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JEE (MAIN) 2026

MEMORY BASED QUESTIONS & TEXT SOLUTION

SHIFT-1

DATE & DAY: 23rd January 2026 & Friday

PAPER-1

Duration: 3 Hrs.
Time: 09:00 – 12:00 IST

SUBJECT: CHEMISTRY

REGISTERED & CORPORATE OFFICE (CIN: U80302RJ2007PLC024029):
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PART : CHEMISTRY

1. The correct order of ionisation energy of Cl, S, P, Al, Si is

(1) Cl > P > S > Si > Al (2) P > Cl > S > Al > Si

(3) Cl > S > P > Si > Al (4) Cl > Al > Si > P > S

Ans. (1)

2. Given below are two statements

Statement-I: $[CoBr_4]^{2-}$ absorbs lesser energy than $[CoCl_4]^{2-}$.

Statement-II: $[CoCl_4]^{2-}$ has higher crystal field splitting energy then $[CoBr_4]^{2-}$.

(1) Both Statement-I and Statement-II are correct

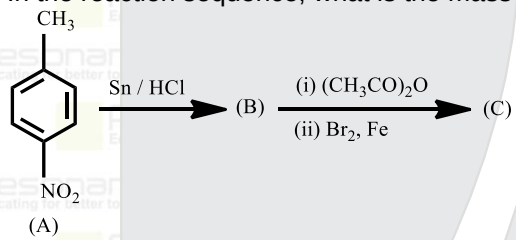
(2) Both Statement-I and Statement-II are incorrect

(3) Statement-I is correct and Statement-II are incorrect

(4) Statement-I is incorrect and Statement-II are correct

Ans. (1)

3. In the reaction sequence, what is the mass (in grams) of product (C) formed?



Ans. (228)

4. Which of the following undergo nitration at fastest rate?

(1) $C_6H_5NO_2$ (2) $C_6H_5CH_3$ (3) C_6H_5COOH (4) C_6H_5Br

Ans. (2)

5. For the following change,

$H_2O(l) \underset{5^oC}{\rightarrow} H_2O(g) \underset{100^oC}{}$

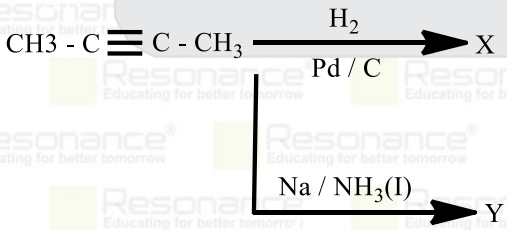
Select the correct answer:

(1) q = +ve, w = +ve, ΔH = +ve (2) q = –ve, w = –ve, ΔH = +ve

(3) q = +ve, w = -ve, ΔH = +ve (4) q = –ve, w = –ve, ΔH= –ve

Ans. (2)

6. Consider the following reaction



Choose the correct option.

(1) X ⇒ $CH_3CH_2CH_2CH_3$ Y ⇒ $CH_3 - CH = CH - CH_3$ (cis)

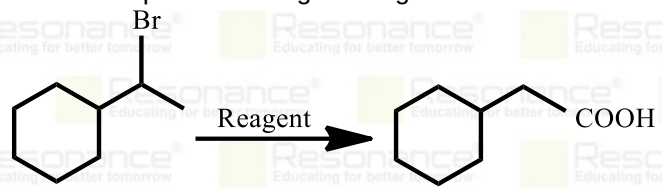
(2) X ⇒ $CH_3 - CH = CH - CH_3$ (cis) Y ⇒ $CH_3 - CH = CH - CH_3$ (trans)

(3) X ⇒ $CH_3 - CH = CH - CH_3$ (cis) Y ⇒ $CH_3 - CH = CH - CH_3$ (cis)

(4) X ⇒ $CH_3 - CH = CH - CH_3$ (trans) Y ⇒ $CH_3 - CH = CH - CH_3$ (cis)

Ans. (2)

7. Correct Sequence of reagent for given



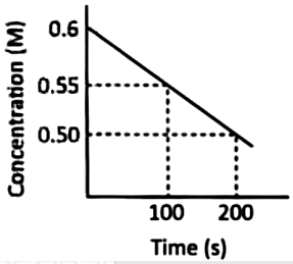
(1) $(CH_3)_3CO$, H.B.O, CrO_3/H_2SO_4
(2) $(CH_3)_3CO^-$, O.M.D.M, CrO_3/H_2SO_4
(3) EtO-, H.B.O, PCC
(4) $EtO^-, H^+/H_2O, KMnO_4$

Ans. (1)

8. Given below are two statements.
Statement I: Sublimation is a purification technique that is used to separate those solid substances which changes from solid to vapour state without passing through liquid state.
Statement II: If external atmospheric pressure is reduced, then boiling point of substance is decreased.
In the light of the above statements, choose the correct option.
(1) Both Statement -I and Statement -II are correct
(2) Both Statement -I and Statement -II are incorrect
(3) Statement -I is correct and Statement -II are incorrect
(4) Statement -I is incorrect and Statement -II are correct

Ans. (1)

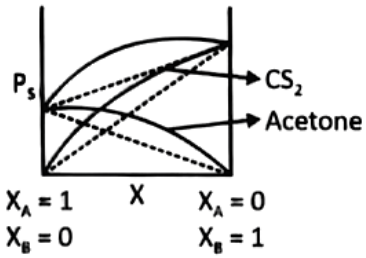
9. Consider the following graph of concentration vs time.

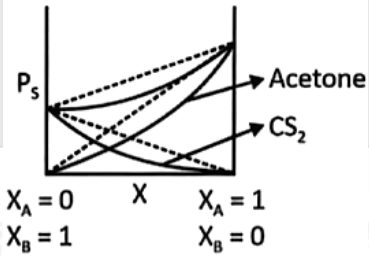


Find half-life of reaction.
(1) 600 s (2) 200 s (3) 300 s (4) 100 s

Ans. (1)

10. A binary solution is formed by mixing Acetone (A) and CS_2 (B). The variation of vapour pressure v/s mole fraction will be

(1)


(2)


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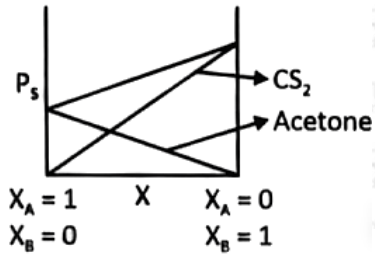
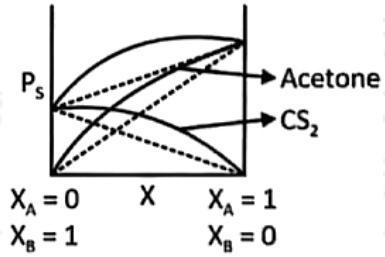
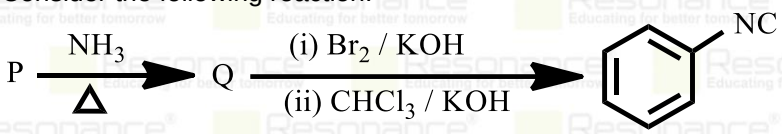


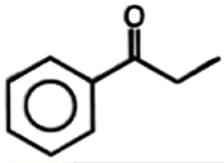
(4)


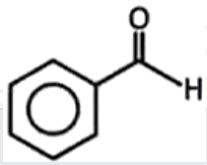
Ans. (1)

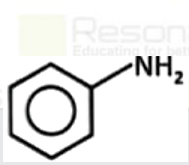
11. Consider the following reaction:

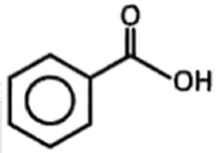


The structure of 'P' is

(1) 

(2) 

(3) 

(4) 

Ans. (4)

12. Consider the two complexes

I: $[Cr(OX)_3]^{3-}$

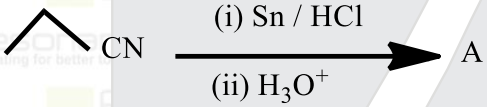
II: $[Co(OX)_3]^{3-}$

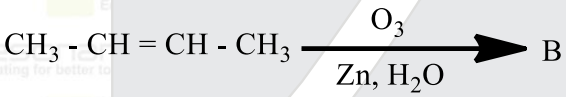
Find the ratio of CFSE of I to II complex (neglect pairing energy and consider Δ_0 for both complexes to be x)

(1) 2 (2) $\frac{1}{2}$ (3) $\frac{1}{3}$ (4) $\frac{2}{3}$

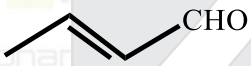
Ans. (2)

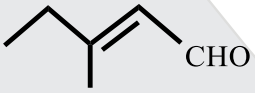
13. Consider the following reactions

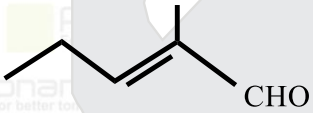


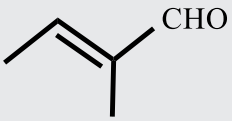


A and B are mixed and treated with dil. base to give mixture of products. Choose the incorrect product.

(1) 

(2) 

(3) 

(4) 

Ans. (2)

14. Correct statement about **13**th group.

(A) Electronegativity decreases regularly down the graph.

(B) Ionic radii decreases down the graph.

(C) Boron has highest ionisation energy.

(D) Trichloride of aluminium are covalent in nature.

(1) A, B, C only (2) C, D only (3) A, C, D only (4) B, C, D only

Ans. (2)

15. Match List-I with List-II.

	List-I		List-II
A.	Bayer's unsaturation test	(I)	Violet/purple colour
B.	Cerric ammonium nitrate test of alcohols	(II)	Red colour
C.	Tollen's reagent test	(III)	Silver mirror obtained
D.	$FeCl_3$ test of phenol	(IV)	Pink colour discharge

Select the correct option.

(1) $A(II), B(I), C(IV), D(III)$ (2) $A(IV), B(II), C(III), D(I)$

(3) $A(II), B(I), C(III), D(IV)$ (4) $A(IV), B(III), C(II), D(I)$

Ans. (2)

16. Consider the given cell

$Ag(s)|AgCl(s)|Cl^-(aq)|FeCl_2(aq), FeCl_3(aq)|Pt(s)$

In which of the following cases, E_{cell} will increase

(1) [Fe^{2+}] increases, $[Cl^-]$increases (2) $[Fe^{3+}]$, $[Cl^-]$increase

(3) $[Fe^{2+}]$ increases, [Cl-] decreases (4) [Fe^{2+}] decreases, [Fe^{3+}] decreases

Ans. (2)

17. Consider the following statements and choose the correct option(s)

(A) Ni^{2+} forms pink colour complex with dimethyl glyoximate ligand (dmg)

(B) Ni^{2+} complex with dmg contains two ring of five membered

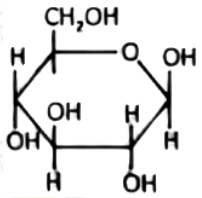
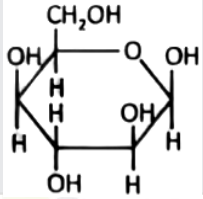
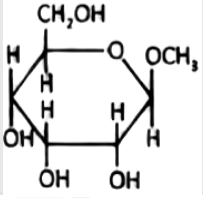
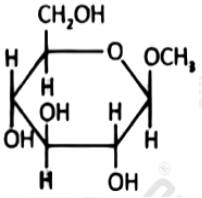
(C) Ni^{2+} has 2 unpaired electron in d-orbitals in the complex

(D) Ni^{2+} complex with dmg is soluble at $pH = 9$

(1) Only A & B (2) Only B & C (3) Only A & C (4) Only A, C and D

Ans. (1)

18. Consider the following molecules

(A)  (B)  (C)  (D) 

The examples of non-reducing sugar(s) are

(1) A, B only (2) A, C only (3) B, D only (4) C, D only

Ans. (4)

19. Following molecules are given:

$HNO_3, NF_3, H_2SO_4, O_3$

Consider the molecule (T) having maximum number of lone pairs (on all atoms). The bond angle ($\angle XMX$), where M is central atom in T is

(1) 110º (2) 97º (3) 102º (4) 115º

Ans. (3)