



JSPM's

Imperial College of Engineering and Research, Wagholi, Pune.

(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to SPPU)

Gat.No.720, Pune-Nagar road, Wagholi, Pune, 412207.

Phone No. 020-67335100 website: www.jspmicoer.edu.in Email- principal@jspmicoer.edu.in



Accredited with 'A' Grade by NAAC

Dr. T. J. Sawant
Founder Secretary

Dr. R. S. Deshpande
Principal

DTE Code- 6160

Bachelor of Engineering (B.E)

Sr. No	U.G Courses	Intake
1.	Civil Engineering (Morning Shift)	120
2.	Civil Engineering (Afternoon Shift)	60
3.	Computer Engineering	60
4.	E&TC Engineering	120
5.	Mechanical Engineering (Morning Shift)	120
6.	Mechanical Engineering (Afternoon Shift)	120

Admissions Open For First Year /Direct second Year Engineering /MBA/ME for A.Y. 2020-21

Contact: 9881787751,7757977775,9665990098

MHT- CET 2016

Solution

Subject :- Chemistry



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51 : (C)

The possible number of optical isomers of the compound is given by 2^n where 'n' represents total number of asymmetric carbon atoms in a compound.

52 : (A)

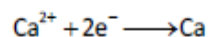
The equation that represents van't Hoff general solution equation is $\pi = \frac{n}{V}RT$

53 : (A)

The most stable allotrope of Sulphur is octahedral Sulphur.

54 : (C)

Thermoplastic polymer is a linear or branched polymer which can be remolded and becomes soft on heating under pressure.



55 : (A)

2 moles of electrons are required to deposit 1 mole of calcium

Mass of calcium deposited = 10g

Molar mass of calcium = 40g mol^{-1}

$$\therefore \text{No. of moles} = \frac{10}{40\text{g mol}^{-1}} = 0.25\text{ mol}$$

2F are required for 1 mole of calcium

xF are required for 0.25 mole of calcium

$$\therefore x = 0.25 \times 2 = 0.5F$$



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56 : (B)

Sodium cyanide is used in leaching of gold.

57 : (D)

Out of four paracetamol only possess analgesic and anti-inflammatory activity.

58 : (D)

Mixture of n-butyl bromide and ethyl bromide gives following compounds. Butane, octane and hexane.
It does not form ethane.

59 :

Lanthanides heated with Sulphur give products with general formula Ln_2S_3

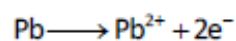
60 :

Butylated hydroxyl anisole is an anti-oxidant

61 : (A)



The compound losing e^- is called reducing agent





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62 : (A)

Polonium is the only metal which crystallizes in a simple cubic structure.

63 : (D)

2°/ Secondary amines $\xrightarrow{\text{Nitrous acid}}$ yellow oily substance.

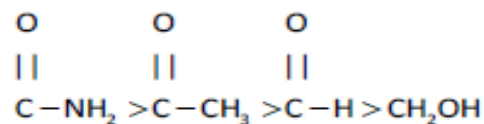
Out of the given four options only methyl phenyl amine is a secondary amine.

64 : (D)

Barium does not form acidic oxide|

65 : (B)

Priority of groups attached chiral carbon atom is based on atomic number



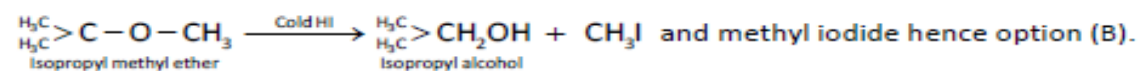
66 : (A)

Lexan is used for making bullet proof helmets.

67 : (C)

Nickel metal is refined by mound process

68 : (B)





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69 : (C)

Volume occupied by face central cubic unit cell is $\frac{16}{3}\pi r^3$

70 : (C)

Glucose on oxidation with bromine water yields gluconic acid. This reaction confirms presence of aldehyde group.

Because for formation of gluconic acid free aldehyde group must be present.

71 : (A)

Sodium chromate $\xrightarrow{\text{conc. H}_2\text{SO}_4}$ Sodium dichromate.

72 : (A)

In a dry cell, zinc acts as negative electrode.

73 : (D)

1°/primary amines $\xrightarrow{\text{Nitrous acid}}$ Nitrogen \uparrow only Ethylamine is primary amine here.

74 : (D)

Molarity = $\frac{\text{No. of moles}}{\text{per litre Solution}}$

No. of moles = $\frac{\text{Mass}}{\text{Molar mass}}$

= $\frac{5}{40 \text{ g mol}^{-1}} = 0.125 \text{ mol}$

Solution is diluted up to 100 ml.



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Hence 100 ml consists 0.125 mol of NaOH

1 L consists x mole of NaOH

$$\therefore x = \frac{0.125 \times 1000 \text{ ml}}{100 \text{ ml}} = 1.25 \text{ mol dm}^{-3}$$

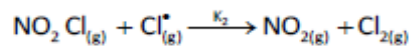
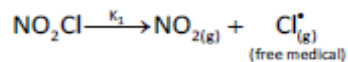
75 : (D)

Acetyl chloride + dibenzyl cadmium \longrightarrow benzyl methyl ketone

76 : (A)

Magnesium chloride has highest ionic character.

77 : (D)



The intermediate generated is Cl^*

78 : (C)

Arginine consists of amine group as functional group.

Hence in basic in nature.

79 : (D)

Henry's Law states the relation between solubility of gas in liquid at constant temperature and external pressure.

80 : (D)

The order for acidity in phenols depends upon the e^- withdrawing groups position.



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p-nitro phenol > m-nitro phenol > phenol.

81 : (D)

Carbon dioxide is a non-polar solid.

82 : (A)

Out of given options chromium, vanadium and scandium are d-block elements which form coloured compounds. Iron forms colourless compound.

83 : (D)

The highest oxidation state by group 17 elements is + 7

84 : (A)

$\Delta U = qv$ is the mathematical equation of first law of thermodynamics for isochoric process.

85 : (C)

Anhydrous aluminium chloride is used as catalyst in commercial production of phenol

86 : (A)

The half life of 1st order rate of reaction is given as $t_{1/2} = \frac{0.693}{k}$

87 : (C)

1 molecule of glycerol combines with 3 fatty acid molecules to form triglyceride. Hence the ratio is 1 : 3



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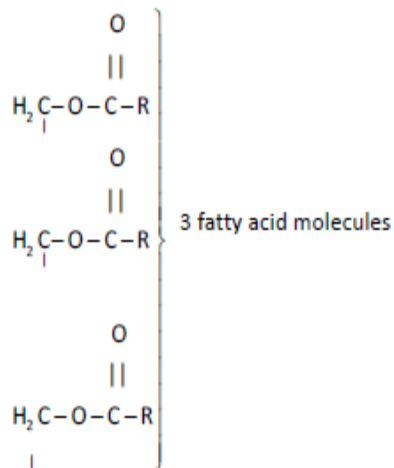


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88 : (B)

Wilkinson catalyst has molecular formula $(\text{Ph}_3\text{P})_3\text{RhCl}$ and is used in hydrogenation of alkenes.

89 : (B)

$\Delta G < 0$ is the criteria for spontaneous process.

90 : (C)

Brown ring test is used for detection of nitrate.

91 : (A)

The reagent used in Wolff-Kishner reduction is $\text{NH}_2\text{-NH}_2$ and KOH in ethylene glycol.

92 : (D)

Neutral complex is the co-ordination compound with no charge. Hence option (D) is correct.



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93 : (D)

Since they are all the same concentration, the one that will break into the most parts has highest boiling point. Ionic compounds will ionize.

A: 1 part (covalent, does not ionize)

B: 2 parts (1 Na, 1 Cl)

C: 3 parts (1 Ca, 2 Cl)

D: 4 parts (1 Fe, 3 Cl)

Hence option D.

94 : (A)

Chromyl chloride is the reagent used in etard reaction.

95 : (B)

Argon is the most abundant noble gas in atmosphere.

96 : (B)

Heat capacity is the only extensive capacity out of the given options.

97 : (B)

Citric acid is a tricarboxylic acid.

98 : (B)

Reaction is $2\text{SO}_{2(g)} + \text{O}_{2(g)} \longrightarrow 2\text{SO}_{3(g)}$

Avg rate of SO_2 reactant = $\frac{2\Delta[\text{SO}_2]}{\Delta t}$

Avg rate of $\text{O}_2 = \frac{\Delta[\text{O}_2]}{\Delta t}$



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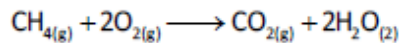
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$$\text{Avg. rate of formation of SO}_3 = \frac{2\Delta[\text{SO}_3]}{\Delta t}$$

$$\text{Avg. rate of reaction} = -\frac{1}{2} \frac{\Delta[\text{SO}_2]}{\Delta t} = -\frac{\Delta[\text{O}_2]}{\Delta t} = \frac{1}{2} \frac{\Delta[\text{SO}_3]}{\Delta t}$$

Out of four only (B) option is correct.

99 : (D)



Amount of work done

$$= -\Delta nRT$$

1 mole of methane reacts with 2 moles of oxygen to produce 2 moles of CO₂

Hence,

0.5 mole of CH₄ reacts with 1 mole of O₂ to produce 1 mole of CO₂

$$\therefore n_1 = \text{moles of reactants} = 1.5$$

$$n_2 = \text{moles of product} = 1$$

$$\therefore \Delta n = n_2 - n_1 = 1 - 1.5 = -0.5$$

$$w = -(-0.5) \times 300 \times 8.314 \text{ Jk}^{-1} \text{ mol}^{-1}$$

$$= + 2494 \text{ J}$$

100 : (A)

Primary nitro alkanes are obtained in good yield by oxidizing aldoximes with the help of Trifluoroperoxyacetic acid.