

# JEE-Main-25-07-2022-Shift-2 (Memory Based)

## Chemistry

**Question:** Which of the following is herbicides?

**Options:**

- (a) DDT
- (b) Aldrin
- (c) Sodium arsenite
- (d) Dieldrin

**Answer:** (c)

**Solution:** Sodium arsenite is a herbicide

**Question:** Micelle formation is

**Options:**

- (a) Exothermic,  $\Delta S > 0$
- (b) Endothermic,  $\Delta S < 0$
- (c) Exothermic,  $\Delta S < 0$
- (d) Endothermic,  $\Delta S > 0$

**Answer:** (d)

**Solution:**  $\Delta S > 0$  for micelle formation and the process is endothermic at low temperature.

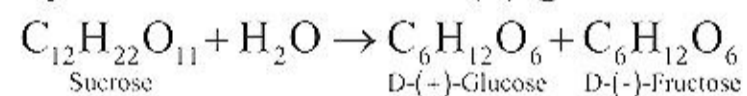
**Question:** Glycosidic linkage between alpha glucose and beta fructose is present in

**Options:**

- (a) lactose
- (b) Sucrose
- (c) Maltose
- (d) None of these

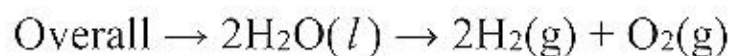
**Answer:** (b)

**Solution:** Sucrose: One of the Common disaccharides is sucrose which on hydrolysis gives equimolar mixture of D-(+)-glucose and D-(-) fructose.



These two monosaccharides are held together by a glycosidic linkage between C1 of  $\alpha$ -D-glucose and C2 of  $\beta$ -D-fructose. Since the reducing groups of glucose and fructose are involved in glycosidic bond formation, sucrose is a non reducing sugar.





**Question:** The first ionization energy order B, Be, C, O, N among is \_\_\_\_\_

**Options:**

- (a)  $B < \text{Be} < C < O < N$
- (b)  $B < \text{Be} < C < N < O$
- (c)  $\text{Be} < B < C < N < O$
- (d)  $\text{Be} < B < C < O < N$

**Answer:** (a)

**Solution:** The ionisation energy increases across a period as atomic size decrease  
Therefore, correct order is  $B < \text{Be} < C < O < N$

**Question:** Drugs which do not bind to its active site is called

**Options:**

- (a) Allosteric site
- (b) Non active site
- (c) Both (a) and (b)
- (d) None of the above

**Answer:** (a)

**Solution:** Some drugs do not bind to enzyme's active site.  
These bind to a different site of enzyme called allosteric site

**Question:** Match the following.

Column-I (polymer)	Column-II (Uses)
(A) Nylon 6	(i) non sticking Utensils
(B) HDP	(ii) Buckets
(C) LDP	(iii) Brush Bristles
(D) Teflon	(iv) Toys

**Options:**

- (a)  $A \rightarrow (i); B \rightarrow (iii); C \rightarrow (iv); D \rightarrow (ii)$
- (b)  $A \rightarrow (iii); B \rightarrow (ii); C \rightarrow (iv); D \rightarrow (i)$
- (c)  $A \rightarrow (ii); B \rightarrow (i); C \rightarrow (iv); D \rightarrow (iii)$
- (d)  $A \rightarrow (iv); B \rightarrow (iii); C \rightarrow (ii); D \rightarrow (i)$

**Answer:** (b)

**Solution:**

- (A) Nylon 6  $\Rightarrow$  (iii) Brush Bristles
- (B) HDP  $\Rightarrow$  (ii) Buckets
- (C) LDP  $\Rightarrow$  (iv) Toys
- (D) Teflon  $\Rightarrow$  (i) non sticking Utensils

**Question: Statement-I:** Pig iron can be obtained from cast Iron.

**Statement-II:** Cast iron has least carbon content

**Options:**

- (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.

**Answer:** (b)

**Solution:** Cast iron is made from pig iron

Wrought iron has least carbon content

Both S-I and S-II are false

**Question:**  $\text{CH}_3 - \text{CH}_2 - \text{CN} \xrightarrow{\text{CH}_3\text{MgBr}} \text{A} \xrightarrow{\text{H}_3\text{O}^+} \text{B} \xrightarrow{\text{Zn.Hg/HCl}} \text{C}$

What is C?

**Options:**

(a)  $\text{CH}_3\text{CH}_2\text{CH}_3$

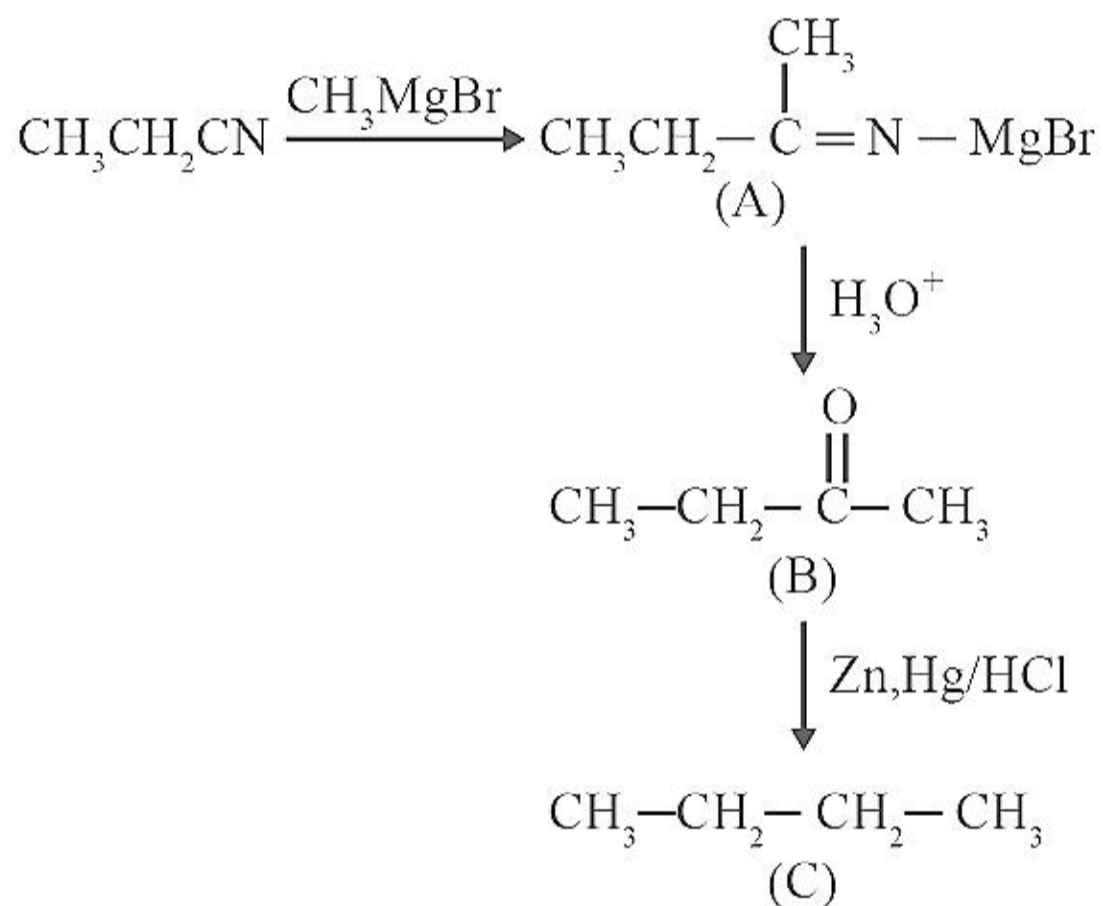
(b)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$

(c)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$

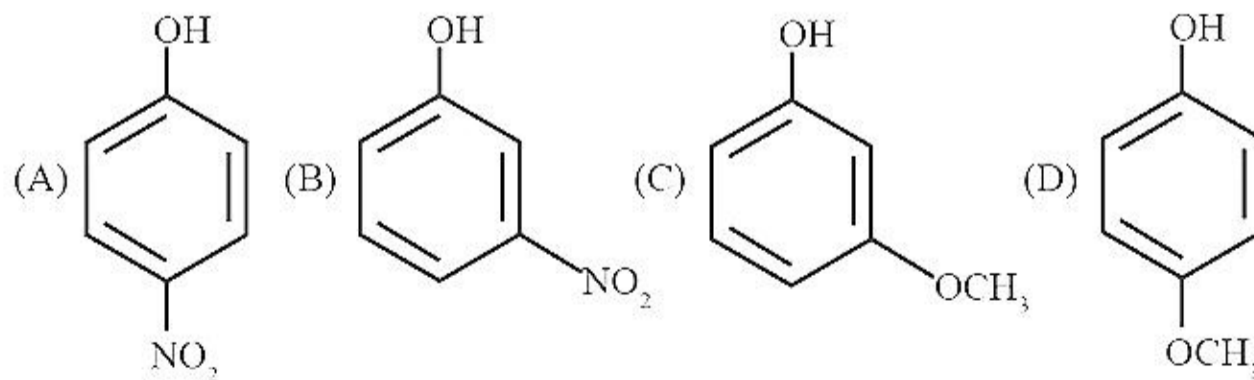
(d)  $\text{CH}_3\text{CH}_2\text{COCH}_3$

**Answer:** (c)

**Solution:**



**Question:** Which of the following is correct decreasing order of acidity?



**Options:**

(a)  $\text{A} > \text{B} > \text{C} > \text{D}$

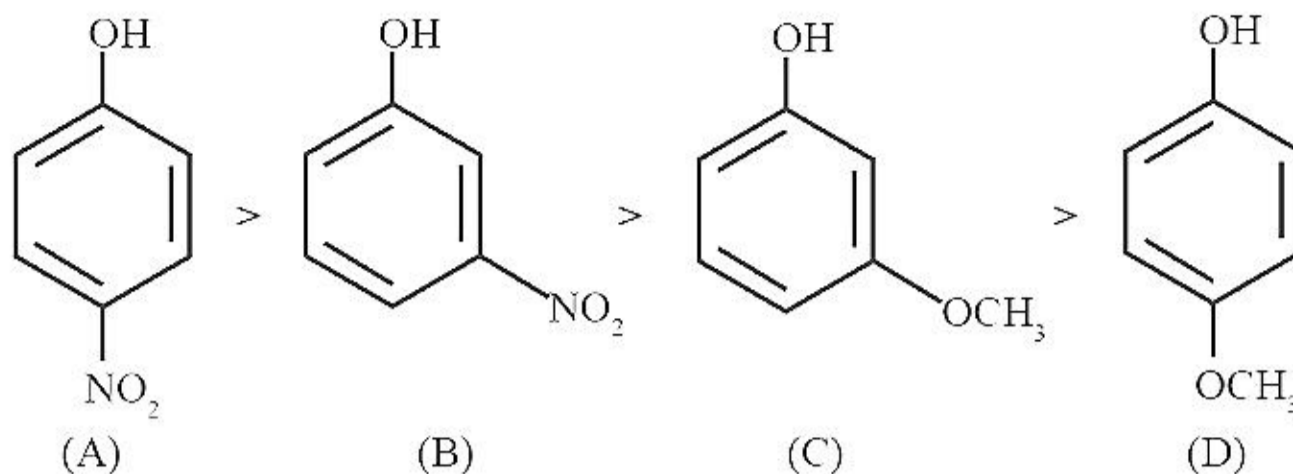
(b)  $\text{B} > \text{C} > \text{A} > \text{D}$

(c)  $\text{C} > \text{A} > \text{B} > \text{D}$

(d)  $\text{D} > \text{A} > \text{B} > \text{C}$

**Answer:** (a)

**Solution:**



A shows  $-I$  effect,  $-m$  effect

B shows  $-I$  effect due to  $-\text{NO}_2$  group

C shows  $-I$  effect due to  $-\text{OCH}_3$  group

D shows  $+m$  effect and  $-I$  but  $+m$  effect is dominating here

$\therefore$  Order is  $A > B > C > D$

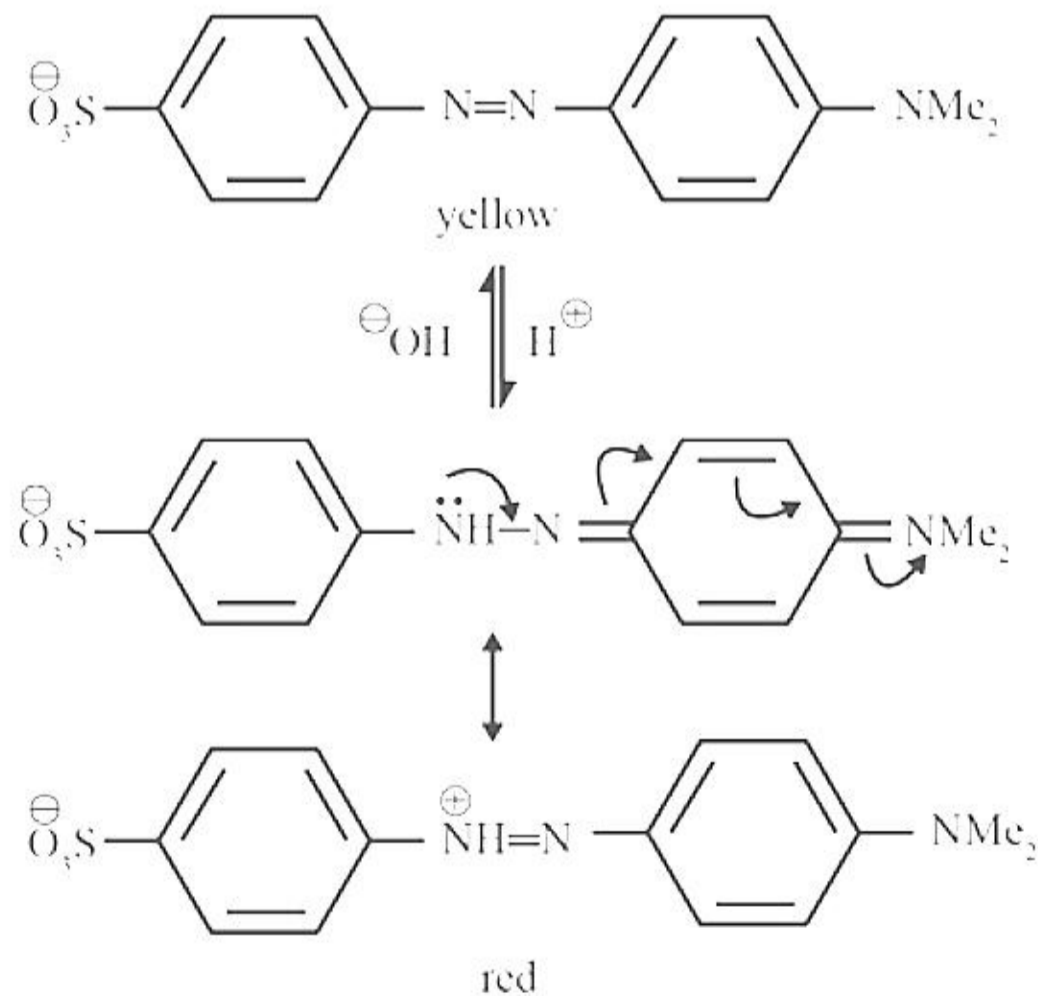
**Question:** Methyl orange structure at end point?

**Options:**

- (a) Quinoid form
- (b) Benzenoid form
- (c) Both (a) and (b)
- (d) None of these

**Answer:** (a)

**Solution:**



**Question:**  $\text{Mn}^{3+}/\text{Mn}^{2+}$ ,  $\text{Fe}^{3+}/\text{Fe}^{2+}$ ,  $\text{Cr}^{3+}/\text{Cr}^{2+}$ ,  $\text{Co}^{3+}/\text{Co}^{2+}$ .

Find the magnetic moment in  $\text{M}^{2+}$  which has negative  $E_{\text{red}}$ .

**Answer:** 4.90

**Solution:**

$$E_{\text{Mn}^{3+}/\text{Mn}^{2+}}^{\circ} = +1.57$$

$$E_{\text{Fe}^{3+}/\text{Fe}^{2+}}^{\circ} = +0.77$$

$$E_{\text{Co}^{3+}/\text{Co}^{2+}}^{\circ} = +1.97$$

$$E_{\text{Cr}^{3+}/\text{Cr}^{2+}}^{\circ} = -0.41$$

$$\text{Magnetic moment of } \text{Cr}^{2+} = \sqrt{4(4+2)} = 4.9 \text{ BM}$$

**Question:**  $\text{XeO}_3$ ,  $\text{XeF}_6$ ,  $\text{XeO}_2\text{F}_2$  sum of lone pair of central atom is \_\_\_\_

**Answer:** 3.00

**Solution:**

$\text{XeO}_3 \Rightarrow 1$  lone pair

$\text{XeF}_6 \Rightarrow 1$  lone pair

$\text{XeO}_2\text{F}_2 \Rightarrow 1$  lone pair

Sum = 1 + 1 + 1 = 3 lone pair

**Question:** Total number of spectral line emitted when electrons jumps from  $n = 5$  to ground state?

**Answer:** 10.00

**Solution:** If the electron jumps from  $n_2 = 5$  to  $n_1 = 1$

Then following transition possible

$5 \rightarrow 4, 5 \rightarrow 3, 5 \rightarrow 2, 5 \rightarrow 1$

$4 \rightarrow 3, 4 \rightarrow 2, 4 \rightarrow 1$

$3 \rightarrow 2, 3 \rightarrow 1$

$2 \rightarrow 1$

Hence, 10 transitions are possible

**Question:** Total number of acidic oxides among is/are \_\_\_\_

$\text{N}_2\text{O}$ ,  $\text{CO}$ ,  $\text{N}_2\text{O}_5$ ,  $\text{CO}_2$ ,  $\text{P}_2\text{O}_5$

**Answer:** 3.00

**Solution:**

$\text{CO}$ ,  $\text{N}_2\text{O}$  are neutral oxide

$\text{N}_2\text{O}_5$ ,  $\text{CO}_2$ ,  $\text{P}_2\text{O}_5$  are acidic oxides