PAPER SOLUTION

From Meerut

JEE MAIN 2026

JAN 24 | SHIFT 1st

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#Q. Two solutes A and B of 0.3 g and 0.9 g respectively (molar mass of A and B are 30 g/mol and 90 g/mol respectively. Calculate of osmotic pressure at 300 K (in atm) in 100ml solution.(A and B are non–electrolyte).
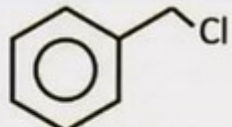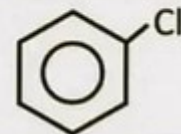
Ans. (5)

#Q. Match List-I with List-II.

Select the correct option.

	List-I		List-II
A.	Vinyl halide	(I)	Cl
B.	Allyl halide	(II)	Cl
C.	Benzyl halide	(III)	Cl
D.	Aryl halide	(IV)	Cl

(A) A–(II), B–(I), C–(III), D–(IV)

(B) A–(I), B–(II), C–(III), D–(IV)

(C) A–(I), B–(II), C–(IV), D–(III)

(D) A–(II), B–(I), C–(IV), D–(III)

Ans. (B)

#Q. The correct order of stability of following diazonium ions is:

a. $N_2^+Cl^-$ substituted benzene with NO_2 at para position

b. $N_2^+Cl^-$ substituted benzene with CN at para position

c. $N_2^+Cl^-$ substituted benzene (unsubstituted)

d. $N_2^+Cl^-$ substituted benzene with OCH_3 at para position

A a < b < c < d

B a < b < d < c

C c < d < b < a

D d < c < b < a

Ans. (A)

#Q.

$$A \xrightarrow[\text{II. } H_3O^+]{\text{I. } SnCl_2/HCl} B \xrightarrow[H^+]{KMnO_4} C \xrightarrow[H_2O]{Cl_2,\ P} C_3H_5O_2Cl$$
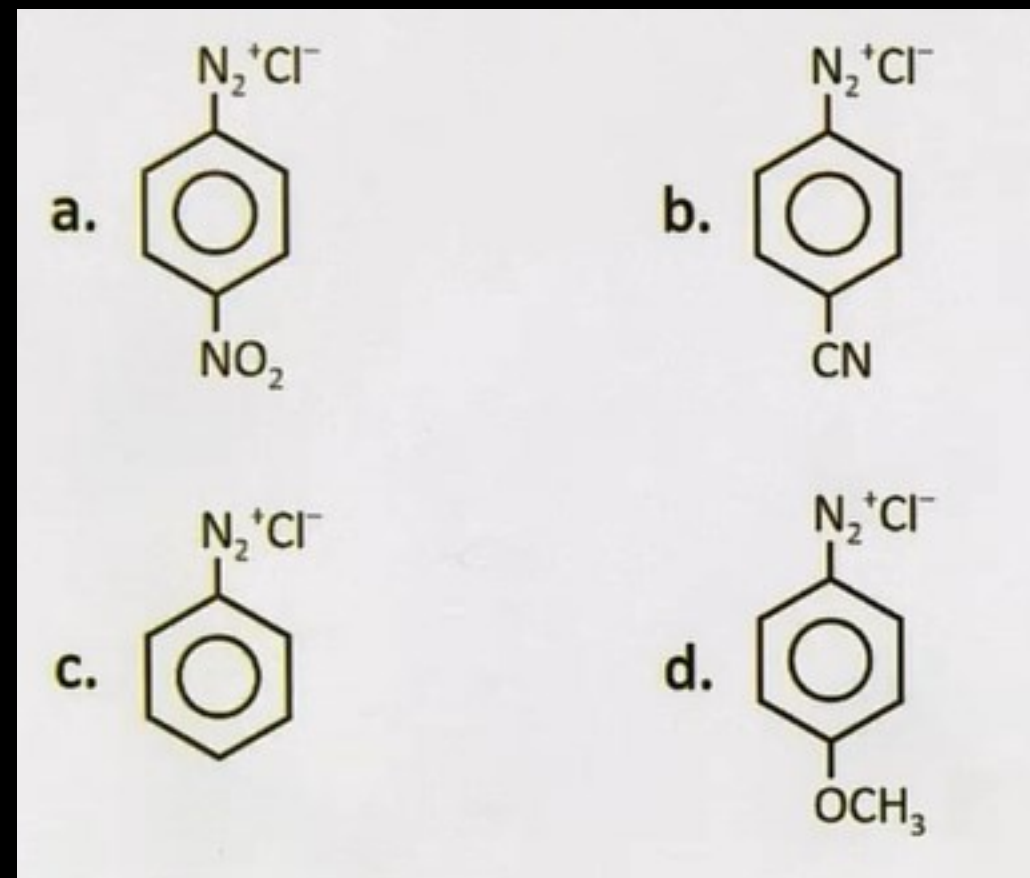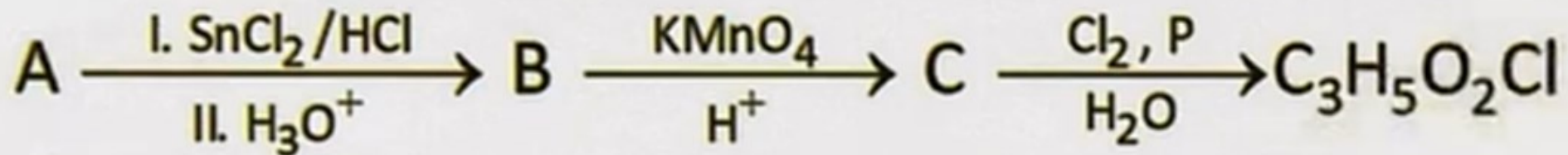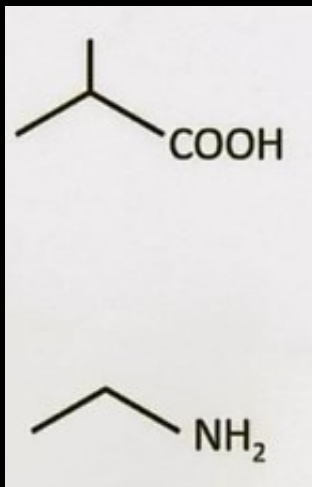
Final product has one chiral centre. Structure of A is:
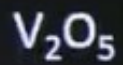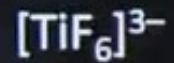
A

B

C

D
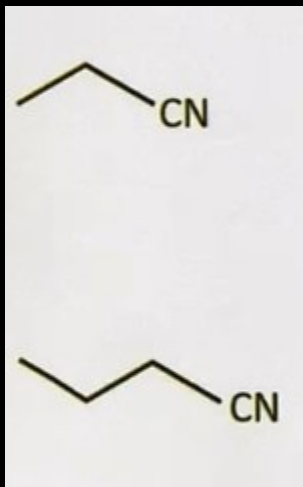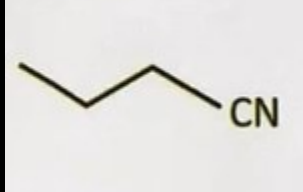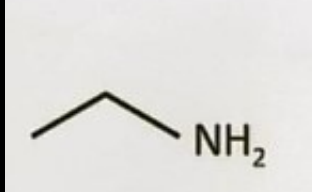
Ans. (A)

#Q. Which of following compound contains 3 unpaired electrons?

(A) V_2O_5

(B) $[TiF_6]^{3-}$

(C) $[CoF_6]^{4-}$

(D) $[Fe(CN)_6]^{3-}$
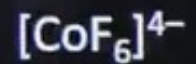
Ans. (C)

#Q. Which of the following compounds with give positive Tollen's reagent test?

A. (structure with O ring and OH)
B. (structure with O ring and CH_2OH)
C. (benzene ring with CHO)
D. (benzene ring with $C-CH_3$, $=O$)
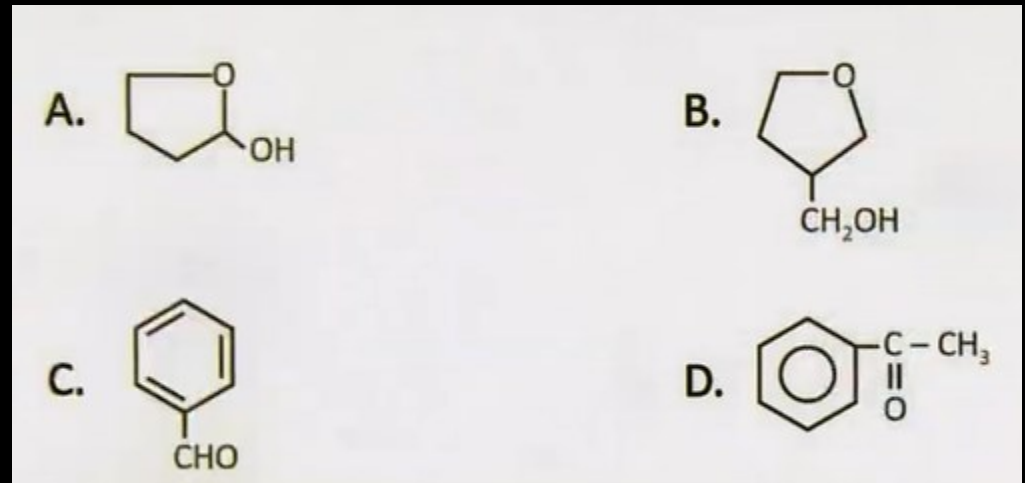
A A, B and C only

B A and C only

C A, C and D only

D B, C and D only

Ans. (B)

#Q. $K_2Cr_2O_7 + I^- + H^+ \rightarrow I_2$ (x = number of moles of e^- exchanged per mole I_2)

$K_2Cr_2O_7 + S^{2-} \rightarrow S$ (y = number of moles of e^- exchanged per mole S)

x + y is:

A 12

B 9

C 4

D 6

Ans. (C)

#Q. *Match the column:*

	Column-I		Column-II
(A)	IF_3	(I)	sp^3d^3, Pentagonal bipyramidal
(B)	IF_5	(II)	sp^3d , T-shaped
(C)	IF_7	(III)	sp^3, Tetrahedral
(D)	ClO_4^-	(IV)	sp^3d^2, Square pyramidal

A. (A)-(I); (B)-(II); (C)-(III); (D)-(IV)

B. (A)-(II); (B)-(I); (C)-(IV); (D)-(III)

C. (A)-(II); (B)-(IV); (C)-(I); (D)-(III)

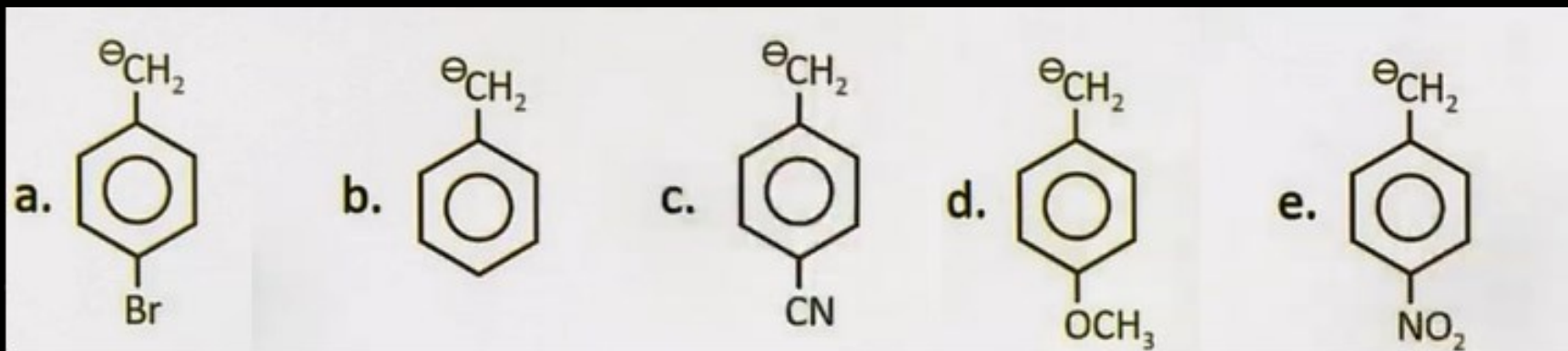D. (A)-(II); (B)-(III); (C)-(IV); (D)-(I)

Ans. (C)

#Q. **The correct order of stability of following species is:**

(A) e > c > a > b > d

(B) d > c > b > a > e

(C) e > a > c > b > d

(D) e > a > b > c > d

Ans. (A)

#Q. Consider the following alkene:
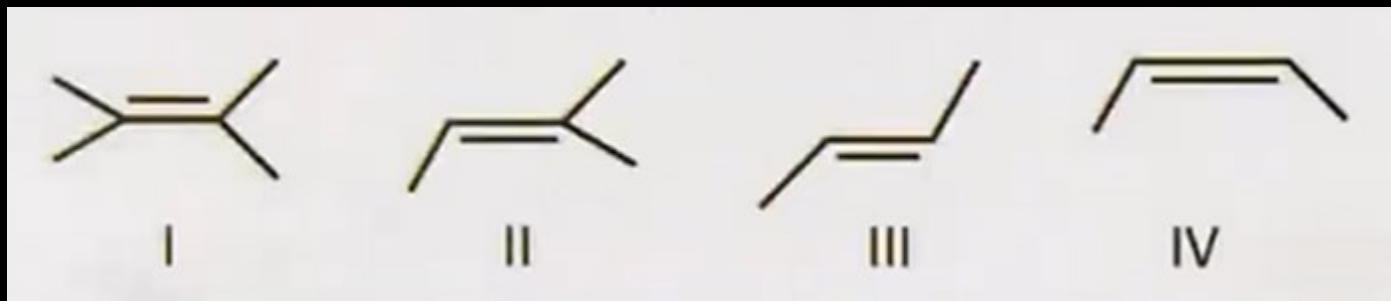
The correct stability order of alkenes is:

A) II > I > III > IV

B) I > II > IV > III

C) I > II > III > IV

D) III > I > II > IV

Ans. (C)

#Q. What is the sum of molar mass of X and Y formed in the given reactions?

A 46

B 44

C 2

D 42
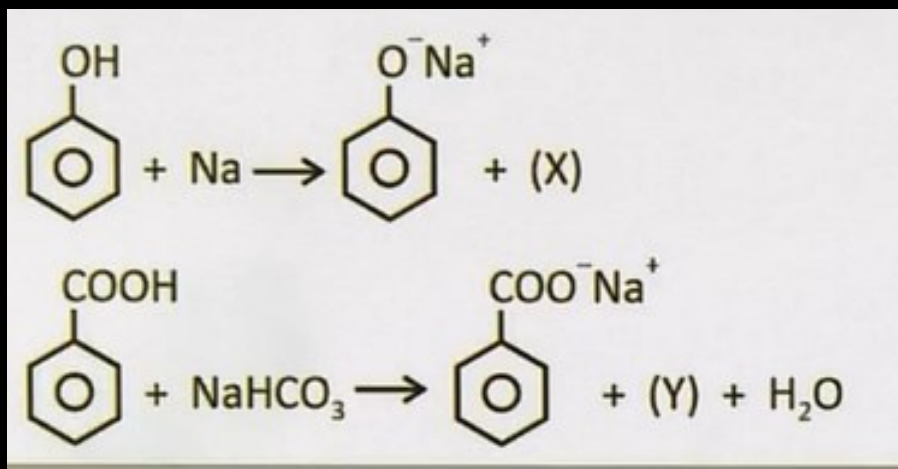
Ans. (A)

#Q. Consider the following molecules.

The correct order of dipole moment is:

A A > B > C

B A > C > B

C B > A > C

D C > A > B

Ans. (A)

#Q. **Given below are two statements.**
Statement I: Atomic radius is always more than ionic radius.
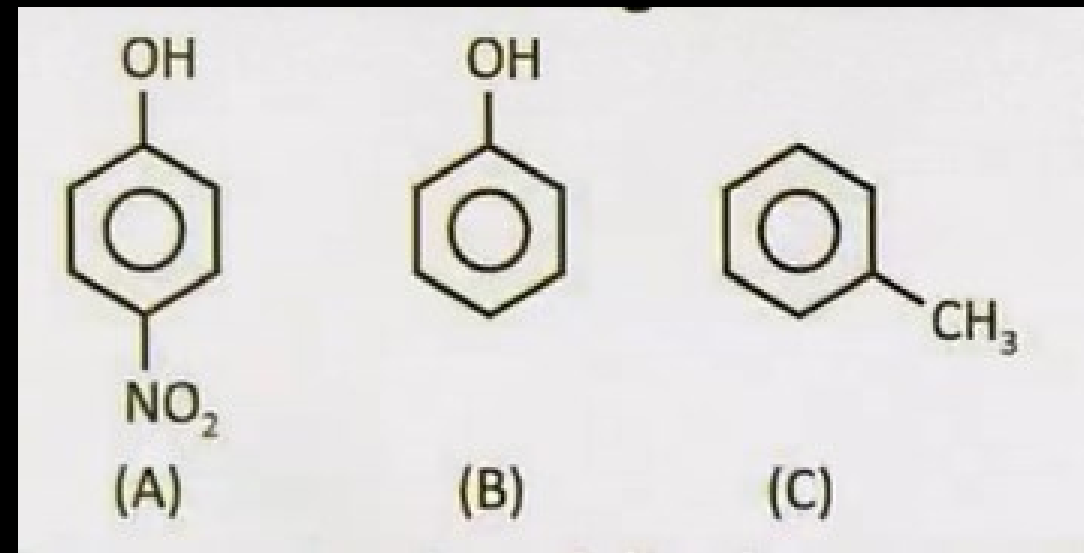**Statement II: The correct order of metallic character is K > Mg > Al > B**
In the light of above statements, choose the correct option.

A **Both statement I and statement II are correct**

B **Both statement I and statement II are incorrect**

C **Statement I is correct but statement II is incorrect**

D **Statement I is incorrect but statement II is correct**

Ans. (D)

#Q. Match the following.

	Column-I		Column-II
A.	Free expansion	(I)	$W = -P_{ex}\Delta V$
B.	Reversible isothermal	(II)	$W = nC_v dT$
C.	Irreversible isothermal	(III)	$W = 0$
D.	Adiabatic reversible	(IV)	$W = -nRT \ln \dfrac{V_f}{V_i}$

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

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

C A-(III), B-(V), C-(I), D-(II)

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

Ans. (B)

#Q. Non-volatile solute A of mass 0.3 g (Molecular mass = 60), and non-volatile solute B of mass 0.9 g (Molecular mass = 180) in 100 mL H_2O at 27°C. If K_b = 0.52 K–Kg–mol^{-1} then elevation of boiling point is:

A 0.52 K

B 0.052 K

C 0.026 K

D 0.083 K

Ans. (B)

#Q. A solution contains two group–IV cations, X^{2+} and Y^{2+}, each at an initial concentration of 0.1 M. H_2S gas is passed through the solution to form a saturated solution. Given

K_{sp} of YS = 2×10^{-27} M^2

K_{sp} of XS = 1×10^{-27} M^2

What is the minimum concentration of sulphide in [S^{2-1}] required to begin precipitation of YS?

A 2×10^{-26}

B 10^{-26}

C 3.2×10^{-14}

D 0.1

Ans. (A)

#Q. What is the hybridisation and spin only magnetic moment of Complex $[Co(CO)_6]Cl_3$?

(A) d^2sp^3, 0 BM

(B) sp^3d^2, 4.90 BM

(C) d^2sp^3, 4.90 BM

(D) sp^3d^2, 0 BM

Ans. (A)

#Q. **Minimum energy transition of Balmer series (energy line having minimum energy) of H-atom has energy of L eV. If the value of minimum energy of Lymen series (energy line having minimum energy) of H-atom in terms of L is y, then the value of 10y is_____.**

Ans. (54)

#Q. Find % of 'N' in 0.5 g organic compound which gives 34 mL N_2 (g) at 715 mm Hg pressure and 300 K Aq. tension = 15 mm Hg

(Report to nearest Integer) R = 0.0821 $\frac{Lit-atm}{K-mol}$

Ans. (7)

#Q. Find the value of $\log\left(\dfrac{K_{catalyst}}{K_{uncatalyst}}\right)$ at 300 K. if the change in activation energy

(ΔEa) is –10 kJ/mol.
(R = 8 jK^{-1} mol^{-1}) (lnx = 2.31 logx)

Ans. (2)