CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 71

Chemistry

1. Which of the following statement is true?

A. SbF_4^- and SF_4 are isostructural

B. In IOF_5 the hybridization of central atom is sp^3d^2

C. Double bond(s) in SOF_4 and XeO_3F_2, is/are occupying equatorial position(s) of their

D. All of these

Answer: D

Watch Video Solution

2. ${}^{M}_{Z}A(g) \rightarrow {}^{M-8}_{Z-4}B(g) + (\alpha -$ particles $)$

$(\alpha -$ particles are helium nuclei, so will form helium gas by trapping electrons)

The radioactive disintegration follows first $-$ order kinetics Starting with 1 mol of A in a 1- litre closed flask at $27^{\circ}C$ pressure developed after tw0 half- lives is approximately.

A. 24 atm

B. 65 atm

C. 61.5 atm

D. 12 atm

Answer: C

Watch Video Solution

3. H^{Θ} always act as

A. Nucleophile

B. Base

C. Electrophile

D. Ambiphile

Answer: B

Watch Video Solution

4. An equilibrium mixture in a vessel of capacity 100 litre contain 1 mol N_2, 2 mol O_2 and 3 mol NO. Find number of moles of O_2 to be

added, so that at new equilibrium the concentration of No is 0.04 mol/lit.

A. $\frac{101}{18}$

B. $\frac{101}{9}$

C. $\frac{202}{9}$

D. None of these

Answer: A

Watch Video Solution

5. Hydrolysis of one mole of peroxy disulphuric acid produces

A. two moles of sulphuric acid

B. two moles of peroxyonosulphuric acid

C. one mole of sulphuric acid and one mole of peroxymonosulphuric acid

D. one mole of sulphuric acid, one mole of peroxymonosulphuric acid and one mole of hydrogen peroxide

Answer: C

Watch Video Solution

6. Based on the first law of thermodynamics which one of the following is correct?

A. For an isochoric process, $\Delta E = -q$

B. For an adiabatic process, $\Delta E = -w$

C. For an isothermal process, $q = W$

D. For a cyclic process, $q = -w$

Answer: D

Watch Video Solution

7. e.m.f. diagram for some ions is given as :

$$FeO_4^{2-} \xrightarrow{E^\circ = +2.20V} Fe^{3+} \xrightarrow{E^\circ = +0.77V} Fe^{2+} \xrightarrow{E^\circ = -0.445V} Fe^0$$

Datermine the value of $E^\circ_{FeO_4^{2-}/Fe^{2+}}$.

A. 1.84 V

B. 1.42 V

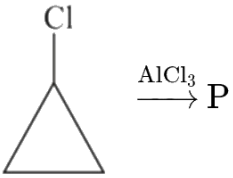
C. 1.3 V

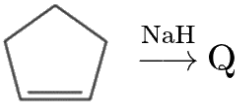
D. 2.0 V

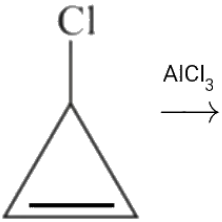
Answer: A

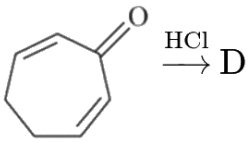
Watch Video Solution

8. Among P, Q, R, S the aromatic compound is

A. 

B. 

C. 

D. 

Answer: C

Watch Video Solution

9. Consider two reactions having same Arrhenius factor A, but different energy of activation.

(i) $A \rightarrow B, Ea_1 = 20kJ$

(ii) $C \rightarrow D, Ea_2 = 30kJ$

Both are at temperature $25^\circ C$ It temperature in both reaction is increased slightly in such a way that change in temperature in both case is same than choose the correct options.

A. The second reaction is faster

B. The second reaction is more sensitive towards temperature variation

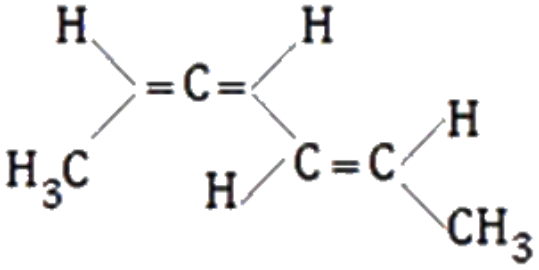
C. If temperature increases, rate of first reaction increase more sharply

D. All the above are correct

Answer: B

Watch Video Solution

10. The correct name of the structure



is

A. (2E), (4E) - 2, 4 - hexadiene

B. (2Z), (4Z) - 2, 4 - hexadiene

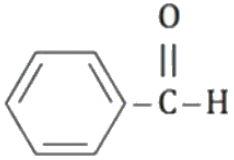
C. (2E), (4Z) - 3, 5 - hexadiene

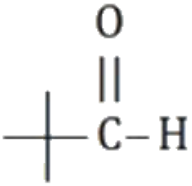
D. (2Z), (4E) - 2, 4 - hexadiene

Answer: D

Watch Video Solution

11. Which of the following cannot give Cannizzaro reaction?

A. 

B. 

C. $Cl - \underset{\underset{Cl}{|}}{\overset{\overset{Cl}{|}}{-}} C\overset{\overset{O}{||}}{C} - H$

D. $H - \overset{\overset{O}{||}}{C} - H$

Answer: C

Watch Video Solution

12. In a solid, oxide ions are arranged in ccp. Cations 'A' occupy one - sixth of the tetrahedral voids and cations 'B' occupy one - third of

the octahedral voids. Which of the following is the correct formula of the oxide?

A. ABO_3

B. A_2BO_3

C. AB_2O_3

D. None of these

Answer: A

Watch Video Solution

13. Aspirin is an acetylation product of :

A. p - dihydroxy benzene

B. m - hydroxy benzoic acid

C. o - dihydroxy benzene and salicylic acid both

D. o - hydroxy benzoic acid

Answer: D

Watch Video Solution

14. Phenylacetylene on treatment with $HgSO_4 / H_2SO_4, H_2O$ produces

A. Acetophenone

B. Phenylacetic acid

C. 1 - Phenylethanol

D. 2 - Phenyletharol

Answer: A

Watch Video Solution

15. The ions present in Al_4C_3, CaC_2 and Mg_2C_3 are respectively

A. $C^{4-}, C_2^{2-}, C_3^{4-}$

B. $C_2^{2-}, C^{4-}, C_3^{4-}$

C. $C_2^{2-}, C_3^{2-}, C^{4-}$

D. $C_3^{4-}, C^{4-}, C_2^{2-}$

Answer: A

Watch Video Solution

16. If 200 ml of 0.031 M solution of H_2SO_4 is added to 84 ml of a 0.150 M KOH solution. What is the pH of the resulting solution? (log 7 = 0.845)

A. 12.4

B. 1.7

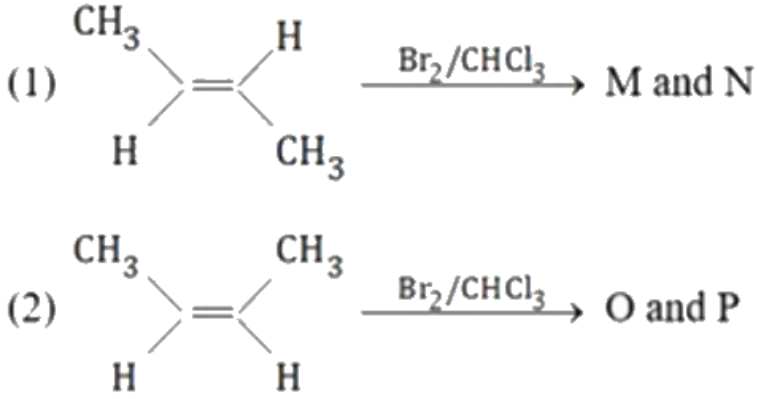
C. 2.2

D. 10.85

Answer: D

Watch Video Solution

17. The correct statement for the following addition reaction is



A. (M and O) and (N and P) are two pairs of diasteriomers

B. Bromination proceeds through cis-addition in both reaction

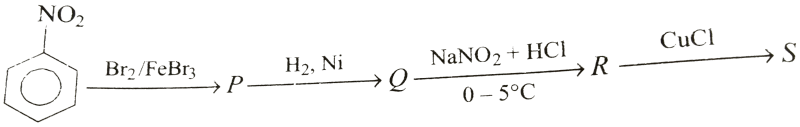
C. O and P are identical molecules

D. (M and O) and (N and P) are two pairs of enantiomers

Answer: A

Watch Video Solution

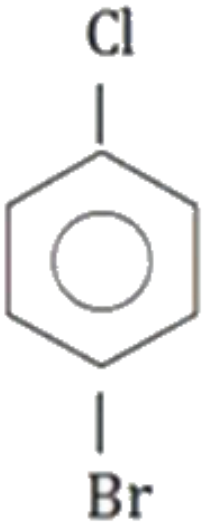
18. Consider the following reactions,



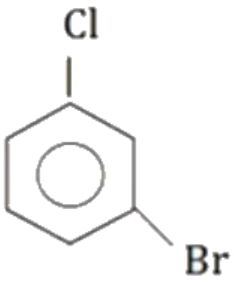
$$\xrightarrow{Br_2/FeBr^3} P \xrightarrow{H_2, Ni} Q \xrightarrow{NaNO_2+HCl} R \xrightarrow{CuCl} S$$

The end product 'S' is :

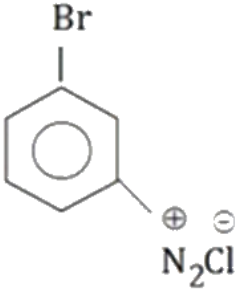
A.



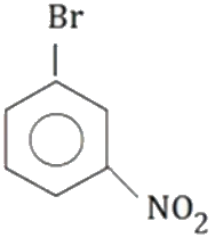
B.



C.



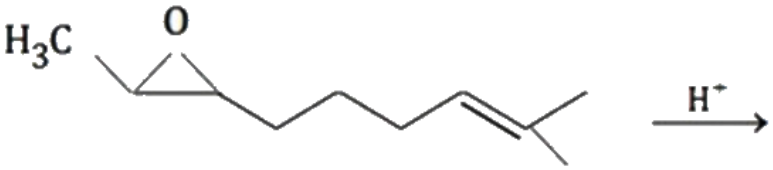
D.



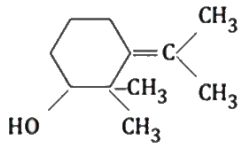
Answer: B

Watch Video Solution

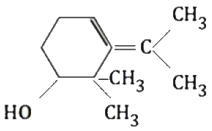
19. What will be product of the following given reaction ?



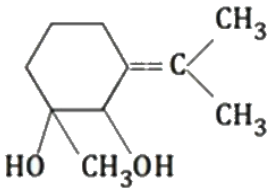
A.

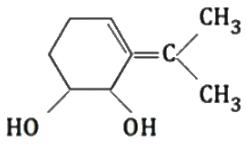


B.



C.



D. 

Answer: A

Watch Video Solution

20. The elements X and Y form compound having molecular formula XY_2 and XY_4 (both are non - electrolysis), when dissolved in 20 g benzene, $1gXY_2$ lowers the freezing point by $2.3^\circ c$ whereas 1 g of XY_4 lowers the freezing point by 1.3^C. Molal depression constant for benzene is 5.1. Thus atomic masses of X and Y respectively are

A. 42.64, 21.10

B. 21.10, 42.64

C. 25.59, 42.64

D. 42.64, 25.69

Answer: C

Watch Video Solution

21. The wave function orbital of H-like atoms is given as onder

$$\psi_{2s} = \frac{1}{4\sqrt{2\pi}} Z^{3/2}(2 - Zr)^{Zr/2}$$

Given that the radius is in $\mathring{A}$ then which of the following is the radius for nodal surface for He^{Θ} ion ?

Watch Video Solution

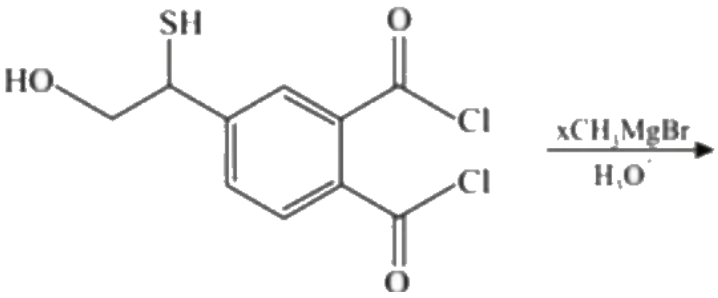
22. The number of geometrical isomers possible for the complex $[Pt(NH_3)(NH_2OH)(py)Cl]^+$ is

Watch Video Solution

23. $0.7g$ of $Na_2CO_3.xH_2O$ were dissolved in water and the volume was made to $100mL$, $20mL$ of this solution required $19.8mL$ of $N/10HCl$ for complete neutralization. The value of x is:

Watch Video Solution

24.



Maximum no. of moles of gridnard reagent that can be used is x. Find x.

Watch Video Solution

25.

$$\underset{(A)}{C_{12}H_{16}} \xrightarrow{\text{i) } O_3 \text{ ii) } Zn, H_2O_2} 2H_3C - \overset{O}{\overset{||}{C}} - CH_3 + 2HOOC + \overset{O}{\overset{||}{C}} - COOH$$

What is degree of unsaturation of compound A?

Watch Video Solution