Banaras Hindu University

Question Paper Name:	482 23rd May 2019 Shift 1
Subject Name:	482
Creation Date:	2019-05-23 13:20:48
Duration:	120
Total Marks:	360
Display Marks:	Yes
Share Answer Key With Delivery Engine:	Yes
Actual Answer Key:	Yes

MSc Chemistry

Group Number :	1
Group Id :	6589881
Group Maximum Duration :	0
Group Minimum Duration :	120
Revisit allowed for view? :	No
Revisit allowed for edit? :	No
Break time:	0
Group Marks:	360

MSc Chemistry

Section Id :	6589881
Section Number :	1
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	120
Number of Questions to be attempted:	120
Section Marks:	360
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	6589881
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 6589881 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

D or L before the name of glucose indicates :

Options :

1. Direction of rotation of polarized light

2. Position of OH group on carbon next to aldehydic group

3. Position of OH group on carbon next to primary alcoholic group

4. Position of OH group on methylene group

Question Number : 2 Question Id : 6589882 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Mutarotation of glucose is characterized by :

Options :

1. conversion of glucose to fructose

2. change of specific rotation from (+) to (–) value

3. conversion of glucose to mannose

4. presence of cyclic structure of glucose

Question Number : 3 Question Id : 6589883 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Mesitylene can be obtained by polymerization of :

Options :

1. Ethyne

2. Propene

3. Propyne

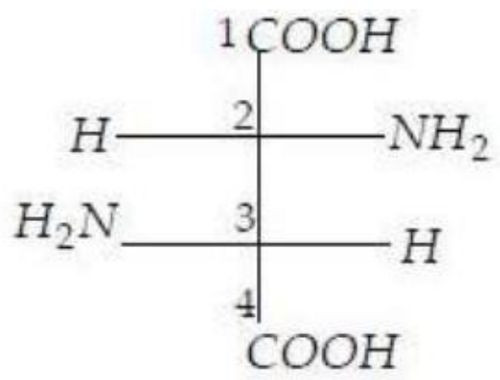
4. But-2-yne

Question Number : 4 Question Id : 6589884 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The configurations of C-2 and C-3 atoms in compound *A* are :



compound A

Options :

1. R R

2. S S

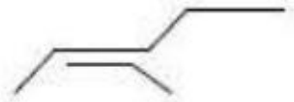
3. R S

4. S R

Question Number : 5 Question Id : 6589885 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Designation before the name of compounds  and  are :

Options :

1. Z, Z

2. E, E

3. E, Z

4. Z, E

Question Number : 6 Question Id : 6589886 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

In which of the following rearrangement ketone is route to give product :

Options :

1. Wolff rearrangement

2. Benzidine rearrangement

3. Hofmann rearrangement

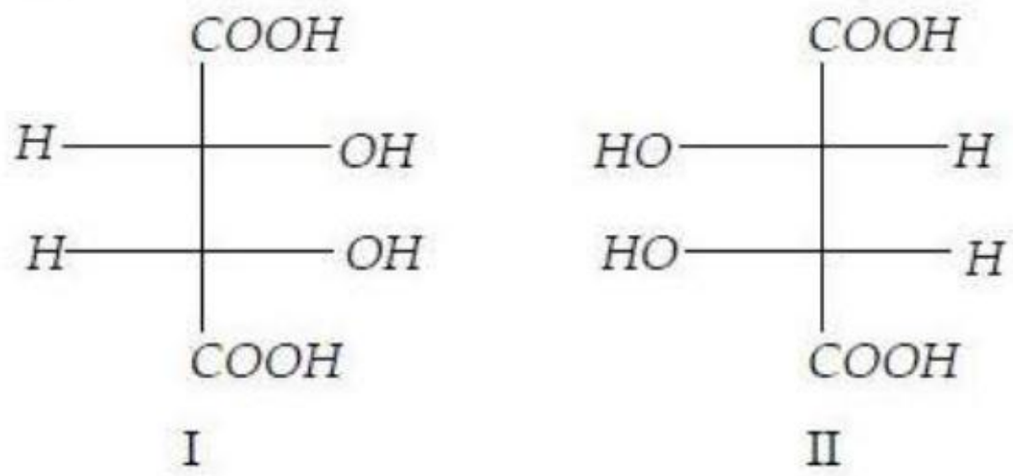
4. Beckmann rearrangement

Question Number : 7 Question Id : 6589887 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Compounds I and II are :



Options :

1. Enantiomers

2. Diastereomers

3. Meso compounds

4. Identical

Question Number : 8 Question Id : 6589888 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Quinoline on oxidation with $KMnO_4$ gives :

Options :

1. Pyridine-3-carboxylic acid

2. Pyridine-2, 3-dicarboxylic acid

3. Pyridine-3, 4-dicarboxylic acid

4. Ter-phthalic acid

Question Number : 9 Question Id : 6589889 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Malachite green dye belongs to :

Options :

1. Diarylmethane dyes

2. Triarylmethane dyes

3. Xanthen dyes

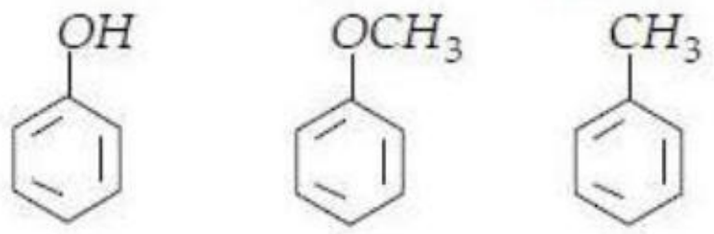
4. Phthalein dyes

Question Number : 10 Question Id : 65898810 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Order of increasing of boiling points in following compounds is :



I II III

Options :

1. III < II < I

2. III < I < II

3. II < I < III

4. II < III < I

Question Number : 11 Question Id : 65898811 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Benzidine rearrangement is acid catalyzed conversion of :

Options :

1. Azoxybenzene

2. Azobenzene

3. Hydrazobenzene

4. Diazoaminobenzene

Question Number : 12 Question Id : 65898812 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which ones undergo Baeyer Villiger oxidation ?

Options :

1. Dialkyl ketones

2. Diaryl ketones

3. Aliphatic aldehydes

4. Aliphatic alcohols

Question Number : 13 Question Id : 65898813 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

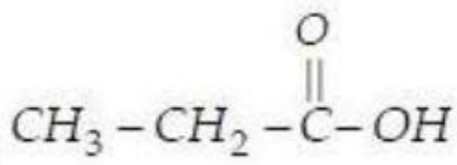
Question Label : Multiple Choice Question

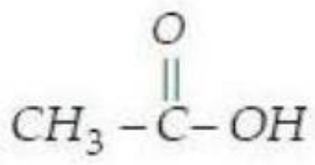
$$CH_3-\overset{\overset{O}{\|}}{C}-Cl \xrightarrow[(ii)\,H_2O/Ag_2O]{(i)\,CH_2N_2} X \text{ . } X \text{ is :}$$

Options :

1. $CH_3-\overset{\overset{O}{\|}}{C}-CH_3$

2. $CH_3-\overset{\overset{O}{\|}}{C}-CH_2Cl$

3. 

4. 

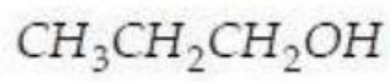
Question Number : 14 Question Id : 65898814 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

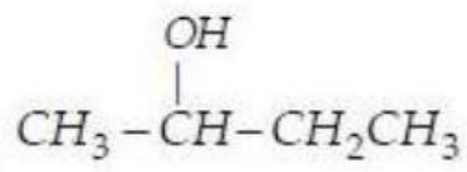
Correct Marks : 3 Wrong Marks : 1

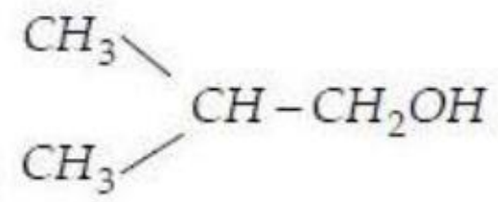
Question Label : Multiple Choice Question

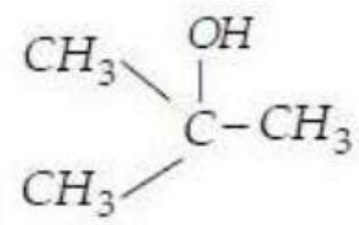
Which compound undergoes haloform reaction :

Options :

1. 

2. 

3. 

4. 

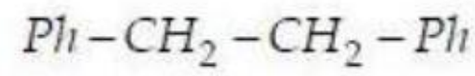
Question Number : 15 Question Id : 65898815 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

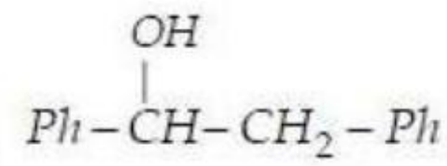
Correct Marks : 3 Wrong Marks : 1

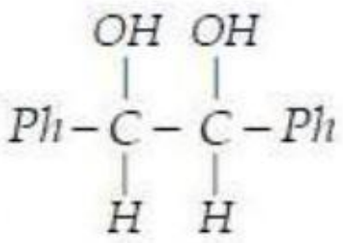
Question Label : Multiple Choice Question

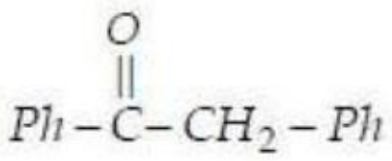
Which one is deoxybenzoin ?

Options :

1. 

2. 

3. 

4. 

Question Number : 16 Question Id : 65898816 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Reaction of two molecules of same ester with sodium ethoxide is known as :

Options :

1. Aldol condensation

2. Claisen condensation

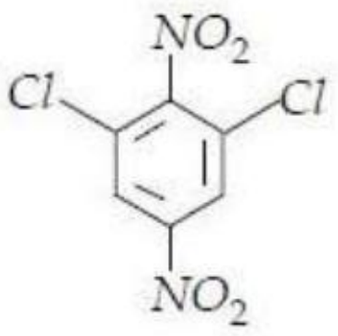
3. Claisen reaction

4. Curtius reaction

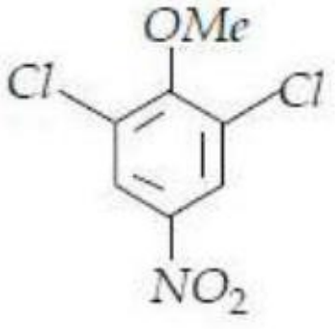
Question Number : 17 Question Id : 65898817 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

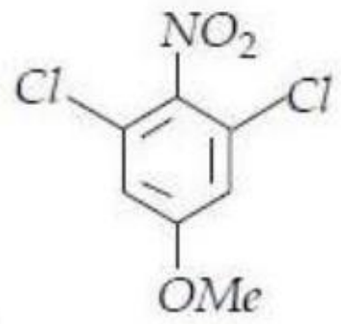
Correct Marks : 3 Wrong Marks : 1

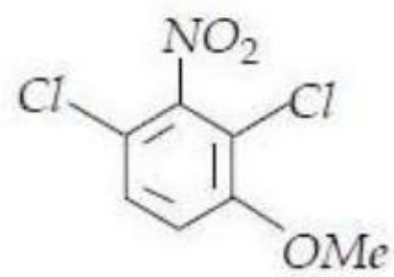
Question Label : Multiple Choice Question

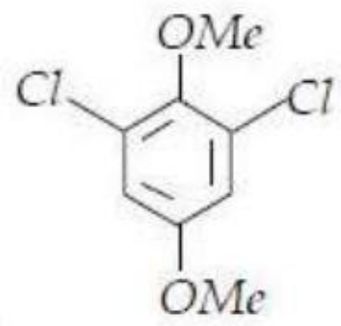
Reaction of  with sodium methoxide gives :

Options :

1. 

2. 

3. 

4. 

Question Number : 18 Question Id : 65898818 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Benzenediazonium chloride on treatment with stannous chloride and hydrochloric acid gives :

Options :

1. $Ph - NH_2$

2. $Ph - NHNH_2$

3. $Ph - NH - Ph$

4. $Ph - Ph(C_6H_5 - C_6H_5)$

Question Number : 19 Question Id : 65898819 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which Grignard reagent is best for synthesis of 3-methyl-1-butanol from aldehyde or ketone :

Options :

1. $CH_3 - CH_2 - CH_2 - MgBr$

2. $(CH_3)_2 - CH - CH_2 - CH_2 - MgBr$

3. $(CH_3)_2 - CHCH_2MgBr$

4. $(CH_3)_2CHMgBr$

Question Number : 20 Question Id : 65898820 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which reagents should be used to prepare methyl isopropyl ether ?

Options :

1. Methyl alcohol and isopropoxide ion

2. Methyl chloride and isopropoxide ion

3. Methyl alcohol and isopropyl alcohol

4. Methyl chloride and methyl alcohol

Question Number : 21 Question Id : 65898821 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Pyridinium chlorochromate is used for oxidation of :

Options :

1. Methanol to formic acid

2. Ethanol to acetaldehyde

3. Ethanol to acetic acid

4. Acetaldehyde to acetic acid

Question Number : 22 Question Id : 65898822 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

What is the order of acidity (most acidic to least acidic) ?

CH_3COOH (I) $\quad H_3CO-CH_2-COOH$ (II) $\quad ClCH_2COOH$ (III)

Options :

1. I > II > III

2. II > III > I

3. III > I > II

4. III > II > I

Question Number : 23 Question Id : 65898823 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A hydrocarbon C_6H_{12} on ozonolysis gives only one product which does not give silver mirror test with Tollen's reagent, the hydrocarbon is :

Options :

1. 2-Hexene

2. 3-Hexene

3. 2, 3-Dimethyl-2-butene

4. 2-Methyl-2-pentene

Question Number : 24 Question Id : 65898824 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

How many σ (sigma) bonds are present in $CH_2=CH-CH=CH_2$?

Options :

1. 3

2. 6

3. 9

4. 12

Question Number : 25 Question Id : 65898825 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Reaction of phenyl magnesium bromide with ethanol gives :

Options :

1. phenyl ethyl ether

2. phenol

3. benzene

4. ethylbenzene

Question Number : 26 Question Id : 65898826 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

In following sequence of reactions, product D is :

$$CH_3CH_2CH_2Cl \xrightarrow{Alc.\,KOH} B \xrightarrow{HBr} C \xrightarrow[ether]{Na} D$$

Options :

1. Hexane

2. 2, 4-Hexadiene

3. 2, 3-Dimethylbutane

4. 2, 2-Dimethylbutane

Question Number : 27 Question Id : 65898827 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

When acetylene is passed into hypochlorous acid solution, the product thus formed is :

Options :

1. Cl_2CHCHO

2. $ClCH_2CHO$

3. $ClCH_2COCl$

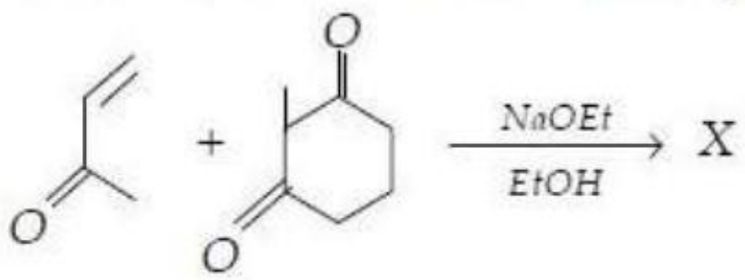
4. Cl_3CCHO

Question Number : 28 Question Id : 65898828 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

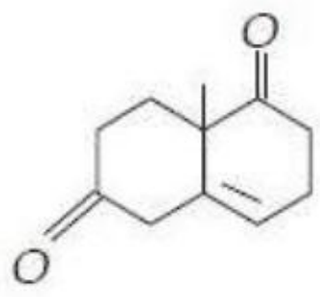
Correct Marks : 3 Wrong Marks : 1

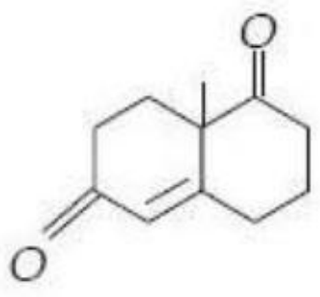
Question Label : Multiple Choice Question

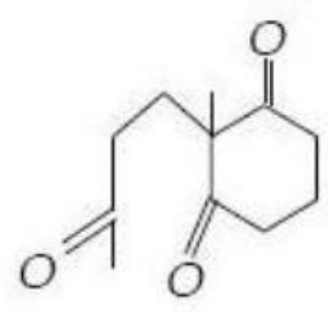
Which one is Robinson annulation product in the following reaction ?

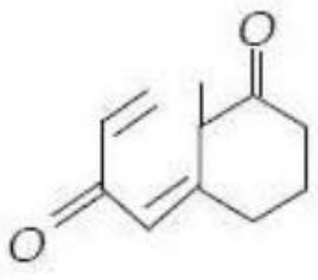


Options :

1. 

2. 

3. 

4. 

Question Number : 29 Question Id : 65898829 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

In the polymerization of the monomer $CH_2 = CYZ$, if all the Y groups lie on one side of the chain and all Z groups lie on the other side, polymer is called as :

Options :

1. isotactic polymer

2. syndiotactic polymer

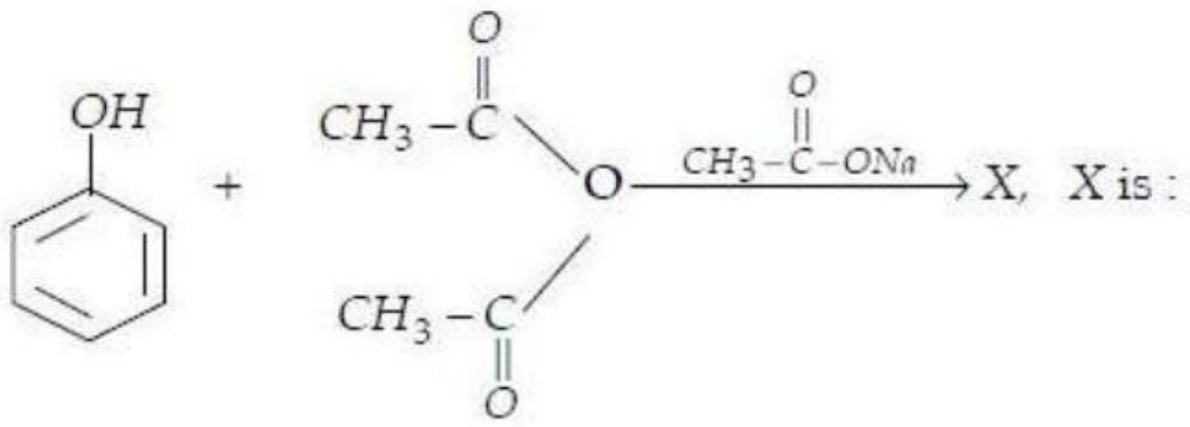
3. atactic polymer

4. condensation polymer

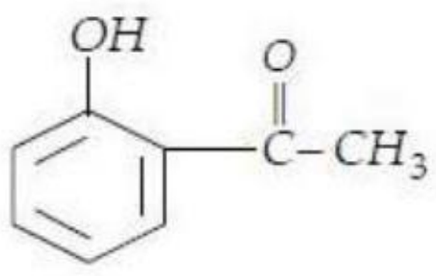
Question Number : 30 Question Id : 65898830 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

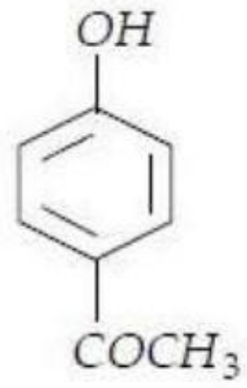
Correct Marks : 3 Wrong Marks : 1

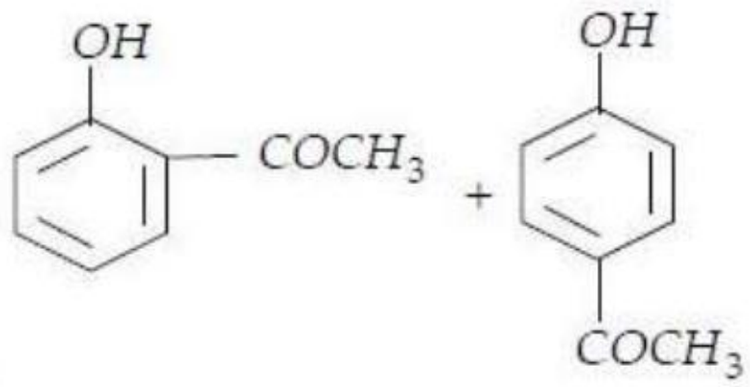
Question Label : Multiple Choice Question

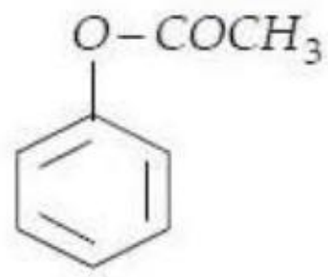


Options :

1. 

2. 

3. 

4. 

Question Number : 31 Question Id : 65898831 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following has a zero dipole moment ?

Options :

1. PCl_3

2. SF_4

3. CIF_3

4. SiF_4

Question Number : 32 Question Id : 65898832 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Aluminium chloride and aluminium hydride both possess bridging anions.

However, the bonding of bridging anions in these two compounds are through :

Options :

1. 2-electron-2-centre bonds in both cases

2. 2-electron-3-centre bonds in both cases

3. hydrogen bonding in aluminium hydride and covalent bond in aluminium chloride

4. 3-centre-2-electron bonds in aluminium hydride and 2-electron-2-centre bonds in aluminium chloride

Question Number : 33 Question Id : 65898833 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The magnitude of orbital angular momentum for electrons present in s and p orbitals are respectively :

Options :

1. 0 and $\frac{h}{2\pi}$

2. $\frac{h}{2\pi}$ and $\sqrt{2}$. $\frac{h}{2\pi}$

3. $\sqrt{2}$. $\frac{h}{2\pi}$ and $\frac{h}{2\pi}$

4. $\frac{h}{2\pi}$ and $\frac{h}{2\pi}$

Question Number : 34 Question Id : 65898834 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following has a regular tetrahedral structure ?

Options :

1. BF_4^-

2. SF_4

3. XeF_4

4. ClF_4^-

Question Number : 35 Question Id : 65898835 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Consider the complex ion $[Cu(H_2O)_6]^{2+}$ and select the correct statement :

Options :

1. All *Cu–O* bond lengths are equal

2. Only one *Cu–O* bond is shorter than the rest five bonds

3. Three *Cu–O* bonds are shorter than the rest three bonds

4. Four *Cu–O* bond are shorter than the rest two bonds

Question Number : 36 Question Id : 65898836 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The total number of possible isomers and optical activity for the complex $[Co(NH_3)_4Cl(NO_2)]^+$ are respectively as :

Options :

1. 4, optically active

2. 6, optically active

3. 6, optically inactive

4. 4, optically inactive

Question Number : 37 Question Id : 65898837 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The bond angles in BF_3, NF_3, NH_3 and PH_3 vary in the following order :

Options :

1. $BF_3 > NF_3 > NH_3 > PH_3$

2. $BF_3 > NH_3 > NF_3 > PH_3$

3. $PH_3 > NH_3 > NF_3 > BF_3$

4. $PH_3 > NF_3 > BF_3 > NH_3$

Question Number : 38 Question Id : 65898838 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

AgCl is colourless but *AgI* is coloured. Because :

Options :

1. There is d-d transition in *AgI* but not in *AgCl*

2. d-d transition takes place in both but *AgCl* absorbs in UV region while *AgI* absorbs in visible region

3. Electron cloud in *AgI* is polarized due to large size of I^- which is not possible in *AgCl*

4. *AgI* contains solid iodine impurity but *AgCl* does not contain impurity of chlorine

Question Number : 39 Question Id : 65898839 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Heating hydrated beryllium nitrate salt leads to the formation of :

Options :

1. Beryllium oxide

2. Beryllium nitride

3. Beryllium nitrite

4. Anhydrous Beryllium nitrate

Question Number : 40 Question Id : 65898840 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Iron in deoxyhaemoglobin exists as :

Options :

1. $Fe(O)$

2. $Fe(II)$

3. $Fe(III)$

4. $\overset{O}{\overset{\|}{Fe}}\,(IV)$

Question Number : 41 Question Id : 65898841 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Compare $(CH_3)_3N$ and $(SiH_3)_3N$ and select the correct statement :

Options :

1. Both have pyramidal structure

2. $(CH_3)_3N$ is pyramidal while $(SiH_3)_3N$ is planar

3. $(CH_3)_3N$ is planar while $(SiH_3)_3N$ is pyramidal

4. Both are planar

Question Number : 42 Question Id : 65898842 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The correct order of basicity is :

Options :

1. $NH_3 > NaOH > NH_2OH$

2. $NH_2OH > NH_3 > NaOH$

3. $NaOH > NH_3 > NH_2OH$

4. $NaOH > NH_2OH > NH_3$

Question Number : 43 Question Id : 65898843 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

In which of the following compounds P is in +1 oxidation state ?

Options :

1. Phosphorus acid

2. Hypophosphoric acid

3. Hypophosphorous acid

4. Pyrophosphoric acid

Question Number : 44 Question Id : 65898844 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

An oxide of sulphur is a strong oxidizing agent and exists in three structural forms. It is commercially important in manufacturing of an important acid. The oxide is :

Options :

1. S_6O

2. S_2O

3. SO_2

4. SO_3

Question Number : 45 Question Id : 65898845 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Consider sulphurous and sulphuric acids and select the correct statement :

Options :

1. sulphurous acid is reducing in nature while sulphuric acid is not

2. both the acids are reducing in nature

3. both the acids are oxidizing in nature

4. sulphurous acid is oxidizing while sulphuric acid is not

Question Number : 46 Question Id : 65898846 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Metallic sodium added in liquid ammonia in the presence of Fe_2O_3 gives :

Options :

1. $NaNH_2$

2. $NaOH$

3. Solvated Na

4. Na_2O

Question Number : 47 Question Id : 65898847 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one of the following complexes is most coloured ?

Options :

1. $[FeF_6]^{3-}$

2. $[CoF_6]^{3-}$

3. $[MnCl_4]^{2-}$

4. $[CoCl_6]^{2-}$

Question Number : 48 Question Id : 65898848 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one of the following complex ions exhibit highest magnetic moment at room temperature ?

Options :

1. $[Ni(CN)_4]^{2-}$

2. $[Fe(CN)_6]^{4-}$

3. $[Co(CN)_6]^{3-}$

4. $[Ni(H_2O)_6]^{2+}$

Question Number : 49 Question Id : 65898849 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one of the following configuration exhibit highest John-Teller distortion in an octahedral field ?

Options :

1. d^4 high spin

2. d^4 low spin

3. d^5 high spin

4. d^6 low spin

Question Number : 50 Question Id : 65898850 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The spectroscopic ground term for V^{3+} ion is :

Options :

1. ^2F

2. ^3F

3. ^2D

4. ^3D

Question Number : 51 Question Id : 65898851 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The correct order of enthalpies of hydration of Ca^{2+}, Mn^{2+}, Zn^{2+} ions is :

Options :

1. $Mn^{2+} > Ca^{2+} > Zn^{2+}$

2. $Zn^{2+} > Mn^{2+} > Ca^{2+}$

3. $Zn^{2+} > Ca^{2+} > Mn^{2+}$

4. $Ca^{2+} > Mn^{2+} > Zn^{2+}$

Question Number : 52 Question Id : 65898852 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The electronic spectrum of $[Ti(H_2O)_6]^{3+}$ shows a peak with a shoulder. The shoulder appears due to :

Options :

1. Ligand to metal charge transfer

2. Metal to ligand charge transfer

3. Jahn-Teller distortion

4. Bond vibrations in the ion

Question Number : 53 Question Id : 65898853 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one of the following is *not* a pyrophoric compound ?

Options :

1. $BuLi$

2. $MeMgBr$

3. Me_3Al

4. Me_4Sn

Question Number : 54 Question Id : 65898854 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one of the following is a sandwich compound ?

Options :

1. $[V(CO)_6]^-$

2. $[Cr(C_6H_6)_2]$

3. $[Pt(C_2H_4)Cl_3]^-$

4. $[PtCl_4]^{2-}$

Question Number : 55 Question Id : 65898855 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The numbers of vertices, faces and edges in an octahedron are respectively :

Options :

1. 6, 6, 8

2. 6, 8, 6

3. 8, 6, 12

4. 6, 8, 12

Question Number : 56 Question Id : 65898856 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

An important feature of the *B-F* bonds in BF_3 is :

Options :

1. Bond order is greater than 1

2. Bond order is less than 1

3. Bond order is 1 and the bond is perfectly covalent

4. Bond order is 1 and the bond is partially ionic

Question Number : 57 Question Id : 65898857 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The geometry of ICl_2^- ion is :

Options :

1. V-shape

2. Tetrahedral

3. Trigonal bipyramidal

4. Octahedral

Question Number : 58 Question Id : 65898858 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Consider the following reactions and identify the acids therein :

(A) $XeO_3 + OH^- \rightarrow [HXeO_4]^-$ (B) $NOF + ClF_3 \rightarrow NO + ClF_4^-$

Options :

1. XeO_3 and NO

2. $HXeO_4$ and NO

3. XeO_3 and F

4. XeO_3 and ClF_3

Question Number : 59 Question Id : 65898859 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following contains Co(III) ?

Options :

1. Vitamin B_6

2. Vitamin B_{12}

3. Folic acid

4. Ascorbic acid

Question Number : 60 Question Id : 65898860 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The reagent that can be used to precipitate Ba^{2+} ions from its aqueous solution is :

Options :

1. HCl

2. H_2SO_4

3. HNO_3

4. $AgNO_3$

Question Number : 61 Question Id : 65898861 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The crystal field stabilization energy of high spin d^6 octahedral complex is :

Options :

1. $1.6\ \Delta_0 + P$

2. $1.2\ \Delta_0 + P$

3. $0.4\ \Delta_0 + P$

4. $2.4\ \Delta_0$

Question Number : 62 Question Id : 65898862 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The spin only magnetic moments (in B.M.) for $[Cr_2Cl_9]^{3-}$ and $[W_2Cl_9]^{3-}$ are :

Options :

1. 0.0 for both

2. 7.74 for both

3. 7.74 for $[Cr_2Cl_9]^{3-}$ and 0.0 for $[W_2Cl_9]^{3-}$

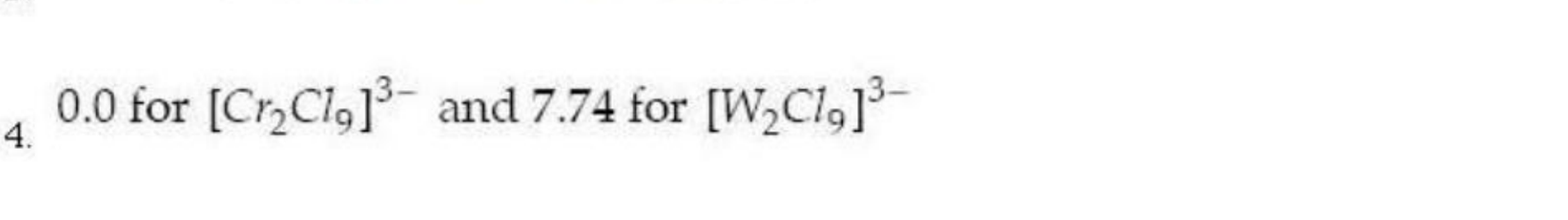
4. 0.0 for $[Cr_2Cl_9]^{3-}$ and 7.74 for $[W_2Cl_9]^{3-}$

Question Number : 63 Question Id : 65898863 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Consider the following reduction potential diagram and identify the species which disproportionate in solution spontaneously :



Options :

1. MnO_4^- and MnO_4^{2-}

2. MnO_4^{2-} and Mn^{3+}

3. MnO_4^{2-} and MnO_2

4. Mn^{3+} and Mn^{2+}

Question Number : 64 Question Id : 65898864 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The K_p of a reaction $2SO_3(g) = 2SO_2(g) + O_2(g)$ is 0.26 at 1000°C and 40.8 at 1300°C. Which of the following combinations of ΔH and ΔS is most plausible ?

Options :

1. $\Delta H = 0$ $\Delta S = 0$

2. $\Delta H > 0$ $\Delta S > 0$

3. $\Delta H > 0$ $\Delta S < 0$

4. $\Delta H < 0$ $\Delta S > 0$

Question Number : 65 Question Id : 65898865 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Using the following data on standard molar entropy :

$CaCO_3(s)$	$S° = 92.9\ JK^{-1}mol^{-1}$
$CaO(s)$	$S° = 39.8\ JK^{-1}mol^{-1}$
$CO_2(g)$	$S° = 213.7\ JK^{-1}mol^{-1}$

the standard reaction entropy $\Delta S°/\ JK^{-1}mol^{-1}$ for the decomposition of $CaCO_3$ into CaO and CO_2 is :

Options :

1. $(-92.9 - 39.8 - 213.7)$

2. $(-92.9 - 39.8 + 213.7)$

3. $(39.8 + 213.7)$

4. $(-92.9 + 39.8 + 213.7)$

Question Number : 66 Question Id : 65898866 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Dissociation constants of phthalic acid are : $pK_{a1} = 2.95$ and $pK_{a2} = 6.79$. The pH of an aqueous solution of potassium acid phthalate is close to :

Options :

1. 9.74

2. 7.00

3. 6.79

4. 4.87

Question Number : 67 Question Id : 65898867 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

If $\psi(r)$ is the wave function for a 1s electron, its average distance from the nucleus is :

Options :

1. $\int_0^\infty \psi^*(r)\psi(r)\,dr$

2. $\int \psi^*(r)\,\hat{r}\,\psi(r)\,dr$

3. $\int_0^\infty \psi^*(r)\,\hat{r}\,\psi(r)$

4. $4\pi\int_0^\infty \psi^*(r)\,\hat{r}\,\psi(r)\,r^2 dr$

Question Number : 68 Question Id : 65898868 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The normal modes of CO_2 molecule those are infra-red active include which of the following : I-Bending; II-Symmetric stretching; III-Asymmetric stretching :

Options :

1. I only

2. II and I only

3. I and III only

4. II and III only

Question Number : 69 Question Id : 65898869 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following is an n-type semiconductor ?

Options :

1. *Si*

2. *As* doped *Si*

3. *Ga* doped *Si*

4. Silicon carbide

Question Number : 70 Question Id : 65898870 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Stationary state wave functions of a system are obtained when its :

Options :

1. Hamiltonian depends on both position and time

2. potential depends on time and position

3. potential is independent of time

4. wave function cannot be resolved into spatial part and temporal part

Question Number : 71 Question Id : 65898871 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

When a physical observable for a system is measured in an eigenstate of its corresponding operation (Hermitian), its eigen value is obtained experimentally as the :

Options :

1. most probable value

2. root mean squared value

3. unique value in all the measurements

4. mean value

Question Number : 72 Question Id : 65898872 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The mean value of energy (I) calculated using a quantum mechanically acceptable arbitrary trial function for system with Hamiltonian is :

Options :

1. equal to its exact ground state energy (E_0) always

2. less than E_0 always

3. greater than E_0 always

4. greater than or equal to E_0

Question Number : 73 Question Id : 65898873 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The width of a spectral line may be contributed by the following line broadening effects. By appropriately adjusting the experimental conditions all these effects can be eliminated except one. Which one is this ?

Options :

1. uncertainity broadening

2. doppler broadening

3. saturation broadening

4. collisional broadening

Question Number : 74 Question Id : 65898874 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A reaction between X_2 and Y was found to be described by the rate expression :

$$rate = k[X_2][Y]^2$$

What can be commented about the reaction process ?

Options :

1. The rate determining step must be a three atom collision

2. The rate determining step must be the first step of a multi-step mechanism

3. The mechanism is most likely to be multi-step

4. The mechanism must consist of just one elementary step

Question Number : 75 Question Id : 65898875 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

When an activated complex is formed from two reactant molecules in gas phase, it is generally assumed that $\Delta S^{\neq} < 0$. This assumption is based on :

Options :

1. The pre-exponential factor, A is always positive

2. $\Delta H^{\neq}$ is positive

Forming activated complex involves conversion of translational and

3. rotational degree of freedom into vibrational degree of freedom

4. The activated complex is ill defined and transitory

Question Number : 76 Question Id : 65898876 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Planck's constant has the same unit as :

Options :

1. angular momentum

2. Hamiltonian

3. de Broglie wave length

4. frequency

Question Number : 77 Question Id : 65898877 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The spectroscopic constants for NO molecule are $D_0 = 6.48$ eV, $\overline{v} = 1904\ cm^{-1}$, $B = 1.705\ cm^{-1}$. For NO, the $J = 0$ to $J = 1$ transition occurs at :

Options :

1. $1.705\ cm^{-1}$

2. $3.410\ cm^{-1}$

3. $6.820\ cm^{-1}$

4. $1.909\ cm^{-1}$

Question Number : 78 Question Id : 65898878 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

$r^2 \exp[-r/3]$ represents radial function of hydrogen atoms for which one of the following orbitals ?

Options :

1. $3s$ orbital

2. $3p$ orbital

3. $3d$ orbital

4. $2s$ orbital

Question Number : 79 Question Id : 65898879 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

What is the limiting high temperature molar heat capacity at constant volume (C_v) of a gas phase diatomic molecule ?

Options :

1. $\frac{3}{2}R$

2. $\frac{5}{2}R$

3. $\frac{7}{2}R$

4. $3R$

Question Number : 80 Question Id : 65898880 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Crystal planes cut through the crystal axes at : which one has the Miller indices (326) ?

Options :

1. $(2a, 3b, c)$

2. (a, b, c)

3. $(6a, 3b, -c)$

4. $(2a, -3b, -3c)$

Question Number : 81 Question Id : 65898881 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following functions is ***not*** an eigen function of $\frac{d^2}{dx^2}$?

Options :

1. $ax + b$

2. $\sin x$

3. $\exp(ax)$

4. $\exp(ax^2)$

Question Number : 82 Question Id : 65898882 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following operators is ***not*** Hermitian ?

Options :

1. x

2. x^2

3. $x - \frac{d}{dx}$

4. $\frac{d^2}{dx^2}$

Question Number : 83 Question Id : 65898883 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which of the following molecules has only one element of symmetry ?

Options :

1. $CHClFBr$

2. $cis - ClHC = CHCl$

3. $trans\text{-}ClHC = CHCl$

4. C_2H_4

Question Number : 84 Question Id : 65898884 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The point group to which does allene molecule belong :

Options :

1. C_{2h}

2. C_{4v}

3. D_{2d}

4. D_{4h}

Question Number : 85 Question Id : 65898885 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The point group to which does the molecule $B(OH)_3$ belong ?

Options :

1. C_{3v}

2. C_{3h}

3. D_{3h}

4. S_3

Question Number : 86 Question Id : 65898886 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Consider among the terms for the atom C :

Which one has the lowest energy ?

Options :

1. $^1D_2$

2. $^3P_1$

3. $^3P_0$

4. $^1S_0$

Question Number : 87 Question Id : 65898887 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Symmetry no. for the methane molecule is :

Options :

1. 4

2. 8

3. 12

4. 24

Question Number : 88 Question Id : 65898888 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Rotational partition function for a nitrogen molecule is close to :

(given : bond length of the molecule is 1.09Å)

Options :

1. 25

2. 50

3. 75

4. 100

Question Number : 89 Question Id : 65898889 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Weight average molecular weight of a polymer (ing. mole^{-1}) consisting of two polymers of molecular weights of 100 and 1000 g mole^{-1} with equal in numbers, is close to :

Options :

1. 550

2. 918

3. 981

4. 1100

Question Number : 90 Question Id : 65898890 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The partition function of a two-level system consisting of the non-degenerate lower state O and the doubly-degenerate upper state at an energy $\in$ is :

Options :

1. $1 + \exp(-2\in/kT)$

2. $1 + 2\exp(-\in/kT)$

3. $\in + 2\exp(-\in/kT)$

4. $\in + \exp(-2\in/kT)$

Question Number : 91 Question Id : 65898891 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The transitional molecular partition function of a He atom at 298 K in a container of volume 1.00 m^3 is :

Options :

1. 2.25×10^{28}

2. 5.50×10^{29}

3. 7.75×10^{30}

4. 1.25×10^{31}

Question Number : 92 Question Id : 65898892 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Given : (i) molality m (in mol . kg^{-1}) and (ii) measured $\log \gamma_{\pm}$ (mean activity coefficient) of the following aqueous electrolytes :

Which of these solutions conform the best to the Debye Hückel limiting law ?

Options :

1.

	m	$\log \gamma_{\pm}$
HCl	0.01	–0.042

2.

	m	$\log \gamma_{\pm}$
$CaCl_2$	0.001	–0.051

3.

	m	$\log \gamma_{\pm}$
$LaCl_3$	0.001	–0.069

4.

	m	$\log \gamma_{\pm}$
$In_2(SO_4)_3$	0.005	–0.795

Question Number : 93 Question Id : 65898893 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The kinetics of a reaction of the form : $2A \rightarrow B$ was monitored by measuring the concentration of B and was found to be of order one. If C_0, C and $C_\propto$ represents the concentration of B at time = 0, t and $\propto$ and k symbolizes the rate constant, the concentration of B vs. t profile is expressed as :

Options :

1. $C = C_0 \exp(kt)$

2. $C = C_\propto (1 - \exp(-kt))$

3. $C = C_\propto \exp(-kt)$

4. $C = C_\propto (1 + \exp(-kt))$

Question Number : 94 Question Id : 65898894 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

One mole of CO_2 contains :

Options :

1. 6.02×10^{23} atoms of C

2. 6.02×10^{23} atoms of O

3. 18.1×10^{23} atoms of CO_2

4. 6.02×10^{23} g of CO_2

Question Number : 95 Question Id : 65898895 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

How do you define sensitivity ?

Options :

1. The speed at which an analyte can be determined.

2. The speed at which spectral features are resolved into different entities.

3. The ability to distinguish two different concentrations of an anlyte.

4. The ability to distinguish the analyte among the interferences.

Question Number : 96 Question Id : 65898896 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Detection limit is based on :

Options :

1. 10 S (S = standard deviation) of the blank

2. 10 S^2 (S = standard deviation) of the blank

3. 3 S^2 (S = standard deviation) of the blank

4. 3 S (S = standard deviation) of the blank

Question Number : 97 Question Id : 65898897 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

When can one apply EDTA back titration procedure ?

Options :

1. When the sample solution is highly acidic.

2. When a metal-EDTA complex is not formed.

3. When a metal-EDTA complex is formed slowly.

4. When the appropriate buffer solution is not available.

Question Number : 98 Question Id : 65898898 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Which one of the following is the redox indicator ?

Options :

1. Methyl red

2. Fluorescein

3. Ferroin

4. Phenol-phthalein

Question Number : 99 Question Id : 65898899 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

The coefficient of variation of the following set of measurements 3.2, 4.0, 3.9, 4.2, 4.3, 4.2, 3.3, 3.5 gL^{-1} is :

Options :

1. 11.4%

2. 0.18 gL^{-1}

3. 0.18%

4. 0.43 gL^{-1}

Question Number : 100 Question Id : 658988100 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Radio-activity (A) of radionuclides can be written as :

Options :

1. $A = [\,1 - \exp\,(0.693\ t_{1/2}\,/t)]/N\sigma\phi$

2. $A = N\sigma\phi\,[\,1 - \exp\,(0.693\ t/\,t_{1/2})]$

3. $A = [\,1 - \exp\,(0.693\ t/\,t_{1/2})]/N\sigma\phi$

4. $A = N\sigma\phi\,[\,1 - \exp\,(0.693\ t_{1/2}\,/t)]$

Question Number : 101 Question Id : 658988101 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

One mole of potassium bromate in bromate bromide reaction produces :

Options :

1. One mole Br_2

2. Two moles Br_2

3. Three moles Br_2

4. Four moles Br_2

Question Number : 102 Question Id : 658988102 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

A river water sample of 2 mL is analyzed for Al^{3+} and gives the activity of 2315 cpm. Under the same experimental conditions 2.00 µg of standard Al^{3+} (2 mL) gives the activity of 4197 cpm. The Al^{3+} content in the river water is :

Options :

1. 0.56 µg

2. 11.2 µg

3. 5.60 µg

4. 1.12 µg

Question Number : 103 Question Id : 658988103 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Calculate the value of X based on significant figures conventions. X = 2.4320 + 6.51 – 1.220 :

Options :

1. 7.722

2. 7.72

3. 7.720

4. 7.7220

Question Number : 104 Question Id : 658988104 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

What is Karl Fisher reagent ?

Options :

1. a mixture of iodine, sulphur dioxide, anhydrous methanol and pyrrole.

2. a mixture of bromine, sulphur trioxide, anhydrous methanol and pyrrole.

3. a mixture of iodine, sulphur dioxide, anhydrous methanol and pyridine.

4. a mixture of iodine, sulphur trioxide, anhydrous methanol and pyridine.

Question Number : 105 Question Id : 658988105 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

An anion exchange resin contains :

Options :

1. Amine group

2. Quaternary ammonium ion group

3. Amine group and Carboxylic acid group

4. Sulphonic acid group

Question Number : 106 Question Id : 658988106 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

What is Co-precipitation ?

Options :

1. Incomeplete precipitation of the desired precipitate under the conditions employed.

2. Precipitation of the desired precipitate together with some soluble contaminates.

3. Rapid and reliable precipitation of the desired precipitate by more than one reagent.

4. Precipitation of impurities before the desired precipitation.

Question Number : 107 Question Id : 658988107 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Among the following techniques which one is a type of planar chromatography ?

Options :

1. Gas chromatography

2. Column chromatography

3. Ion exchange chromatography

4. Thin layer chromatography

Question Number : 108 Question Id : 658988108 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Consider the extraction of 2.0 g of butyric acid present in 500 mL of water. If the butyric acid is extracted with 500 mL ether (one time), what is the weight of extracted butyric acid ?

(Distribution coefficient is 3.0)

Options :

1. 1.5 g

2. 2.0 g

3. Slightly less than 2.0 g

4. 1.0 g

Question Number : 109 Question Id : 658988109 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Malaparade reagent :

Options :

1. selectively reacts with hydrocarbons to produce diols

2. selectively reacts with 1, 4 diols alone

3. selectively reacts with 1, 3 diols alone

4. reacts with vicinal diols

Question Number : 110 Question Id : 658988110 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Concentration of a solute in "mg/L" is otherwise known as :

Options :

1. Parts per million

2. Parts per trillion

3. Parts per thousand

4. Percentage

Question Number : 111 Question Id : 658988111 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Predict the correct form of Beer-Lambert's law, where A is the absorbance and T is the transmittance :

Options :

1. $T = 2 - \log A$

2. $A = -\log T$

3. $A = \log\% T - 2$

4. $A = \log\% T + 2$

Question Number : 112 Question Id : 658988112 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Use of faulty equipment will lead to :

Options :

1. Determinate error

2. Indeterminate error

3. Proportionate error

4. Normal error

Question Number : 113 Question Id : 658988113 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Phenolphthalein is used as an indicator when transition pH is in the range :

Options :

1. 1-4

2. 4-6

3. 8-10

4. 10-12

Question Number : 114 Question Id : 658988114 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

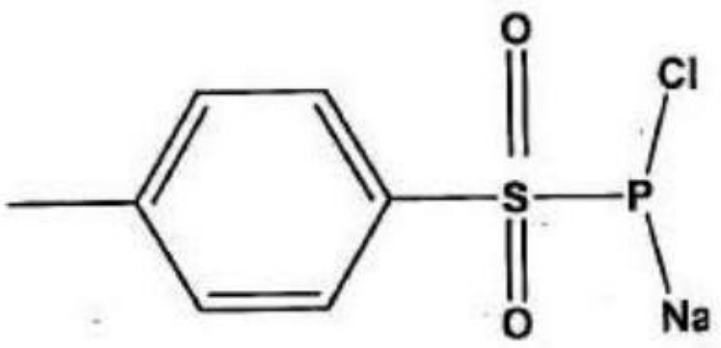
Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Chloramine-T is :

Options :

1.



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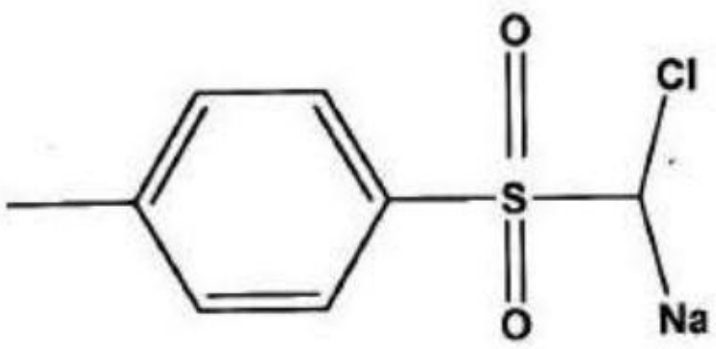

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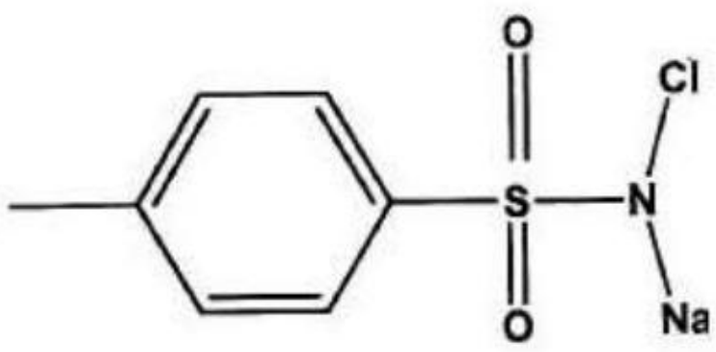

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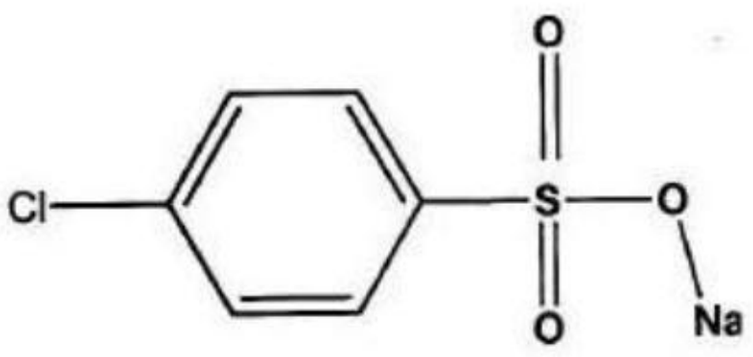

Question Number : 115 Question Id : 658988115 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Select the correct statement(s) from the following options which are related to thin layer chromatography :

(A) The spots of colourless compounds are invisible to the eyes

(B) These spots can be detected by putting the plate under ultraviolet light

(C) These spots can be detected by placing the plate in a covered jar containing iodine crystals

Options :

1. (A) only

2. (A) and (B)

3. (A) and (C)

4. (A), (B) and (C)

Question Number : 116 Question Id : 658988116 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

For long term stable Ce(IV) solution, it should be ..... :

Options :

1. Perfectly neutral

2. Basic

3. Acidic

4. Mixed with small amount of Fe(II) solution

Question Number : 117 Question Id : 658988117 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Extraction of metal ions as metal-dithizone complex is known as :

Options :

1. solvent exchange extraction

2. ion-pair extraction

3. ion-exchange extraction

4. chelate extraction

Question Number : 118 Question Id : 658988118 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

γ-ray emission is due to :

Options :

1. the relaxation of inner electrons

2. the relaxation of the nucleus

3. the relaxation of outer electrons

4. the relaxation of valence electrons

Question Number : 119 Question Id : 658988119 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

In presence of an association equilibrium and at high concentrations of the solute :

Options :

1. A negative deviation to the Beer's law is observed

2. A positive deviation to the Beer's law is observed

3. Beer's law is obeyed

4. Absorbance cannot be measured

Question Number : 120 Question Id : 658988120 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes

Correct Marks : 3 Wrong Marks : 1

Question Label : Multiple Choice Question

Iodometry titration :

Options :

1. refers to titration using an indirect process involving iodine

2. refers to titration using iodine solution directly

3. involves in the formation of iodate

4. involves in the use of self-indicator