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NEET 2023 SOLUTION
CHEMISTRY

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XI-XII SCIENCE

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NEET 2023

Chemistry

Section – A (Compulsory)

51. Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R:

Assertion A : Metallic sodium dissolves in liquid ammonia giving a deep blue solution, which is paramagnetic.

Reasons R : The deep blue solution is due to the formation of amide.

In the light of the above statements, choose the correct answer from the options given below :

(1) Both A and R are true but R is NOT the correct explanation of A.

(2) A is true but R is false.

(3) A is false but R is true.

(4) Both A and R are true and R is the correct explanation of A.

Sol:

$Na_{(s)} + NH_{3(l)} \rightarrow [Na(NH_3)_x]^+ + [e(NH_3)_y]^-$

Ammoniated e^-,[Blue colour, Paramagnetic, Reducing nature]

$\therefore$ A is correct but R is false

52. **The conductivity of centimolar solution of KCl at 25°C is 0.0210 ohm^{-1} cm^{-1} and the resistance of the cell containing the solution at 25°C is 60 ohm. The value of cell constant is**

(1) 3.28 cm^{-1} (2) 1.26 cm^{-1}

(3) 3.34 cm^{-1} (4) 1.34 cm^{-1}

Sol:

$K = 0.021\ \Omega^{-1}\ cm^{-1}$

$R = 60\Omega$

$K = \frac{b}{R}$

$0.021 = \frac{b}{60}$

$b = 1.26\ cm^{-1}$

53. **For a certain reaction, the rate = k[A]^2[B], when the initial concentration of A is tripled keeping concentration of B constant, the initial rate would**

(1) increase by a factor of six.

(2) increase by a factor of nine.

(3) increase by a factor of three.

(4) decrease by a factor of nine.

Sol:

Rate = K[A]^2[B]

[B] is kept constant

[A] is TRIPLED

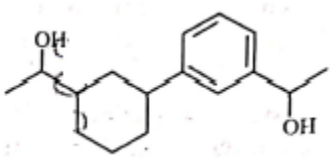
$\therefore$ Rate will become Nine time

$\frac{(Rate)'}{(Rate)} = \frac{K(3A)^2(B)}{K(A)^2(B)}$

Rate' = 9(Rate)

54. **Identify product (A) in the following reaction:**

(1)



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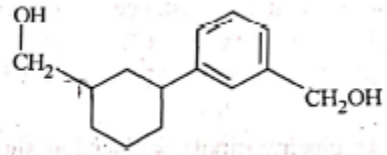

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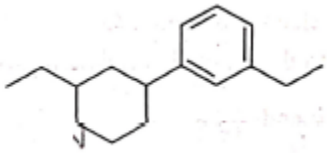
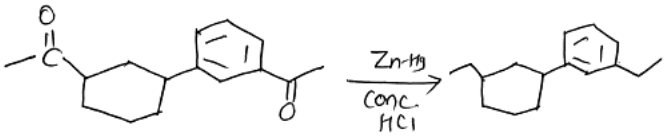


(4)

Sol:

It is Clemmenson's reduction, which reduces $-\overset{\overset{O}{\|}}{C}-$ carbonyl to methylene



55. Which one is an example of heterogenous catalysis?

(1) Hydrolysis of sugar catalysed by H^+ ions

(2) Decomposition of ozone in presence of nitrogen monoxide.

(3) Combination between dinitrogen and dihydrogen to form ammonia in the presence of finely divided iron.

(4) Oxidation of sulphur dioxide into sulphur trioxide in the presence of oxides of nitrogen.

Sol:

Haber's process is Heterogenous catalysis

$$\underset{(g)}{N_2} + \underset{(g)}{3H_2} \xrightarrow{Fe_{(s)}} \underset{(g)}{2NH_3}$$

Iron $\rightarrow$ solid

N_2 & $H_2 \rightarrow$ gas

56. Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R :

Assertion A : Helium is used to dilute oxygen in diving apparatus.

Reasons R : Helium has high solubility in O_2

In the light of the above statements, choose the correct answer from the correct options given below :

(1) Both A and R are true and R is NOT the correct explanation of A.

(2) A is true but R is false.

(3) A is false but R is true.

(4) Both A and R are true and R is the correct explanation of A.

Sol:

From

(1) Helium gas uses

(2) Helium is used to dilute oxygen is correct but reason is its poor solubility in blood through He is soluble in oxygen is correct

$\therefore$ A is true but R is false

57. Amongst the following, the total number of species NOT having eight electrons around central atom in its outer most shell, is

NH_3, $AlCl_3$, $BeCl_2$, CCl_4, PCl_5

(1) 2 (2) 4

(3) 1 (4) 3

Sol:

$AlCl_3$ – One empty p-orbital

$BeCl_2$ – Two empty p-orbital

PCl_5 – Expanded octet

58. The correct order of energies of molecular orbitals of N_2 molecule, is

(1) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < \sigma 2p_z < (\pi 2p_x = \pi 2p_y) < (\pi^* 2p_x = \pi^* 2p_y) < \sigma^* 2p_z$

(2) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < \sigma 2p_z < \sigma^* 2p_z < (\pi 2p_x = \pi 2p_y) < (\pi^* 2p_x = \pi^* 2p_y)$

(3) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < (\pi 2p_x = \pi 2p_y) < (\pi^* 2p_x = \pi^* 2p_y) < \sigma 2p_z < \sigma^* 2p_z$

(4) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < (\pi 2p_x = \pi 2p_y) < \sigma 2p_z < (\pi^* 2p_x = \pi^* 2p_y) < \sigma^* 2p_z$

Sol:

2^{nd} shell MOT for N_2

$\pi = \pi < \sigma < (\pi = \pi)^* < \sigma$

59. Match List - I with List – II

	List I		List II
A.	Coke	I.	Carbon atoms are sp^3 hybridised
B.	Diamond	II.	Used as a dry lubricant
C.	Fullerene	III.	Used as a reducing agent
D.	Graphite	IV.	Cage like molecules

Choose the correct answer from the options given below :

(1) A-IV, B-I, C-II, D-III

(2) A-III, B-I, C-IV, D-II

(3) A-III, B-IV, C-I, D-II

(4) A-II, B-IV, C-I, D-III

Sol:

Coke – Reducing Agent

Diamond – sp^3

Fullerene- Cage

Graphite – Lubricant

60. The number of σ bonds, π bonds and lone pair of electrons in pyridine, respectively are:

(1) 12, 3, 0 (2) 11, 3, 1

(3) 12, 2, 1 (4) 11, 2, 0

Sol:

1- Lone pair

3-π bonds

Consider C–H bond which counting σ is 11

61. The element expected to form largest ion to achieve the nearest noble gas configuration is :

(1) F (2) N

(3) Na (4) O

Sol:

$N^{-3} > O^{-2} > F^{-1} > Na^{+1}$

62. Given below are two statements : one is labelled as **Assertion A** and the other is labelled as **Reason R :**

Assertion A : A reaction can have zero activation energy.

Reasons R : The minimum extra amount of energy absorbed by reactant molecules so that their energy becomes equal to threshold value, is called activation energy.

In the light of the above statements, choose the correct answer from the options given below :

(1) Both A and R are true and R is NOT the correct explanation of A.

(2) A is true but R is false:

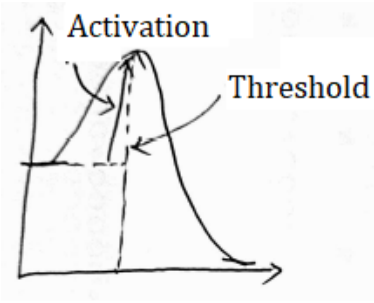
(3) A is false but R is true.

(4) Both A and R are true and R is the correct explanation of A.

Sol:

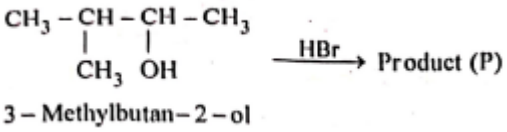
(A) Reactions can not have zero activation

(R) Definition of activation

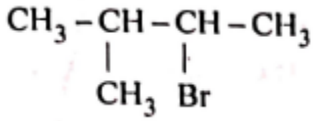


∴ A is false but R is true.

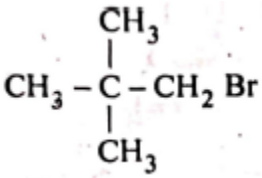
63. Consider the following reaction and identify the product (P).



(1) $CH_3CH = CH - CH_3$



(2)



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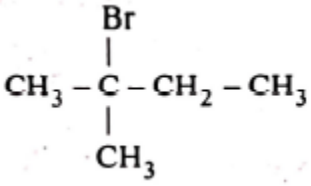
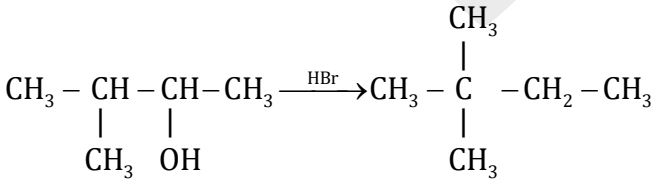


(4)

Sol:

The reaction involves carbocation, hence there will be hydride shift



64. Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R :

Assertion A : In equation $\Delta_rG = -nFE_{cell}$, value of Δ_rG depends on n.

Reasons R : E_{cell} is an intensive property and Δ_rG is an extensive property.

In the light of the above statements, choose the correct answer from the options given below :

(1) Both A and R are true and R is NOT the correct explanation of A.

(2) A is true but R is false.

(3) A is false but R is true.

(4) Both A and R are true and R is the correct explanation of A.

Sol:

Δ_rG is extensive property and E_{cell} is intensive property

$\Delta_rG = -nEF$

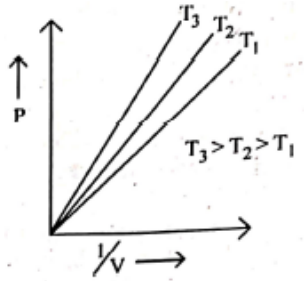
$F \rightarrow$ Faraday constant

$E \rightarrow$ Fix value for given cell

So, ΔG changes if n changes

65. Which amongst the following options is correct graphical representation of Boyle's Law?

(1)



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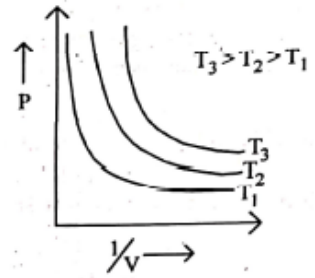

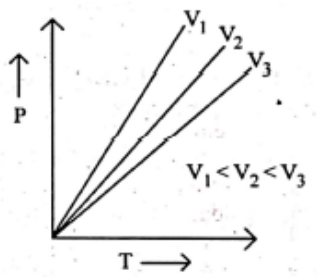

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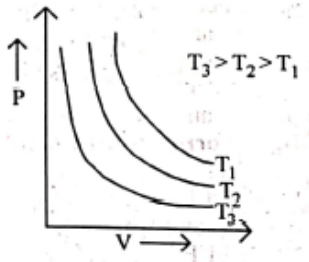
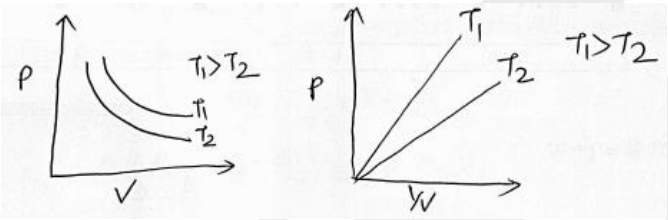


(4)

Sol:

Boyle's law given, $P \propto \frac{1}{V}$



66. In Lassaigne's extract of an organic compound, both nitrogen and sulphur are present, which gives blood red colour with Fe^{3+} due to the formation of

(1) NaSCN

(2) $[Fe(CN)_5NOS]^{4-}$

(3) $[Fe(SCN)]^{2+}$

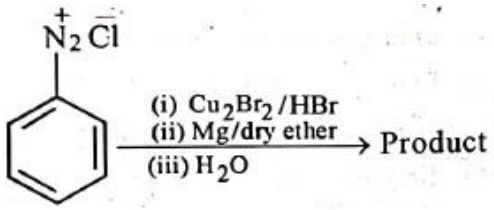
(4) $Fe_4[Fe(CN)_6]_3 \cdot XH_2O$

Sol:

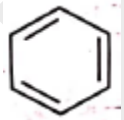
Lassaigne's extract test

$$Fe^{+3} \xrightarrow{SCN^-} \underset{\text{Blood red}}{[Fe(SCN)]^{+2}}$$

67. Identify the product in the following reaction:



(1)



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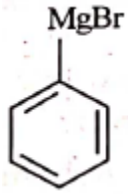
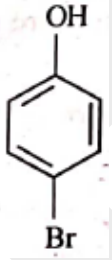


(3)



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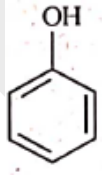
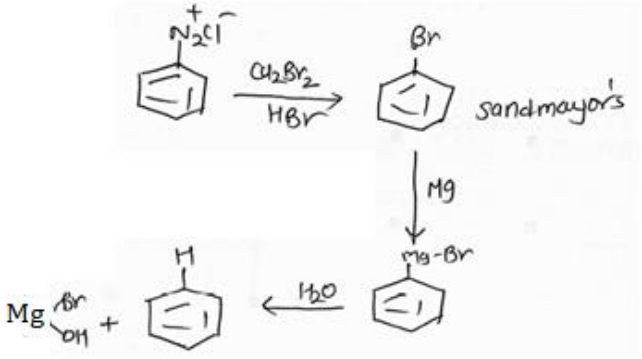


Sol:



68. Select the correct statements from the following :

A. Atoms of all elements are composed of two fundamental particles.

B. The mass of the electron is 9.10939 $\times 10^{-31}$ kg.

C. All the isotopes of a given element show same chemical properties.

D. Protons and electrons are collectively known as inucleons.

E. Dalton's atomic theory, regarded the atom as an ultimate particle of matter.

Choose the correct answer from the options given below :

(1) C, D and E only
(2) A and E only
(3) B, C and E only
(4) A, B and C only

Sol:

A) There more other fundamental particles
B) Mass of e^- given correct
C) Isotopes have same chemical property
D) Neutron + e^- = Nucleons, so incorrect
E) Dalton = Atom is ultimate It is correct

$\therefore$ B, C, E are correct

69. A compound is formed by two elements A and B. The element B forms cubic close packed structure and atoms of A occupy 1/3 of tetrahedral voids. If the formula of the compound is A_xB_y, then the value of x + y is in option

(1) 4 (2) 3
(3) 2 (4) 5

Sol:

$B \rightarrow$ form ccp $= 4$

$A \rightarrow \frac{1}{3}$ of T.V. $= \frac{1}{3} \times 8 = \frac{8}{3}$

$\therefore$ $A_{8/3}B_4 \Rightarrow A_8B_{12} \Rightarrow A_2B_3$

$\therefore$ x + y = 2 + 3 = 5

70. Given below are two statements :

Statement I : A unit formed by the attachment of a base to 1' position of sugar is known as nucleoside

Statement II : When nucleoside is linked to phosphorous acid at 5' -position of sugar moiety, we get nucleotide.

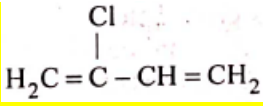
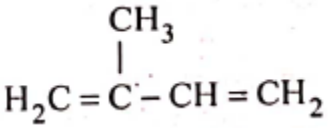
In the light of the above statements, choose the correct answer from the options given below :

(1) Both Statement I and Statement II are false.
(2) Statement I is true but Statement II is false.
(3) Statement I is false but Statement II is, true.
(4) Both Statement I and Statement II are true.

Sol:

Nucleoside = sugar + N.B. at position 1'
Nucleotide = [Sugar + N.B.] + phosphate at 5'
Comes form phosphoric acid & not from phosphorus acid
So, statement – I $\Rightarrow$ correct
Statement-II $\Rightarrow$ incorrect

71. Which amongst the following molecules on polymerization produces neoprene?

(1) 
(2) $H_2C = CH - C \equiv CH$
(3) 
(4) $H_2C = CH - CH = CH_2$

Sol:

Neoprene – chloroprene rubber monomer

72. Taking stability as the factor, which one of the following represents correct relationship?

(1) $InI_3 > InI$ (2) $AlCl > AlCl_3$
(3) $TlI > TlI_3$ (4) $TlCl_3 > TlCl$

Sol:

In group -13 + I stability increases down the group & +3 stability decreases due to incorrect pair effect

Tl- Thallium salts are therefore stable in +1 state

$\therefore$ $TlI > TlI_3$

73. Some tranquilizers are listed below. Which one from the following belongs to barbiturates?

(1) Meprobamate
(2) Valium
(3) Veronal
(4) Chlordiazepoxide

Sol:

Veronal is Barbituric acid derivates

74. Which of the following statements are NOT correct?

A. Hydrogen is used to reduce heavy metal oxides to metals.
B. Heavy water is used to study reaction mechanism.
C. Hydrogen is used to make saturated fats from oils.
D. The H-H bond dissociation enthalpy is lowest as compared to a single bond between two atoms of any element.
E. Hydrogen reduces oxides of metals that are more active than iron.

Choose the most appropriate answer from the options given below :

(1) B, D only
(2) D, E only
(3) A, B, C only
(4) B, C, D, E only

Sol:

Uses of hydrogen & heavy water

75. Intermolecular forces are forces of attraction and repulsion between interacting particles that will include :

A. dipole - dipole forces.
B. dipole - induced dipole forces.
C. hydrogen bonding.
D. covalent bonding.
E. dispersion forces.

Choose the most appropriate answer from the options given below :

(1) A, B, C, D are correct.
(2) A, B, C, E are correct.
(3) A, C, D, E are correct.
(4) B, C, D, E are correct.

Sol:

Covalent bond is **NOT** intermolecular forces of attraction

76. Amongst the given options which of the following molecules / ion acts as a Lewis acid?

(1) H_2O (2) BF_3
(3) OH^- (4) NH_3

Sol:

Electron deficient species acts as lewis acid

$\therefore$ BF_3 acts as a lewis acid

77. The right option for the mass of CO_2 produced by heating 20 g of 20% pure limestone is (Atomic mass of Ca = 40)

$\left[CaCO_3 \xrightarrow{1200K} CaO + CO_2\right]$

(1) 1.76 g (2) 2.64 g
(3) 1.32 g (4) 1.12 g

Sol:

$CaCO_3 \rightarrow CaO + CO_2$

$\therefore$ 100 g of $CaCO_3$ produces 44g of CO_2

$\therefore$ 20g of $CaCO_3$ produces x g of CO_2

$$x = \frac{20 \times 44}{100} = 8.89 \text{ gm}$$

But on 20% pure lime stone is used

$\therefore$ $$\frac{8.8 \times 20}{100} = \frac{17.6}{10} = 1.76\text{gm}$$

78. The relation between n_m, (n_m = the number of permissible values of magnetic quantum number (m)) for a given value of azimuthal quantum number (l), is

(1) $\ell = 2n_m + 1$

(2) $n_m = 2\ell^2 + 1$

(3) $n_m = \ell + 2$

(4) $\ell = \frac{n_m - 1}{2}$

Sol:

$n_m = 2l + 1$

$\therefore \quad 2l = n_m - 1$

$l = \frac{n_m - 1}{2}$

79. The stability of Cu^{2+} is more than Cu^{+} salts in aqueous solution due to -

(1) enthalpy of atomization.

(2) hydration energy.

(3) second ionisation enthalpy,

(4) first ionisation enthalpy.

Sol:

Cu^{+2} high hydration enthalpy as compound to Cu^{+1} and hence Cu^{+2} is more stable than Cu^{+} salt in aqueous salt

80. Which one of the following statements is correct?

(1) All enzymes that utilise ATP in phosphate transfer require Ca as the cofactor.

(2) The bone in human body is an inert and unchanging substance.

(3) Mg plays roles in neuromuscular function and interneuronal transmission.

(4) The daily requirement of Mg and Ca in the human body is estimated to be 0.2 - 0.3 g.

Sol:

i) All enzymes that utlise ATP in phosphate transfer requires Mg as the co-factor

ii) The bone in human body degenates

iii) Ca plays role in neuromuscular function and interneuronal transmission.

81. Which of the following reactions will NOT give primary amine as the product?

(1) $CH_3CN \xrightarrow[(ii)\ H_3O^+]{(i)\ LiAlH_4} Product$

(2) $CH_3NC \xrightarrow[(ii)\ H_3O^+]{(i)\ LiAlH_4} Product$

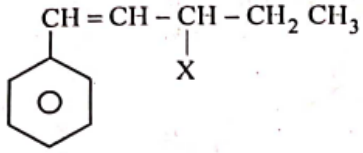
(3) $CH_3CONH_2 \xrightarrow[(ii)\ H_3O^+]{(i)\ LiAlH_4} Product$

(4) $CH_3CONH_2 \xrightarrow{Br_2/KOH} Product$

Sol:

$$CH_3NC \xrightarrow[H_3O^+]{LiAlH_4} \underset{2^\circ\ amine}{CH_3 - NH - CH_3}$$

82. The given compound

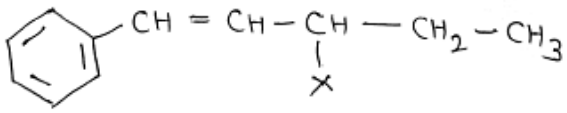


is an example of _____.

(1) aryl halide (2) allylic halide

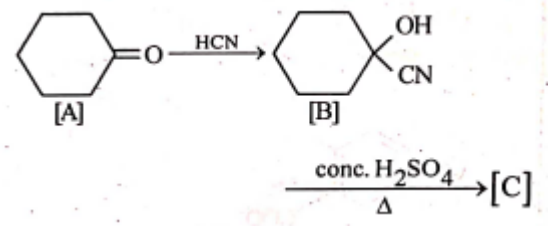
(3) vinylic halide (4) benzylic halide

Sol:

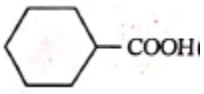


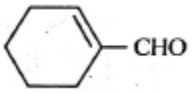
Allylic halide

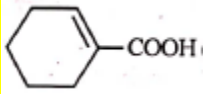
83. Complete the following reaction :

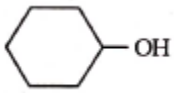


[C] is _____

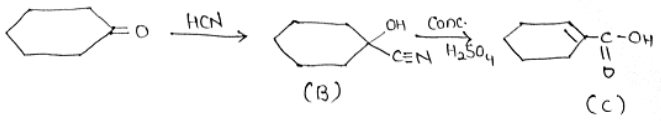
(1) 

(2) 

(3) 

(4) 

Sol:



84. Homoleptic complex from the following complexes is :

(1) Diamminechloridonitrito - N - platinum (II)

(2) Pentaamminecarbonatocobalt (III) chloride

(3) Triamminetriaquachromium (III) chloride

(4) Potassium trioxalatoaluminate (III)

Sol:

i) $[PtCl(NH_3)_2(NO_2)]$ → Heteroleptic complex

ii) $[Co(NH_3)_5(CO_3)]Cl$ → Heteroleptic complex

iii) $[Cr(H_2O)_3(NH_3)]Cl_3$ → Heteroleptic complex

iv) $K_3[Al(C_2O_4)_3]$ → Homoleptic complex

85. Weight (g) of two moles of the organic compound, which is obtained by heating sodium ethanoate with sodium hydroxide in presence of calcium oxide is :

(1) 32 (2) 30

(3) 18 (4) 16

Sol:

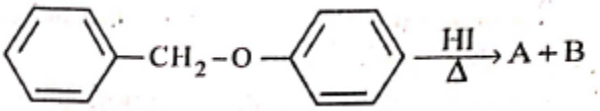
$$CH_3-\overset{\overset{O}{\|}}{C}-ONa + NaOH \xrightarrow{CaO} CH_4 + Na_2CO_3$$

1 mole of $CH_4 \rightarrow 16g$

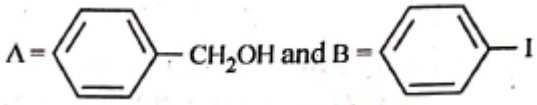
$\therefore$ 2 mol of $CH_4 \rightarrow 32g$

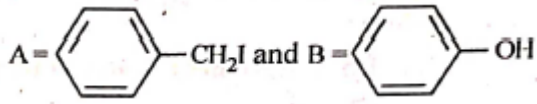
Section – B (Attempt ANY 10)

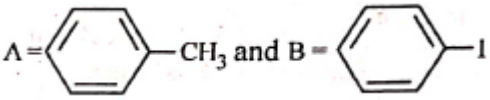
86. Consider the following reaction :

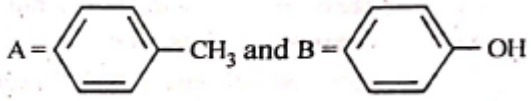


Identify products A and B.

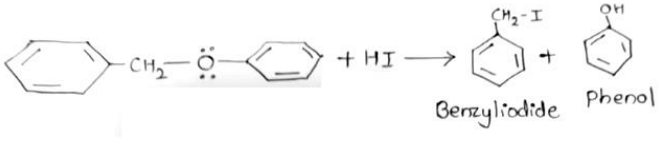
(1) 

(2) 

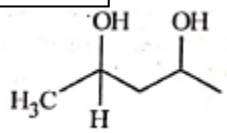
(3) 

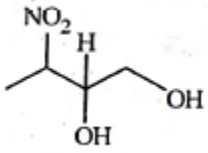
(4) 

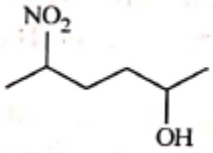
Sol:

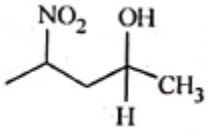


87. Which amongst the following will be most readily dehydrated under acidic conditions ?

(1) 

(2) 

(3) 

(4) 

Sol:

In acidic condition carbocation is formed

$\therefore$ (A) forms a stable carbocation as compared to other

$\because$ there is a withdrawing group present in others

88. The equilibrium concentrations of the species in the reaction A + B $\rightleftharpoons$ C + D are 2, 3, 10 and 6 mol L^{-1}, respectively at 300 K. ΔG° for the reaction is (R = 2 cal / mol K)

(1) – 137.26 cal (2) – 1381.80 cal

(3) – 13.73 cal (4) 1372.60 cal

Sol:

$$K_c = \frac{[C][D]}{[A][B]}$$

$$= \frac{6 \times 10}{3 \times 2}$$

$K_c = 10$

$\Delta G^\circ = -2.303RT \log K$

$= -2.303 \times 2 \times 300 \times \log(10)$

$= -2.303 \times 600 = -1381.80$ cal

89. Given below are two statements :

Statement I : The nutrient deficient water bodies lead to eutrophication.

Statement II : Eutrophication leads to decrease in the level of oxygen in the water bodies.

In the light of the above statements, choose the correct answer from the options given below :

(1) Both Statement I and Statement II are false.

(2) Statement I is correct but Statement II is false.

(3) Statement I is incorrect but State II is true.

(4) Both Statement I and Statement II are true.

Sol:

Statement I : The nutrient rich watar bodies lead to eutrophication

$\therefore$ Statement I is incorrect & statement II is correct

90. Which amongst the following options is the correct relation between change in enthalpy and change in internal energy?

(1) $\Delta H = \Delta U + \Delta n_g RT$

(2) $\Delta H - \Delta U = -\Delta nRT$

(3) $\Delta H + \Delta U = \Delta nR$

(4) $\Delta H = \Delta U - \Delta n_g RT$

Sol:

First law of thermodynamics

$\Delta U = \Delta H + w$

$\therefore$ $\Delta H = \Delta U - w$

$w = -\Delta n_g RT$

$\therefore$ $\Delta H = \Delta U - (-\Delta n_g RT)$

$\therefore$ $\Delta H = \Delta U + \Delta n_g RT$

91. Match List -I with List - II :

	Column I (Oxoacids of Sulphur)		Column II (Bonds)
A.	Peroxodisulphuric acid	I.	Two S-OH, Four S = O, One S-O-S
B.	Sulphuric acid	II.	Two S-OH, One S = O
C.	Pyrosulphuric acid	III.	Two S-OH, Four S = O,
D.	Sulphurous acid	IV.	Two S-OH, Two S = O

Choose the correct answer from the options given below :

(1) A-III, B-IV, C-I, D-II

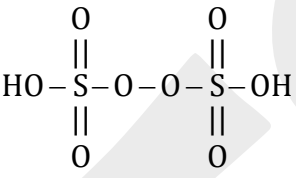
(2) A-I, B-III, C-IV, D-II

(3) A-III, B-IV, C-II, D-I

(4) A-I, B-III, C-II, D-IV

Sol:

Peroxodisulphuric acid

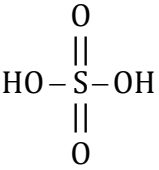


S = O → 4 bonds

S – OH → 2 bonds

S–O–O–S → 1 bond

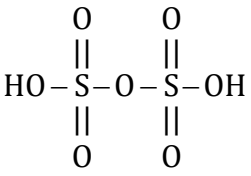
Sulphuric acid



S = O → 2 bonds

S–OH → 2 bonds

Pyrosulphuric acid

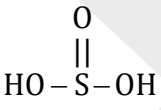


S = O → 4 bonds

S – OH → 2 bonds

S–O–S → 1 bond

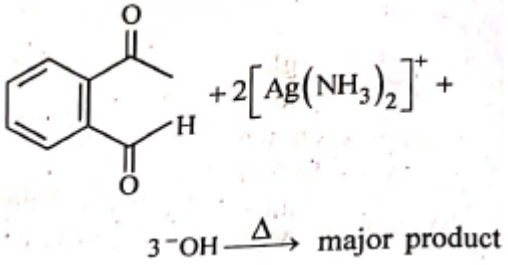
Sulphurous acid

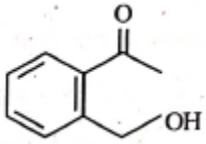


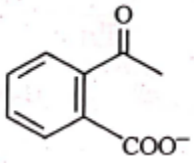
S = O → 1 bond

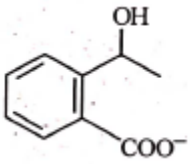
S–OH → 2 bonds

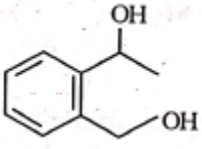
92. Identify the major product obtained in the following reaction :



(1) 

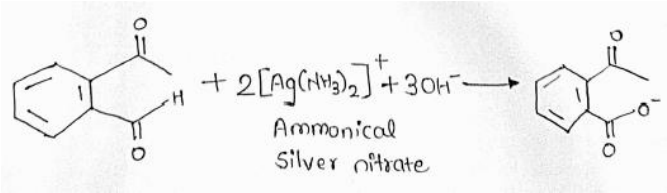
(2) 

(3) 

(4) 

Sol:

Tollens test is given by aldehyde & not by ketones



93. Pumice stone is an example of –

(1) gel (2) solid sol

(3) foam (4) sol

Sol:

Pumice stone is an example of solid sol

94. The reaction that does NOT take place in a blast furnace between 900 K to 1500 K temperature range during extraction of iron is :

(1) $FeO + CO \rightarrow Fe + CO_2$

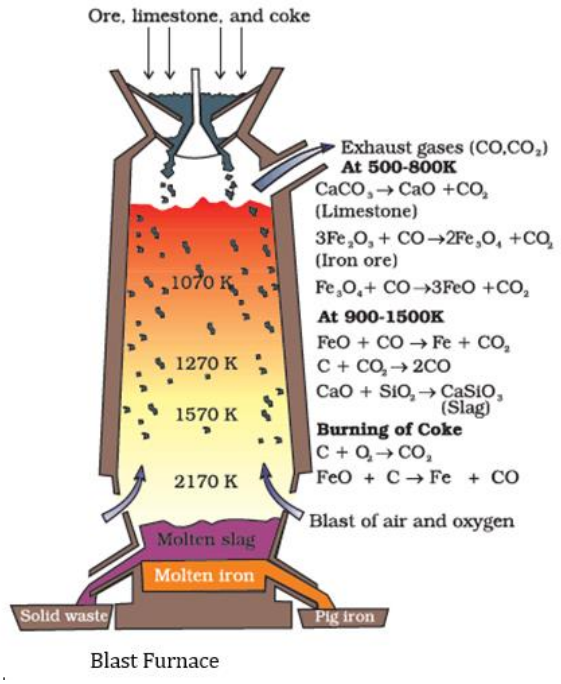
(2) $C + CO_2 \rightarrow 2CO$

(3) $CaO + SiO_2 \rightarrow CaSiO_3$

(4) $Fe_2O_3 + CO \rightarrow 2FeO + CO_2$

Sol:

At 900 – 1500K



Blast Furnace

$FeO + CO \rightarrow Fe + CO_2$

$C + CO_2 \rightarrow 2CO$

$CaO + SiO_2 \rightarrow CaSiO_3$

At 500 – 800K

$Fe_2O_3 + CO \rightarrow 2FeO + CO_2$

95. Which of the following statements are INCORRECT?

A. All the transition metals except scandium form MO oxides which are ionic.

B. The highest oxidation number corresponding to the group number in transition metal oxides is attained in Sc_2O_3 to Mn_2O_7.

C. Basic character increases from V_2O_3 to V_2O_4 to V_2O_5.

D. V_2O_4 dissolves in acids to give salts VO_4^{3-} salts

E. CrO is basic but Cr_2O_3 is amphoteric

Choose the correct answer from the options given below :

(1) B and D only

(2) C and D only

(3) B and C only

(4) A and E only

Sol:

Acidic character increases from V_2O_3, V_2O_4, V_2O_5

$V_2O_3 \rightarrow$ Slightly basic

$V_2O_4 \rightarrow$ Amphoteric

$V_2O_5 \rightarrow$ Acidic

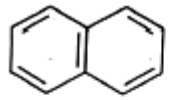
As the oxidation state increases acidity increases

V_2O_5 dissolves in acid to give VO_4^{-3} & VO_4^{+}

V_2O_4 dissolves in acid to give VO^{+2}

$\therefore$ C & D are incorrect statement

96. Consider the following compounds/species:

i. 

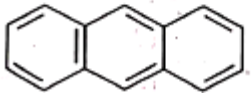
ii. 

iii. 

iv. 

v. 

vi. 

vii. 

The number of compounds/species which obey Huckel's rule is _____.

(1) 6 (2) 2

(3) 5 (4) 4

Sol:

Huckel's rule

$(4n + 2)\pi e^-$

n = 0, 1, 2, 3,4, ...

(i) $4n + 2 = 10$

$4n = 8$

$n = 2$

Aromatic

(ii) $4n + 2 = 6$

$4n = 4$

$n = 1$

Aromatic

(iii) $4n + 2 = 4$

$4n = 2$

Non aromatic

(iv) $4n + 2 = 4$

$n = \frac{1}{2}$

Non aromatic

(v) $4n + 2 = 2$

$4n = 0$

$n = 0$

Aromatic

(vi) $4n + 2 = 8$

$4n = 6$

$n = \frac{3}{2}$

Non aromatic

(vii) $4n + 2 = 14$

$4n = 12$

$n = 3$

Aromatic

97. What fraction of one edge centred octahedral void lies in one unit cell of fcc?

(1) $\frac{1}{3}$ (2) $\frac{1}{4}$

(3) $\frac{1}{12}$ (4) $\frac{1}{2}$

Sol:

Effective part of an atom

At body center $\rightarrow 1$

Face center $\rightarrow 1/2$

Edge center $\rightarrow 1/4$

Corner $\rightarrow 1/8$

$\therefore$ formation of octahedral void = 1/4

98. Which complex compound is most stable?

(1) $[Co(NH_3)_3(NO_3)_3]$

(2) $[CoCl_2(en)_2]NO_3$

(3) $[Co(NH_3)_6]_2(SO_4)_3$

(4) $[Co(NH_3)_4(H_2O)Br](NO_3)_2$

Sol:

Stability of complex depends on ability of ligands to form chelates

Polydentate lignands form chelates

$\therefore$ $[CoCl_2(en)_2]NO_3$ is most stable

99. On balancing the given redox reaction,

$$aCr_2O_7^{2-} + bSO_{3(aq)}^{2-} + cH_{(aq)}^{+} \rightarrow$$

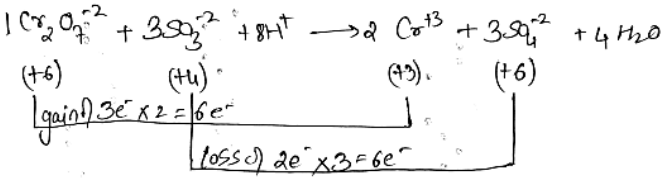
$$2aCr_{(aq)}^{3+} + bSO_{4(aq)}^{2-} + \frac{c}{2}H_2O_{(\ell)}$$

the coefficients a, b and c are found to be, respectively -

(1) 3, 8, 1 (2) 1, 8, 3

(3) 8, 1, 3 (4) 1, 3, 8

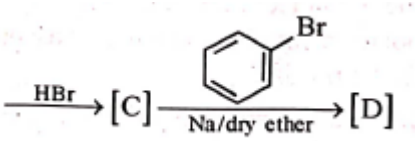
Sol:

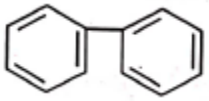


$\therefore$ a = 1
b = 3
c = 8

100. Identify the final product [D] obtained in the following sequence of reactions.

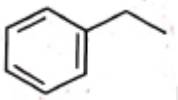
$CH_3CHO \xrightarrow[(ii)\ H_3O^+]{(i)\ LiAlH_4} [A] \xrightarrow[\Delta]{H_2SO_4} [B]$



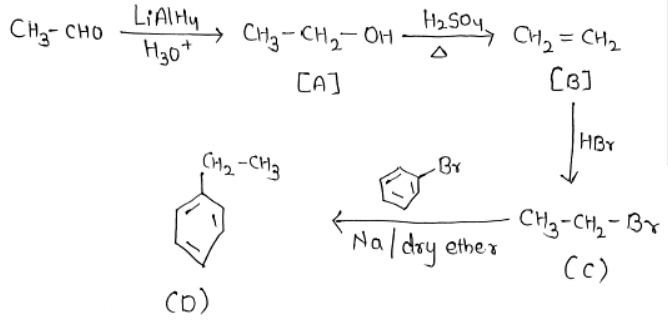
(1) 

(2) C_4H_{10}

(3) $HC \equiv C^-Na^+$

(4) 

Sol:



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AIIMS
BATHINDA

LAKSHIT PARIHAR
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AAKASH YADAV
641

RAFEA SHAIKH
637

SUKANYA SINGH
617

JAGDISH KUMAR PATEL
616

PRATHAMESH KULKARNI
599

PUNEET SOLANKI
588

REVIN PATTAR
583

SHREYAS CHOUDHARY
582

PURVI THAKAR
581

KESAR RATHOD
575

VAIBHAV SHUKLA
572

DEEPIKA KAPURIA
570

KRISH AMRELIA
570

DIYA PATEL
547

NEEL PARMAR

MANSI DUBEY

VINAYAK DWIVEDI

CHAHAL JAISWAL

AASTHA TIWARI

RIZA MENON

DIVYA SUTHAR

YASHRAJ CHAVAN

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DARSHIT J.

689 /720

AIR EWS 45

NOW @

AIIMS

BHOPAL

VAIDEHI T.

687 /720

AIR : All India Rank

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GOVT. MBBS SELECTIONS

NIKITA M.
651
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625
TNMC, MUMBAI

YASH S.
625
GMC, MUMBAI

CHIRAG D.
624
TNMC, MUMBAI

AKSHAT K.
604
GMC, NAGPUR

NIKITA P.
598
IGMC, NAGPUR

KATHA M.
593
GMC, ALIBAUG

AKSHIT P.
584
GMC, KOLHAPUR

SIYA M.
580
GMC, DHULE

ANURADHA S.
579
GMC, AKOLA

SAHER S.
573
GMC, CHANDRAPUR

CHINTAN T.
572
GMC, YAVATMAL

MAHEK B.
570

DEECHA P.
559
GMC, GONDIA

TSPH IS TSPH

SELECTION RATIO में मुंबई के सर्वश्रेष्ठ में से एक