

JEE-Main-29-07-2022-Shift-1 (Memory Based)

Chemistry

Question: Product for the given reaction is:



Options:

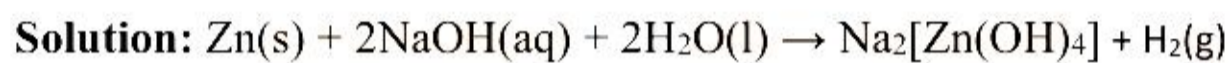
(a) ZnO

(b) ZnO₂

(c) [ZnO₃]⁴⁻

(d) [Zn(OH)₄]²⁻

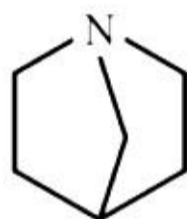
Answer: (d)



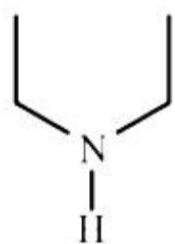
Question: Which of the following is the strongest Bronsted base?

Options:

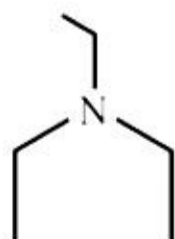
(a)



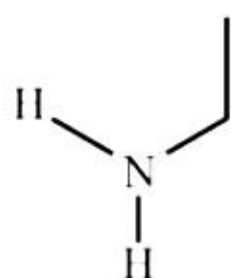
(b)



(c)



(d)



Answer: (a)

Solution: 3° aliphatic amines are strongest base among 3°, 2° and 1° amines. A is strongest base as it is 3° and lone pair is more available due to bridged alkyl group.

Question: Which of the following are examples of herbicides?

Options:

- (a) Sodium arsenite, Sodium chlorate
- (b) PAN, Sodium arsenite
- (c) Sodium bicarbonate, DDT
- (d) DDT, Sodium chlorate

Answer: (a)

Solution: Sodium chlorate (NaClO_3), sodium arsenite (Na_3AsO_3) are examples of herbicides.

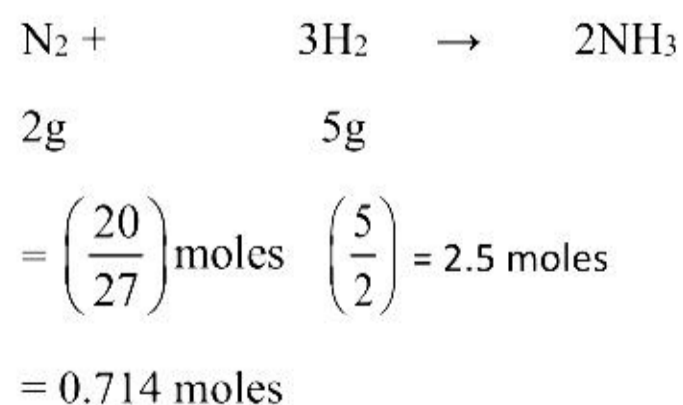
Question: In Haber's process, 5 g of H_2 reacts with 20 g of N_2 . Find the moles of ammonia formed.

Options:

- (a) 1.42
- (b) 2.8
- (c) 2
- (d) 1

Answer: (a)

Solution:



N₂ is limiting reagent

1 moles N₂ forms 2 moles NH₃

0.714 mole N₂ will form 2×0.714 mole = 1.428 moles NH₃

Question: Which pair among the following is colourless?

Options:

(a) Sc³⁺, Zn²⁺

(b) Ti²⁺, Cu²⁺

(c) Fe³⁺, Mn²⁺

(d) Fe³⁺, Cu²⁺

Answer: (a)

Solution:

Sc³⁺ – [Ar]

Zn²⁺ – 3d¹⁰

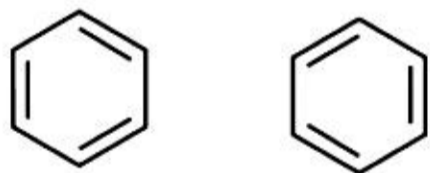
Both of them have completely filled orbitals.

Therefore, both are colourless

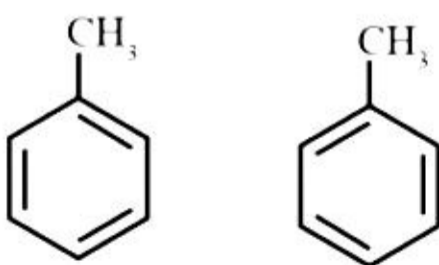
Question: Which of the following pairs will give different products on ozonolysis?

Options:

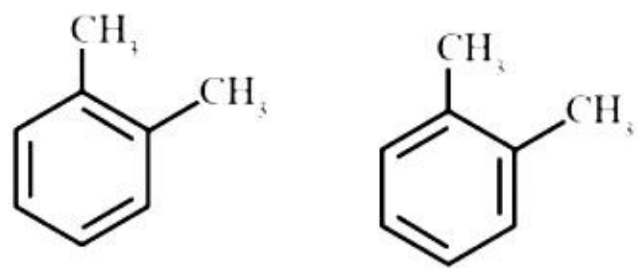
(a)



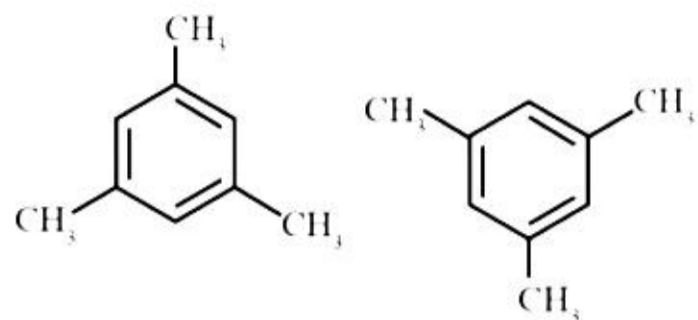
(b)



(c)

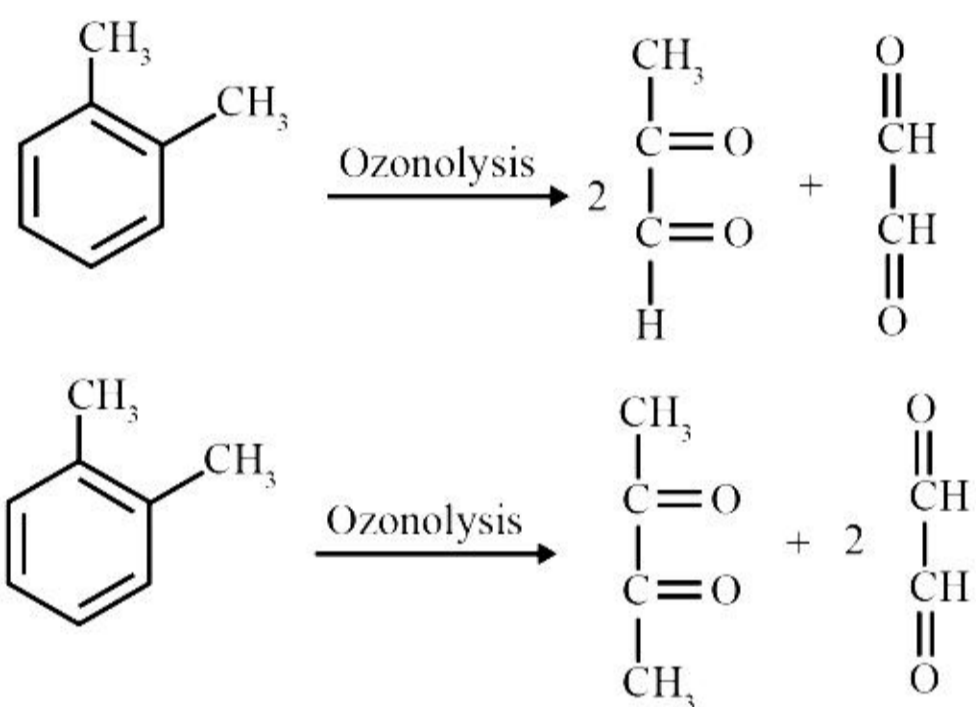


(d)

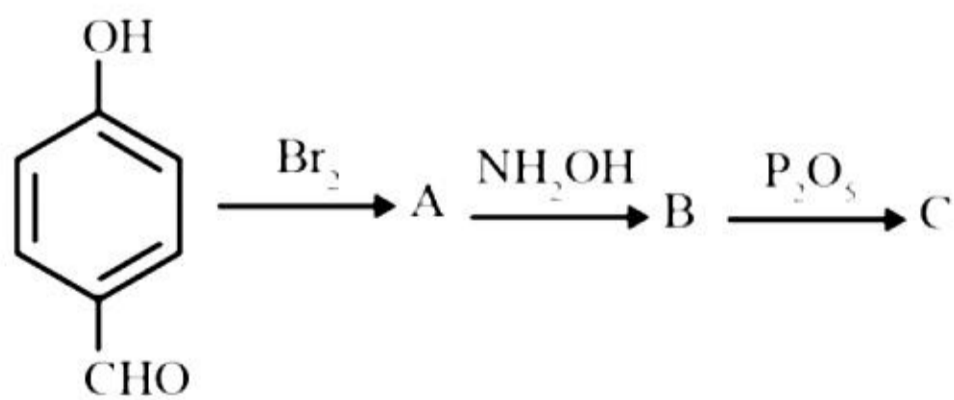


Answer: (c)

Solution:

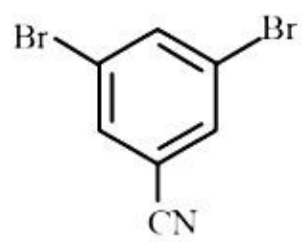


Question: Find 'C'

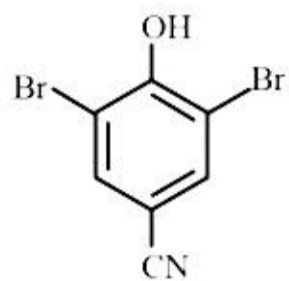


Options:

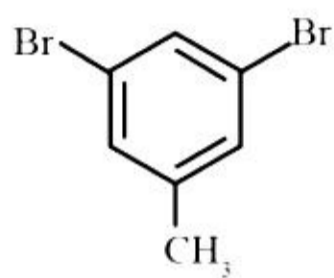
(a)



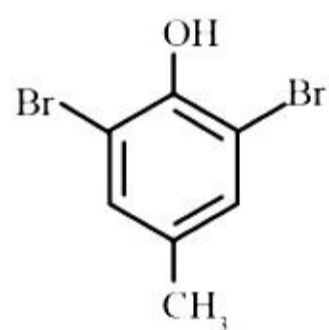
(b)



(c)

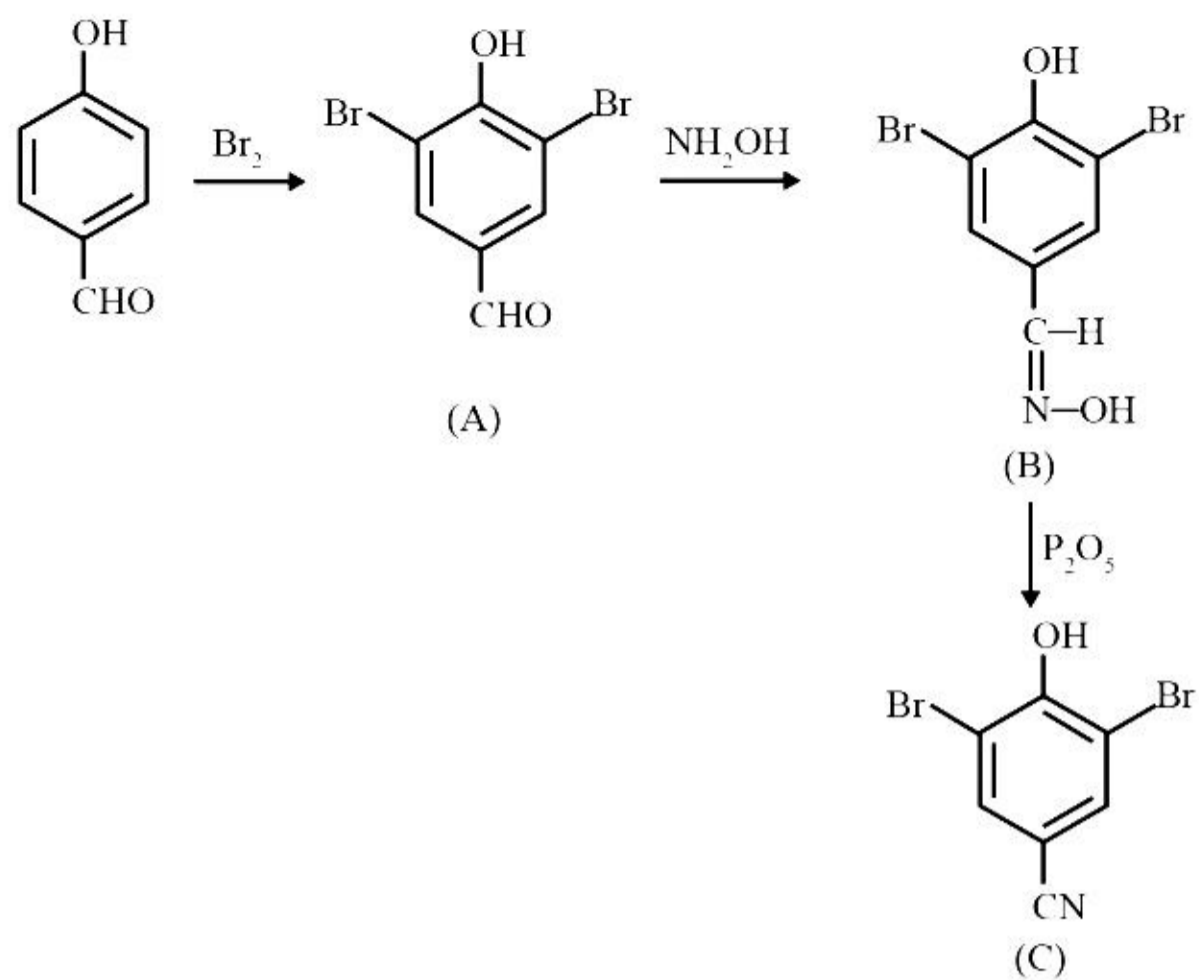


(d)

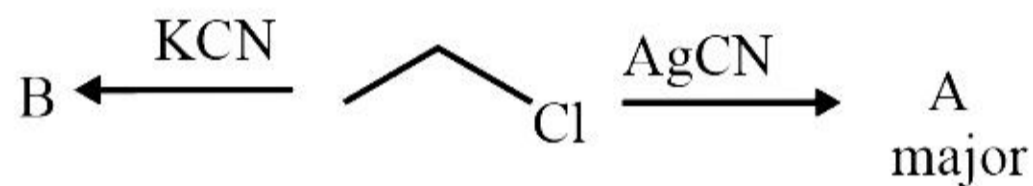


Answer: (b)

Solution:

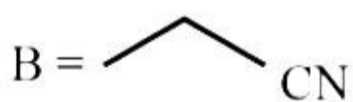
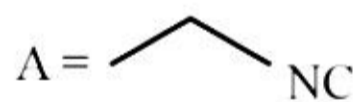


Question: Find A and B respectively?

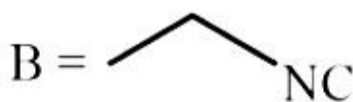
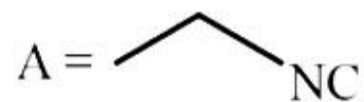


Options:

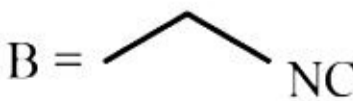
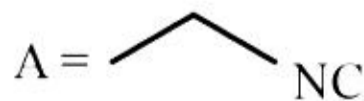
(a)



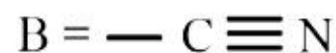
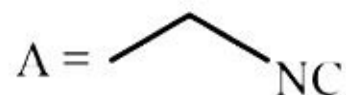
(b)



(c)

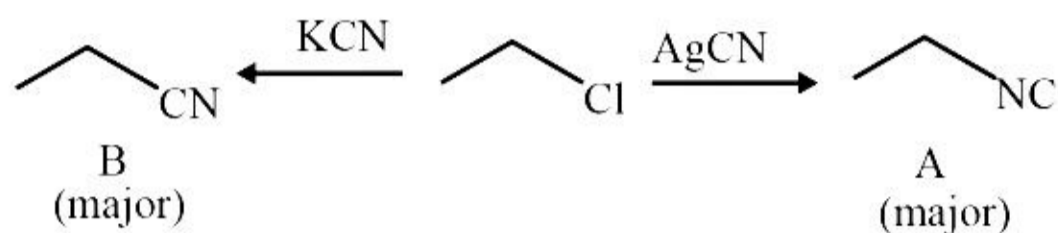


(d)



Answer: (a)

Solution:



Question: Which of the following is a hypnotic drug?

Options:

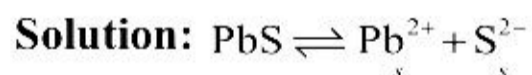
- (a) Seldane
- (b) Terpinacol
- (c) Amytal
- (d) Histamine

Answer: (c)

Solution: Derivatives of barbituric acid viz, veronal, amytal, nembutal, luminal and seconal constitute an important class of tranquilizers. These are hypnotic.

Question: K_{sp} of PbS is given as 9×10^{-30} at a given temperature. Its solubility is $x \times 10^{-15}$. Find the value of x

Answer: 3.00



$$K_{sp} = S^2$$

$$9 \times 10^{-30} = S^2$$

$$S = \sqrt{9 \times 10^{-30}} = 3 \times 10^{-15}$$

Question: Ionic radius for A^+ and B^- are 281 pm and 180 pm respectively forming a ccp structure. If B^- forms a ccp lattice and A^+ fills the octahedral voids, then what is the value of edge length in pm?

Answer: 778.00

Solution:

$$r^+ + r^- = \frac{a}{2}$$

$$281 + 180 = \frac{a}{2}$$

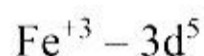
$$a = 778 \text{ pm}$$

Question: Consider a complex $[\text{Fe}(\text{OH})_6]^{3-}$ which act as an inner orbital complex. If the CFSE value after ignoring pairing energy is represented as $-x \Delta_o$, then x is:

(Δ_o is splitting energy in octahedral complex)

Answer: 2.00

Solution: Charge on Fe in $[\text{Fe}(\text{OH})_6]^{3-}$ is +3



— — eg



$$\text{CFSE} = (-0.4 \times 5)\Delta_o = -2\Delta_o$$

Question: The magnitude of change in oxidation state of manganese in KMnO_4 in faintly alkaline or neutral medium is:

Answer: 3.00

Solution:



$$\text{Change in oxidation state of Mn} = 7 - 4 = 3$$