rightarrow {}^2A_{2g}$

23. In octahedral field which of the following has zero crystal field stabilization energy ?
(1) Co^{2+} (low spin) (2) Fe^{3+} (low spin)
(3) Fe^{3+} (high spin) (4) Cr^{3+} (high spin)

24. +7 oxidation state is shown by following actinoids :
(1) *U, Np* (2) *Pu, Am* (3) *Am, Cm* (4) *Np, Pu*

25. Which of the following lanthanide is paramagnetic ?
(1) Sm^{3+} (2) La^{3+} (3) Lu^{3+} (4) Yb^{3+}

26. The complex which does not obey 18 electron rule is :
(1) $Fe_2(CO)_9$ (2) $Fe(CO)_5$ (3) $V(CO)_6$ (4) $Ni(CO)_4$

27. Which of the following will give cross linked silicone polymer on hydrolysis ?
(1) $RSiCl_3$ (2) R_3SiCl (3) R_4Si (4) R_2SiCl_2

28. Among all which is not a lewis acid ?
(1) $AlCl_3$ (2) SO_2 (3) SbF_5 (4) CN^-

29. The donor atoms of the hard bases have :
(1) Low polarization (2) High electronegativity
(3) Low electronegativity (4) Both (1) & (2)

30. The behaviour shown by urea in following solvents (a) water (b) liquid ammonia (c) anhydrous H_2SO_4 is respectively :
(1) Base, acid, non-electrolyte (2) Non electrolyte, base, acid
(3) Non electrolyte, acid, base (4) Acid, base, non-electrolyte

31. $AgNO_3$ on treatment with hypo gives white ppt which changes to black after some time black ppt is :
(1) $Ag_2S_2O_3$ (2) Ag_2SO_4 (3) Ag_2S (4) $Ag_2S_4O_6$

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 ?
(1) $Ba(OH)_2$ (2) $NaOH$ (3) KOH (4) $BaSO_4$

33. The myoglobin is :
(1) Monomer (2) Dimer (3) Trimer (4) Tetramer

34. Residual entropy is :
(1) The entropy possessed by crystalline substance at –273°C
(2) The entropy in excess over the normal value
(3) The entropy arising out of the defects in crystalline substance
(4) None of these

35. Which of the following is correct one ?
(1) 1 eV = 80.656 cm^{-1} (2) 1 eV = 806.56 cm^{-1}
(3) 1 eV = 8065.6 cm^{-1} (4) 1 eV = 8.0656 cm^{-1}

36. Critical temperature, T_C is related to Vander Waal's constants 'a' and 'b' by relation :

(1) $T_C = \frac{27Ra}{8b}$ (2) $T_C = \frac{8ab}{27R}$ (3) $T_C = \frac{8a}{27Rb}$ (4) $T_C = \frac{27R}{8ab}$

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

(1) One (2) Two (3) Three (4) Zero

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

(1) $< p_x >= \frac{\int \psi \psi^{\otimes} dx}{\int \psi \hat{p}_x \psi^{\otimes} dx}$ (2) $< p_x >= \int \psi \hat{p}_x \psi^{\otimes} dx$

(3) $< p_x >= \frac{\int \psi \hat{p}_x \psi^{\otimes} dx}{\int \psi \psi^{\otimes} dx}$ (4) $< p_x >= \frac{\int \hat{p}_x \psi \psi^{\otimes} dx}{\int \psi \psi^{\otimes} dx}$

where $<p_x>$ represent average momentum of a particle moving in a direction parallel to x-axis.

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

(1) 11 (2) 9 (3) 8 (4) 13

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

(1) Pressure is high
(2) Solubility of gas is appreciable
(3) Dissolved gas react with solvent
(4) Temperature is not too low

41. The operator for energy is :

(1) $h\frac{\partial}{\partial t}$ (2) $\hbar\frac{\partial}{\partial t}$ (3) $i\hbar\frac{\partial}{\partial t}$ (4) $-i\hbar\frac{\partial}{\partial t}$

42. The rate law for the multiple chain reaction

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

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

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

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

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

(1) $\left(\frac{\partial S}{\partial V}\right)_T = -\frac{\alpha}{\beta}$

(2) $\left(\frac{\partial S}{\partial V}\right)_T = \frac{\alpha}{\beta}$

(3) $\left(\frac{\partial S}{\partial V}\right)_T = \frac{\beta}{\alpha}$

(4) $\left(\frac{\partial S}{\partial V}\right)_T = -\frac{\beta}{\alpha}$

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

(1) velocities of K^+ and NO_3^- ions are nearly same

(2) velocity of K^+ is greater than that of NO_3^- ions

(3) velocity of NO_3^- is greater than that of Na^+ ions

(4) None of the above

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

(1) T (2) T^2 (3) T^3 (4) T^4

46. The Brunauer, Emmett and Teller (BET) equation relating to adsorption is expressed as :

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

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

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

(4) $\frac{P}{P_0 - P} = \frac{1.}{v_{mono} C} + \frac{C-1}{v_{mono} C}\left(\frac{P}{P_0}\right)$

Where all the symbols have their usual meanings.

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

(1) $40.4 \times 10^{-6}\ mol\,m^{-2}$

(2) $4.04 \times 10^{-6}\ mol\,m^{-2}$

(3) $404 \times 10^{-6}\ mol\,m^{-2}$

(4) $0.404 \times 10^{-6}\ mol\,m^{-2}$

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

(1) HCl (2) SO_2 (3) N_2 (4) Protein

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

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

(3) Formation of PbO_2 (4) None of these

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 :

(1) 1 and 2 (2) 2 and 4 (3) 1 and 4 (4) 3 and 4

51. Select the correct statement from the following :

(1) Work is a state function

(2) Delayed flourescence is phosphorescence

(3) Quantum yield of any reaction is always positive

(4) The molar extinction coefficient is unit less

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

(1) 3 (2) 4 (3) -1 (4) Zero

53. Milk is a/an :

(1) Gel (2) Emulsion (3) Suspension (4) Solution

54. Isotonic solutions have the same :

(1) Viscosity (2) Surface tension

(3) pH (4) Osmotic pressure

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) :

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

(3) $\left[\frac{h\times10^{-2}}{8\pi^2\mu^2 C\times11.35}\right]^{1/2}$ (4) $\left[\frac{h\times10^{-2}}{8\pi^2\mu C^2\times22.70}\right]^{1/2}$

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

(1) Synthetic polymers (2) Natural polymers

(3) Semi Synthetic polymers (4) None of these

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

(1) Butane-dioic acid and glycol

(2) Propanoic acid and ethanol

(3) Diamines and dicarboxylic acid

(4) Hydroxy acid

58. The transition zone for Raman spectra is :

(1) between electronic levels

(2) between magnetic levels of nuclei

(3) between magnetic levels of unpaired electrons

(4) between vibrational and rotational levels

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

(1) Sublimation (2) Evaporation

(3) Condensation (4) Distillation

60. For an isentropic change of state :

(1) $dH = 0$ (2) $dT = 0$ (3) $ds = 0$ (4) $ds = 1$

61. Which of the following is a correct relation ?

(1) $pH = \frac{1}{2}pk_w + \frac{1}{2}pk_a + \frac{1}{2}pk_b$ (2) $pH = \frac{1}{2}pk_w + \frac{1}{2}pk_a - \frac{1}{2}pk_b$

(3) $pH = \frac{1}{2}pk_w + \frac{1}{2}k_a - \frac{1}{2}k_b$ (4) $pH = \frac{1}{2}pk_w - \frac{1}{2}k_a + \frac{1}{2}k_b$

Where all the notation have their usual meanings.

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

(1) C – H bending (2) O – H bending

(3) O – H stretching (4) C = O stretching

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

(1) λ (2) $\lambda/2$ (3) $\lambda/3$ (4) $\lambda/4$

64. The number of collisions, Z_{11} between the reacting molecules per sec per dm^3, according to kinetic theory of gases is expressed as :

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

(3) $Z_{11} = \frac{1}{\sqrt{2}}\pi\sigma(n^2)\overline{C}$ (4) $Z_{11} = \sqrt{2}\pi\sigma^2(n)\overline{C}$

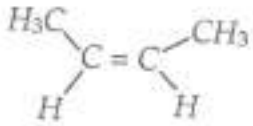
65. In a closed room of 500 m^3 a perfumed bottle is opened. The room develops smell. This is due to opened. The room develops smell. This is due to :

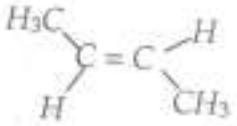
(1) Diffusion (2) Absorption (3) Desorption (4) Viscosity

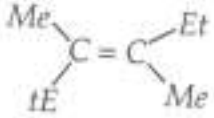
66. $\psi_{21(-1)}$ represents :

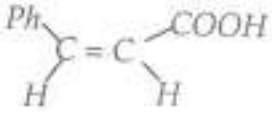
(1) $2p_x$ orbital (2) $2p_y$ orbital (3) $2p_z$ orbital (4) None of these

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

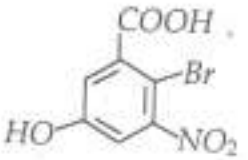
(1) 

(2) 

(3) 

(4) 

68. The IUPAC name of compound :



is :

(1) 2-bromo-3-carboxy-5- hydroxy-1-nitrobenzene

(2) 2-bromo-5-hydroxy-3-nitrobenzoic acid

(3) 4-bromo-3-carboxy-5-nitrophenol

(4) 4-bromo-3-carboxy-5-nitro-1-hydroxybenzene

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

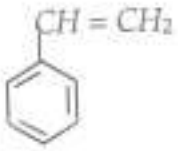
(1) Zeigler-Erythro

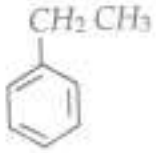
(2) Zurammen-Estrogen

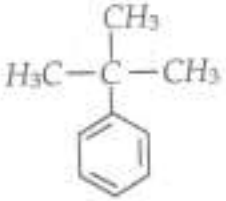
(3) Zeigler-Erhard

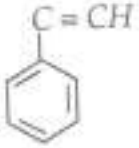
(4) Zusamann-Enteggen

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

(1) 

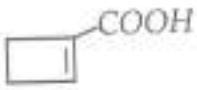
(2) 

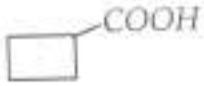
(3) 

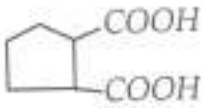
(4) 

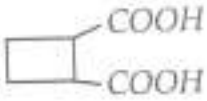
71. $CH_2(COOEt)_2 + (CH_2)_3Br_2 \xrightarrow[EtOH]{NaOEt} I \xrightarrow[\Delta]{H_3O^{\oplus}} II$

II is :

(1) 

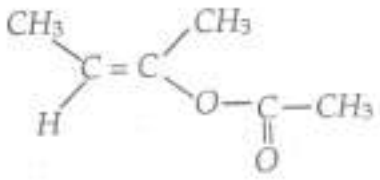
(2) 

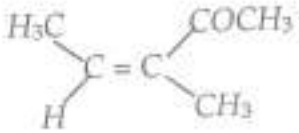
(3) 

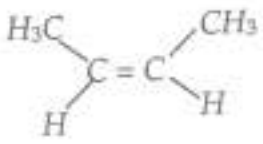
(4) 

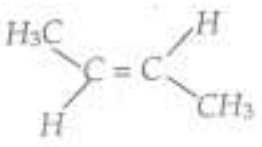
72. $H_3C-C\equiv C-CH_3 + B_2H_6 \rightarrow A \xrightarrow{H_3C\ COOH} B$

B is :

(1) 

(2) 

(3) 

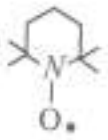
(4) 

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

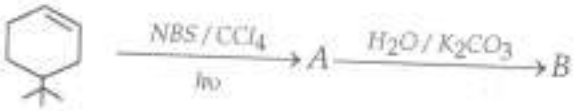
(1) Carbanion (2) Carbene (3) Carbocation (4) Free radical

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

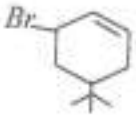
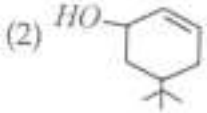
(1) $(C_6H_5)_3-\dot{C}$ (2) $(H_3C)_3-\dot{C}$

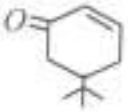
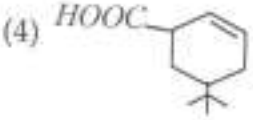
(3)  (4) $H_3C-\underset{H_3C}{\overset{CH_3}{\underset{|}{\overset{|}{C}}}}-CH=CH-\dot{C}H_2$

75. In the given reaction :



B will be :

(1)  (2) 

(3)  (4) 

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

(1) Only 4 (2) 3 and 1 (3) 2 and 4 (4) 1, 2 and 3

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

(1) Phosphorus ylide (2) Sulphoxonium ylide

(3) Sulphonium ylide (4) Nitrogen ylide

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

(a) $C_6H_5NH_2$ (b) $C_6H_9NHCH_3$

(c)  (d) 

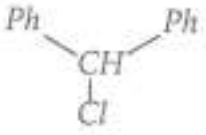
Select the correct answer from the codes given below :

(1) Only a (2) Only c & d

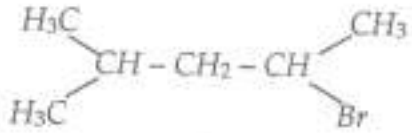
(3) a, c & d (4) b, c & d

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

A



B



C

order is :

(1) C < B < A (2) B < A < C

(3) A < C < B (4) A < B < C

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

(A) $EtCl + NaCN \rightarrow EtCN + EtNC$

(B) $EtCl + AgCN \rightarrow EtCN + EtNC$

(C) $EtI + NaCN \rightarrow EtCN + EtNC$

(1) A > B > C (2) B > A > C (3) C > B > A (4) C > A > B

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

(a) $PhCH_3$ (b) $PhCH_2CH_2CH_3$

(c) $PhCH_2CH=CH_2$ (d) $Ph-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH=CH_2$

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

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

(1) CH_3COOH (2) CH_3COCl

(3) CH_3CH_2COOH (4) $HOOC\,CH_2\,CH_2\,COOH$

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

(a) $CH_2 = CH - NO_2$ (b) $CH_2 = CH - CHO$

(c) $H_3C = CH - CN$ (d) $CH_3 - CH = CH_2$

Answer is :

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

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

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

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

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

(d) $C_6H_5 - CH = CH - CH_3$: Benzyl carbocation

Select the correct answer :

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

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

(a) Br_2 (b) Dil $KMNO_4 \,|\, \overset{\ominus}{O}H$

(c) $OsOH \,|\, NaSO_3H \,|\, HOH$ (d) $H_2 \,|\, Ni \,|\, \Delta$

Select the correct answer :

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

86. In the given reaction :

$$H_3C\,CH = CH_2 \xrightarrow[HOH]{Hg(OAc)_2} [X]$$

[X] will be :

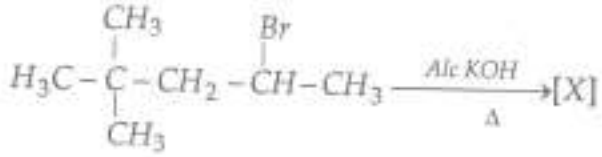
(1) $CH_3CH_2CH_2OH$ (2) $CH_3 - \underset{\displaystyle OH}{\underset{|}{CH}} - CH_3$

(3) $CH_3 - \underset{\displaystyle OH}{\underset{|}{CH}} - CH_2OAc$ (4) $H_3C\,CH_2CH_2OAc$

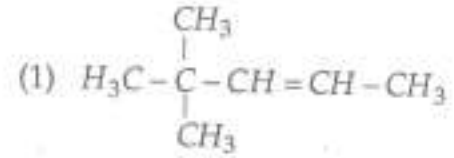
87. Which one of the following compounds undergoes thermal elimination reaction ?

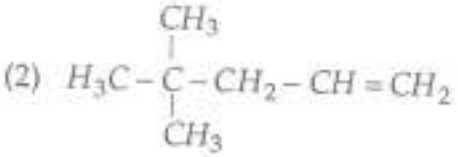
(1) Acetate (2) Chlorides (3) Bromide (4) Alcohols

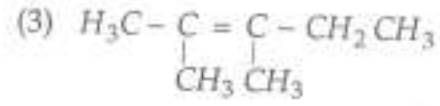
88. In the given reaction

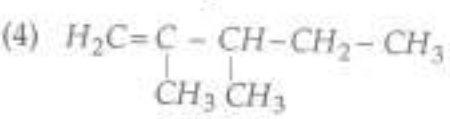


[X] will be :

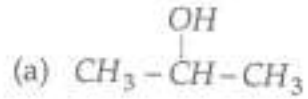
(1) 

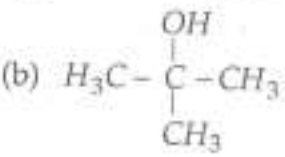
(2) 

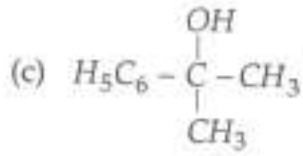
(3) 

(4) 

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

(a) 

(b) 

(c) 

(d) $H_3C\,CH_2\,OH$

Select the answer :

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

90. Arrange acidity of given alcohols in decreasing order :

(a) 4-nitro-1-butanol

(b) 2-nitro-1-butanol

(c) 3-nitro-1-butanol

(d) 1-butanol

Correct answer is :

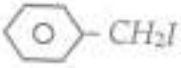
(1) a, b, d, c

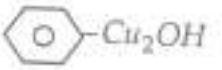
(2) a, b, c, d

(3) b, c, a, d

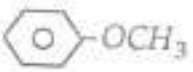
(4) b, c, d, a

91. The ether  When treated with HI gives :

(1) 

(2) 

(3) 

(4) 

92. Formaldehyde does not undergo following reaction :

(1) Reduction

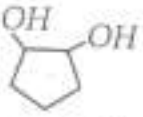
(2) Aldol condensation

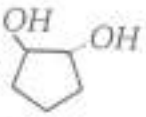
(3) Polymerisation

(4) Oxidation

93. 

A and B are :

(1) both 

(2) both 

(3) A is trans, B is cis

(4) A is cis, B is trans

94. $H_2C = CH - CH = CH_2 \xrightarrow[1 equiv]{H_2} A \xrightarrow[Zn]{O_3 / H_2O} B$

A and B are :

(1) $\underset{A}{CH_2 = CH - CH_2\ CH_3}, \underset{B}{CH_2CH_2CHO, HCHO}$

(2) $\underset{A}{H_3C\ CH = CH - CH_3}, \underset{B}{CH_3CHO}$

(3) Both correct

(4) None is correct

95. Dehydration will be maximum in :

(1) $CH_3 - \underset{OH}{\underset{|}{CH}} - CH_2CH_3$

(2) $H_3C - \overset{O}{\overset{\|}{C}} - \underset{OH}{\underset{|}{CH}} - CH_2 - CH_3$

(3) $H_3C - \underset{OH}{\underset{|}{CH}} - \overset{O}{\overset{\|}{C}} - OH$

(4) $CH_3 - \underset{CH_3}{\overset{CH_3}{\overset{|}{\underset{|}{C}}}} - OH$