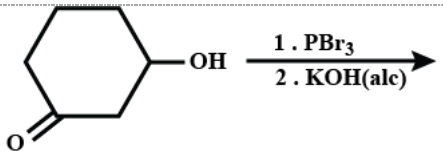
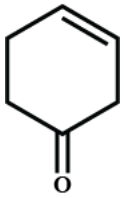
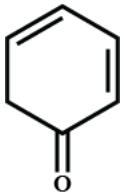
#1611909

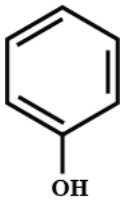
Topic: Methods of preparation of haloalkanes

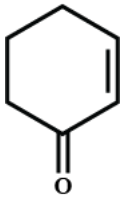


The product of the following reaction is :

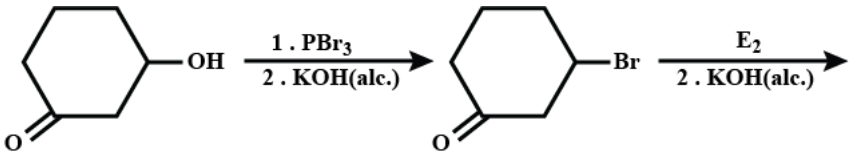
A 

B 

C 

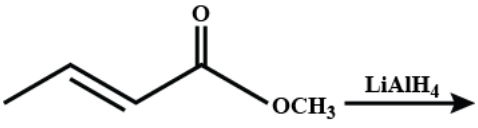
D 

Hint



#1611911

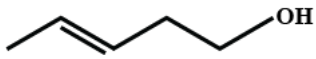
Topic: Esters



Which of the following is the major product of give reaction:

A 

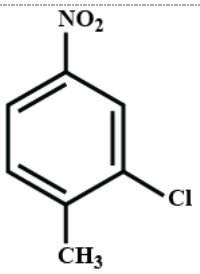
B 

C 

D 

#1611912

Topic: Nomenclature of organic compounds



Write the IUPAC name of given compound

A 1-Choro 2- methyl 5 nitro compound

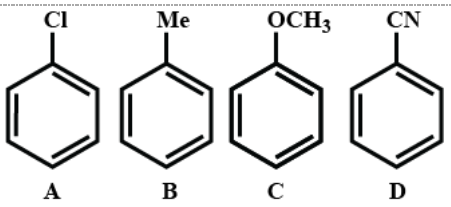
B 2-Chloro 1- methyl 4 nitro benzene

C 3-Chloro-4-methyl 1-nitro benzene

D 5-Chloro 4- methyl 1 nitro benzene

#1611915

Topic: Characteristics of arenes



Arrange the following compound in the correct increasing rate of aromatic electrophilic substitution.

A $$A

B $$D

C $$C

D $$C

#1611920

Topic: Disaccharides and polysaccharides

Which of the following statement is not true for sucrose?

A It is called invert sugar

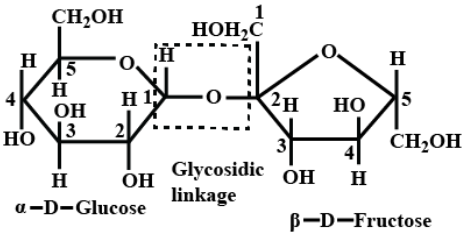
B It is non -reducing sugar

C It has glycisidic linkage between C_1 of α- glucose and C_1 of β fructose

D On the hydrolysis given D- Glucose and D-Fructose

Hint

Sucrose is not a reducing sugar , eg it will not reduce fehling's solution of Tolloen's regnet.It does not form an oxime or an asazone ,and does not undergo mutarotatio.This incidentes that hemiacetal group is not present in the ring*Sucrose*(Cane sugar $\xrightarrow{H_2O^{\oplus}}$ $\alpha-glucose+\beta-fructose$).In sucrose two monosaccharides are joined together by an oxide linkage formed by an oxide linkage. In sucrose linkage is between $C1$ of α and C_2 of $\beta-frutose$. Since the reducing group of glucose and fructose are involved in glycisidic bond formation,sucrose is non reducing sugar.



$C_1\alpha-D-glucose+C_2\beta-D-fructose$

#1611923

Topic: Study of d-Block elements

Match the following catalyst with their products-

Sr	Column 1	Sr	Column 2
1.	$TiCl_4 + AlCl_3$	a.	Ethanal
2.	V_2O_5	b.	NH_3
3.	Fe	c.	Polyethylene
4.	Pd	d.	H_2SO_4

A $(i) - B; (ii) - A; (iii) - D; (iv) - C$

B $(i) - C; (ii) - D; (iii) - B; (iv) - A$

C $(i) - D; (ii) - A; (iii) - B; (iv) - C$

D $(i) - A; (ii) - B; (iii) - C; (iv) - D$

#1611925

Topic: Greenhouse effect and global warming

What is the effect of release of CO_2 gas on atmosphere?

A Global warming

B Photochemical smog

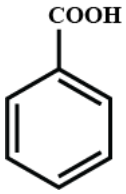
C Ozone layer depletion

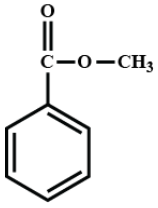
D Tsunami

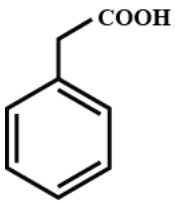
#1611926

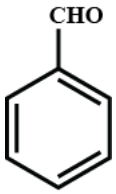
Topic: Methods of preparation of carboxylic acids

The correct product of the following reaction is

A 

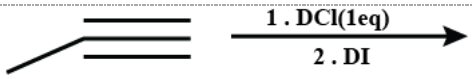
B 

C 

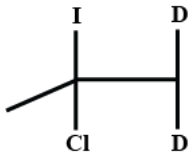
D 

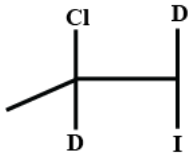
#1611929

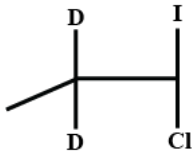
Topic: Characteristics of alkynes

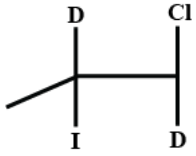


Write the product of the given reaction:

A 

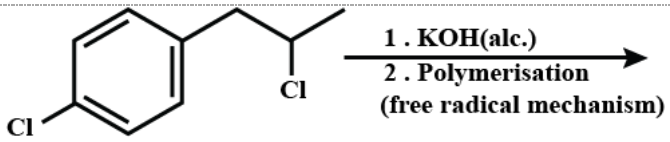
B 

C 

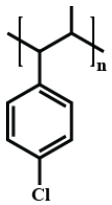
D 

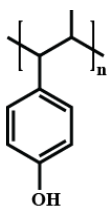
#1611932

Topic: Preparation of some addition polymers



Polymer is:

A 

B 

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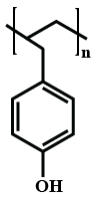
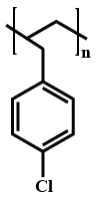
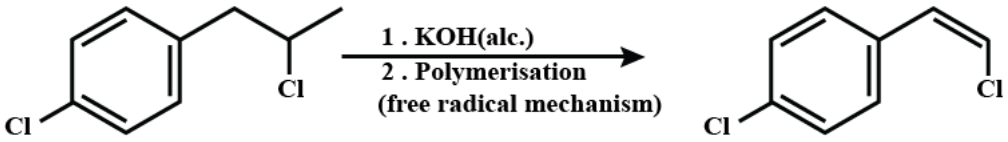


D

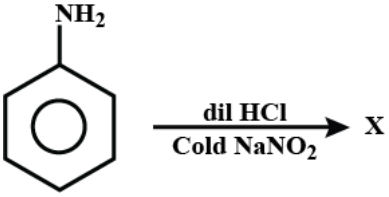


Hint



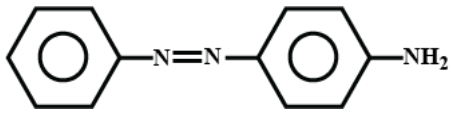
#1611937

Topic: Diazonium salts

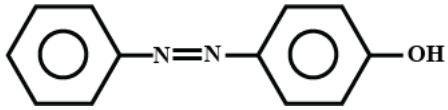


X is mixed with a mixture of phenol and aniline in acidic medium.The product obtained is:

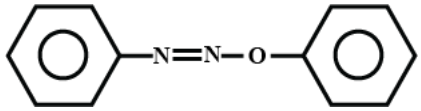
A



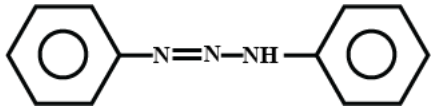
B



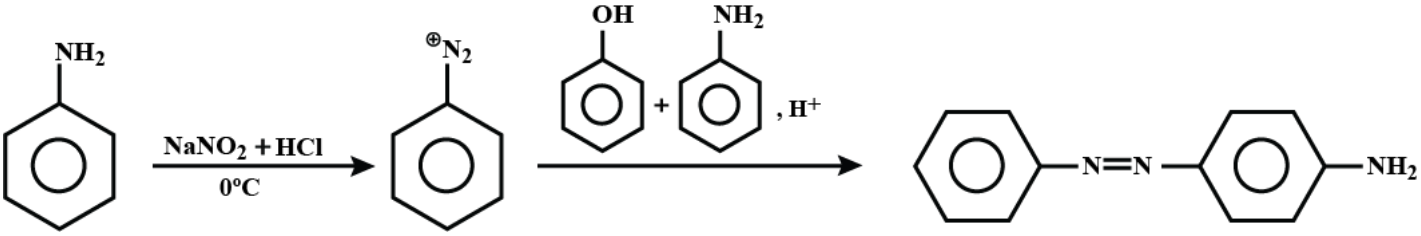
C



D



Hint



#1611939

Topic: Werner's Theory

In $CuSO_4.5H_2O$ how many molecules of water are imdirectly connected to Cu

A 5

B 4

C 2

D 1

Hint

In $CuSO_4.5H_2O$, Four water molecules form coordinate bond with Cu_{2+} ion while one water molecule is associated with H- bond

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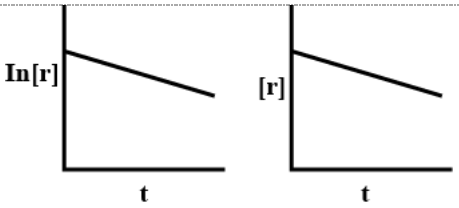
#1611944

Topic: Determination of rate law, rate constant and order of a reaction



[r]= concentration of reactant and t be the time.

Identify the order is correct option for order:-

A 1 and 0

B 2 and 3

C 3 and 2

D 0 and 2

Hint

For zero order

$C_A = C_{A_0} - kt$

for first order

$C_A = C_{A_0}e^{-kt}$

or ,$\ln\frac{C_A}{C_{A_0}} = -kt$

or ln C_A – IN $C_{A_0} = -kt$

or, ln C_A = ln $C_{A_0} - kt$

#1611948

Topic: Vapour Pressure of Liquid Solutions and Raoult's Law

The vapour pressure of pure M and N are 700mm of Hg and 450mm of Hg respectively.which of the following option is correct?

Given :X_N, X_M- mole fraction of N and M in liquid phase

Y_N, Y_M= mole fraction of N and M in vapour phase.

A $X_M - X_N > Y_M - Y_N$

B $\frac{X_M}{X_N} > \frac{Y_M}{Y_N}$

C $\frac{X_M}{X_N} < \frac{Y_M}{Y_N}$

D $\frac{X_M}{X_N} = \frac{Y_M}{Y_N}$

Hint

Mole fraction of more voltatile component increase in vapour phase ($P_N^o < P_M^o$)

#1611953

Topic: Entropy and gibbs free energy

Consider $Zn + Cu^{2+} \rightarrow Zn^{2} + Cu$ If the standard emf is $E^{o}_{cell} = 2.0V$ and $F = 96500C$

Find ΔG^{0}(kJmol)

A −388

B +388

C −194

D +194

Hint

$\Delta G^{0} = -nFE^{0}_{Cell} = -2 \times 96500 \times 2.0 \times 10^{-3} = -388kJ/mol$

#1611957

Topic: Osmotic pressure

A solution of XY (100% ionised has osmotic pressure equal to four times the osmatic pressure of 0.01 $MBaCl_2$ (100% ionised) .Find the molarity of XY

A $6 \times 10^{-2}M$

B $3 \times 10^{-2}M$

C $4 \times 10^{-2}M$

D $12 \times 10^{-2}M$

Hint

$\pi_{xy} = 4\pi_{BaCl_2}$

$i[XY] = 4 \times i \times [BaCl_2]$

$\Rightarrow 2 \times [XY] = 4 \times 3 \times 0.01$

$\Rightarrow [XY] = 0.06M$

#1611961

Topic: Emission and Absorption spectra

What is the ratio of $\Delta v = v_{max} - v_{min}$ for spectral lines corresponding to lyman and Balmer series for hydrogen

A 9:4

B 4:9

C 5:7

D 7:5

Hint

$$\frac{(\Delta v)Lyman}{(\Delta v)Balmer} = \frac{1-\left(1-\frac{1}{4}\right)}{\frac{1}{4}-\left(\frac{1}{4}-\frac{1}{9}\right)} = \frac{\frac{1}{4}}{\frac{1}{4}} = \frac{9}{4}$$

#1611963

Topic: Some basic terms and concepts

Which of the following are path function

A. W

B. Q

C. $Q + W$

D. $H - TS$

A A and D

B A and B

C A,B and D

D A,C and D

Hint

W,Q are path function $Q + W = \Delta E$, $H - TS = G$ are state function.

#1611966

Topic: Behaviour of real gases - Deviations from ideal behaviour

Given a and b values for *Xe*, *Kr*, *Ar* and *He* are

	Xe	*Kr*	*Ar*	*He*
$a(L^2 bar/mol^2)$	4.1	2.3	1.3	0.03
$b(L/mol)$	0.1	0.04	0.03	0.02

The gas with highest T_c is:

A *Xe*

B *Kr*

C *Ar*

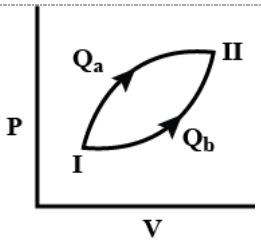
D *He*

Hint

$T_C \propto \left(\frac{a}{b}\right)$

#1611969

Topic: Some basic terms and concepts



Consider the graph

Identify correct option:

A $\Delta U_a = \Delta_b, Q_b > Q_a$

B $\Delta_a > \Delta U_b, Q_a = Q_b$

C $$\Delta U_a=\Delta U_b,Q_a

D $\Delta U_a = \Delta U_b, Q_a = Q_b$

Hint

ΔU- state function

$\Delta U_a = \Delta b$

$q_a + W_a = q_b + W_b$

$q_a - q_b = w_b - W_a > 0$

#1611972

Topic: Molecular orbital theory

Out of C_2, F_2, O_2, *NO* which will be stabilized after forming anion?

A C_2

B F_2

C O_2

D NO

#1611978
Topic: Nitric acid and oxides of nitrogen

Arrange in the increasing order of oxidation state to nitrogen for following nitrogen oxides N_2O, NO_2, NO, N_2O_3

A $$N_2O

B $$NO

C $$N_2O

D $$NO_2N_2O_2

Hint

Nitrogen	Ox.state of nitrogen
N_2O	+1
NO	+2
N_2O_3	+3
NO_2	+4

#1611984
Topic: Carbon

C_{60} is aromatic allotrope of carbon containing

A 18 Pentagon ,14 hexagons

B 16 pentagons, 16 hexagons

C 12 Pentagons ,20 hexagons

D 20 pentagons ,12 hexagons

Hint

C_{60} contains 12 Pentagons,20 hexagonas

#1611986
Topic: General Introduction

Which of the following ores contain fluorine>

A Malachite

B Sphalerite

C Cryolite

D Bauxite

Hint

Malachite-$CuCO_3Cu(OH)_2$

Sphalerite -ZnS

Bauxite -$Al_2O_3.2H_2O$

Cryolite-Na_3AlF_6

#1611990
Topic: Study of d-Block elements

Which of the following will have highest difference between IE_1 and IE_2

A *K*

B *Mg*

C *Sr*

D *Sc*

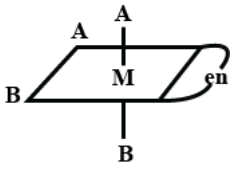
Hint

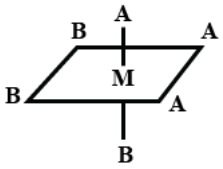
Element	IE_1 (kj/mol)	IE_2 (kj/mol)	Difference
K	419	3052	2633
Mg	737	1450	713
Sr	549	1064	515
Sc	633	1235	602

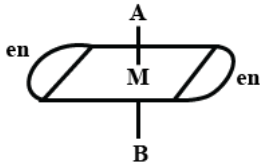
#1611992

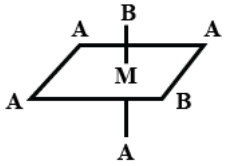
Topic: Isomerism in coordination compounds

Which of the following will show optically acitivy

A 

B 

C 

D 

Hint

$[M(AA)a_2B_2]$ shows optical activity in cis arrangement

#1611997

Topic: Study of d-Block elements

Which of the following orbitals are degenerate for $[Cr(H_2O)_6]^{3+}$

A $d_{x^2-y^2}$, d_{xy}

B d_{xy}, d_{yz}

C $d_{x^2-y^2}$, d_{yz}

D d_{z^2}, dxy

Hint

$[Cr(H_2O)_6]^{3+}$ has d^2sp^3 hybridization .dxy, dyz, dzx,orbitals are degenerate.