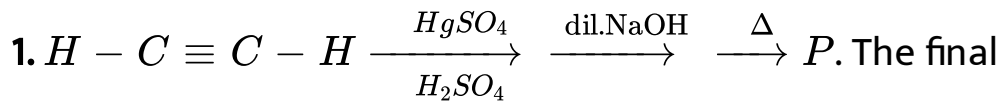# CHEMISTRY

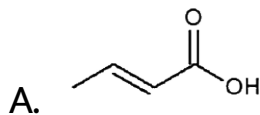# BOOKS - NTA MOCK TESTS

JEE MOCK TEST 13
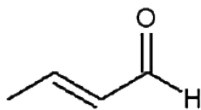
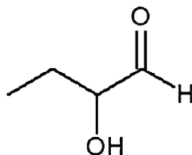**Chemistry**

1. $H - C \equiv C - H \xrightarrow[H_2SO_4]{HgSO_4} \xrightarrow{\text{dil.NaOH}} \xrightarrow{\Delta} P.$ The final product P is
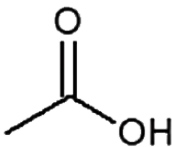
A.

B.

C.

D.

Answer: B

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2. Suppose 60% w/w aqueous solution of glucose

$(C_6H_{12}O_6$) and 20% w /w aqueous solution of urea

$(NH_2CONH_2$) have equal molarity, then which solution has higher density :

A. Both have equal density

B. Glucose solution

C. Urea solution

D. Cannot be predicted

Answer: A

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3. The oxidation number of Mn in the product of alkaline oxidative fusion of MnO_2 is

A. 4

B. 5

C. 6

D. 7

Answer: C

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4. Prop-1-ol can be prepared from propene

A. H_2O / H_2SO_4

B. $Hg(OAc)_2, H_2O$ followed by $NaBH_4$

C. B_2H_6 followed by H_2O_2

D. CH_3COOH, H_2SO_4

Answer: C

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5. As_2S_3 and TiO_2 sol are examples of

A. Negativity charges sols
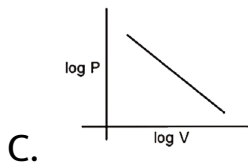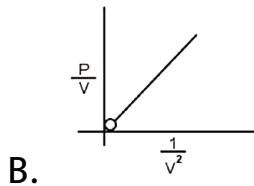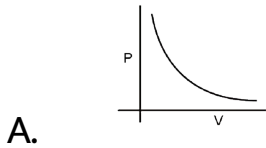
B. Positively charged sols

C. Positively and negatively charged sols respectively

D. Negatively and positively charged sold respectively

Answer: D

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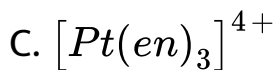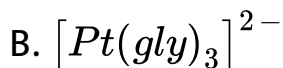**6.** Which of the following graph represents Boyle's law ?

A.

B.

C.

D. All of these

Answer: D

7. Which of the following coordination compounds has maximum number of isomers ?

A. $\left[Pt(NH_3)_4Cl_2\right]^{2+}$

B. $\left[Pt(gly)_3\right]^{2-}$

C. $\left[Pt(en)_3\right]^{4+}$

D. $\left[Pt(NH_3)_2Cl_2\right]$
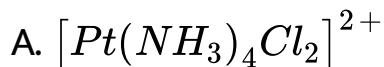
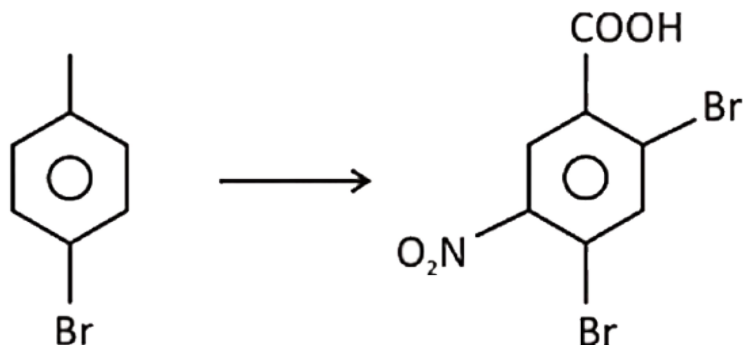**Answer: B**

8. Observe the following conversion .

Which of following is best correct sequence of rection

for following conversion ?

A. $Br_2/FeBr_3$ (1.eq) (ii) $KMnO_4/\Delta$ (iii) Conc.

$HNO_3 + H_2SO_4$

B. (i) Conc. $HNO_3 + H_2SO_4$ (ii) $Br_2/FeBr_3$(1. eq)

(iii) $KMNO_4/\Delta$

C. (i) $KMNO_4/\Delta$ (ii) Conc. $HNO_3 + H_2SO_4$ (iii)

$Br_2/FeBr_3$ (1 eq.)

D. (i) $Br_2/FeBr_3$ (1 eq.) (ii) Conc. $HNO_3 + H_2SO_4$

(iiI) $KMnO_4/\Delta$

Answer: A

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9. $SOCl_2 + HOH \rightarrow [X] + [Y]$

Which of the following is / are incorrect statements (s)

?

(I) One of the products in a gas having sp^3d hybridization.

(II) Both the products are strong acids.

(II) One of the product has one $p\pi - d\pi$ bond.

(IV) One of the product when react with NH_3 gives white fumes.

A. II,IV

B. I,II

C. I,II,III

D. II,III

Answer: B

10. Match List-I with List-II and select the correct answer :

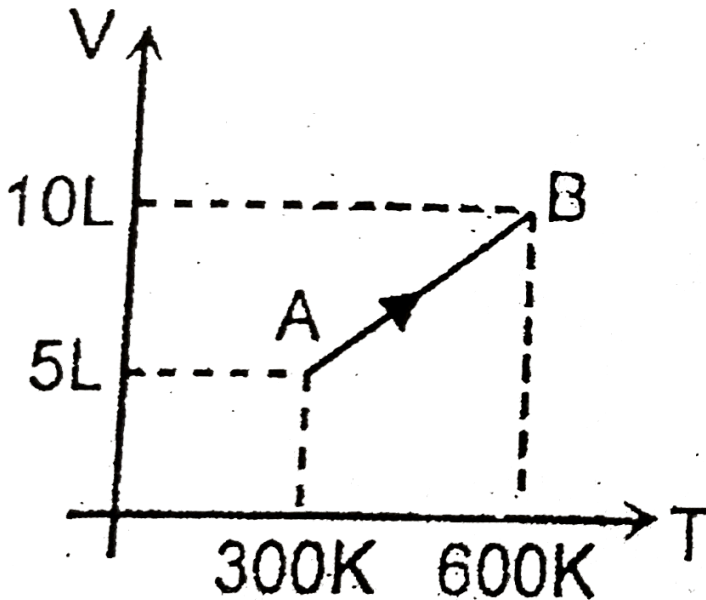| List-I (Ion)	List-II (Shapes)
(a) ICl_2^-	(1) Linear
(b) BrF_2^+	(2) Pyramidal
(c) ClF_4^-	(3) Tetrahedral
(d) $AlCl_4^-$	(4) Square planar
	(5) Angular

A. a-1,b-2,c-4,d-5

B. a-4,b-5,c-2,d-3

C. a-1,b-5,c-4,d-3

D. a-5,b-1,c-3,d-4

Answer: C

11. One mole of an ideal gas was taken from $A \to B$ as shown in given figure. Mangutitude of work involved in process is $\left(R = \frac{25}{3} \frac{J}{molK} \right)$:

A. 5kJ

B. 7.5 kJ

C. 2.5kJ

D. None of these

Answer: C

12. Which of the following statements is incorrect for hydrogen peroxide ?

A. It is stored in plastic bottles in dark

B. It acts as an oxidizing as well as a reducing agent.

C. It is used as a bleaching agent.

D. It has acidic as well as basic properties.

Answer: D

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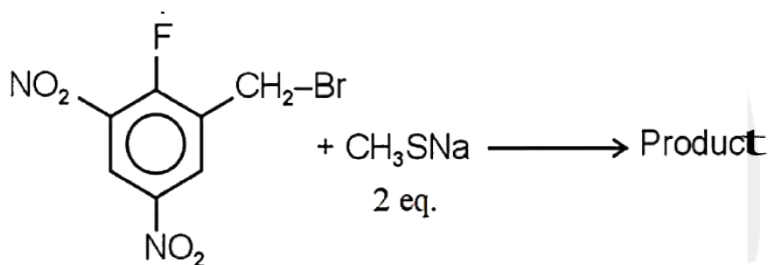**13.** A condensation polymer among the following polymer is
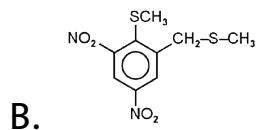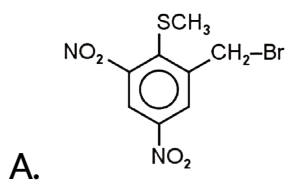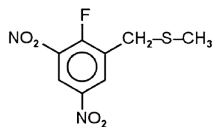
A. Teflon

B. Polystyrene

C. PVC

D. Dacron

Answer: D

14.

NO$_2$, F, CH$_2$-Br, NO$_2$

+ CH$_3$SNa ⟶ Product

2 eq.

Which of the folloiwng is obtained product

A.

SCH$_3$, NO$_2$, CH$_2$-Br, NO$_2$

B.

SCH$_3$, NO$_2$, CH$_2$-S-CH$_3$, NO$_2$

C.

D. None of these

Answer: B

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15. $r_{Na^+} = 195$pm and $r_{Cl^-} = 281$pm in NaCl (rock salt) structure. What is the shortest distance between Na^+ ions ?

A. 778.3 pm

B. 673 .06 pm

C. 195.7pm

D. 390.3 pm

Answer: B

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16. For reactions $A \to B$ and $P \to Q$ Arrhenius constant are 10^8 and 10^{10} respectively. If $E_{A \to B} = 600 cal /$ mole and $E_{P \to Q} = 1200 cal /$ mole, then find the temperature at which their rate constants are same (Given : $R = 2 cal /$ mole $/$ K)

A. 600K

B. $300 \times 4.606 K$

C. $\dfrac{300}{4.606} K$

D. $\dfrac{4.606}{600} K$

Answer: C

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17. Radiation corresponding to the transition n = 4 to n = 2 in hydrogen atoms falls on a certain metal(work function = 2.0 eV). The maximum kinetic energy of the photoelectrons will be :

    A. 0.55 eV

    B. 2.55 eV

    C. 4.45 eV

D. None

Answer: A

---

18. 2.0 molal aqueous solution of an electrolyte X_2Y_3 is 75% ionised. The boiling point of the solution a 1 atm is $\left(K_{b(H_2O)} = 0.52K \text{ kg } mol^{-1}\right)$

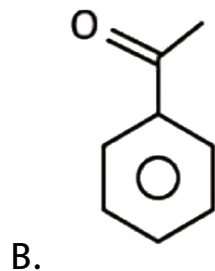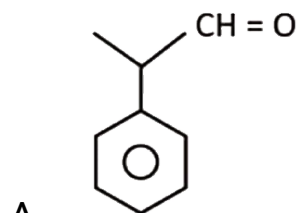A. 2.74 .76 K

B. 377 K

C. 376.4K

D. 377.16 K

Answer: D
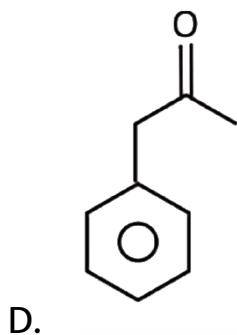
19.

$$P \xrightarrow{PCl_5\,,0°C} Q \xrightarrow[-2HCl\,(ii)\,H^+]{(i)\,NaNH_2\,(\text{excess})} R \xrightarrow{NaNH_2} S \xrightarrow{I-CH_3} T -$$

P is

A.

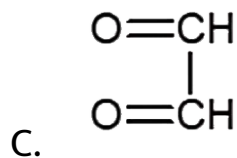CH = O

B.

C.

Cl CH = O

D.

O
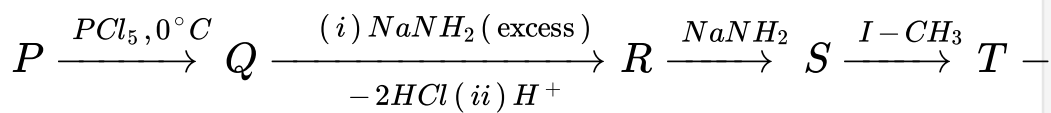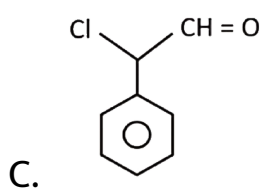
Answer: B

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20. Which of the following will show cannizzaro reaction

:

A.

B.

C.
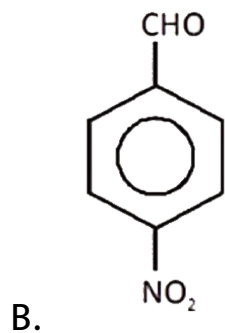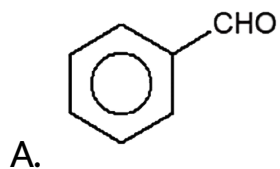
D. All of these

Answer: D

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21. In the reaction :

$$Zn + NaNO_3 + NaOH \rightarrow Na_2ZnO_2 + A + H_2O$$
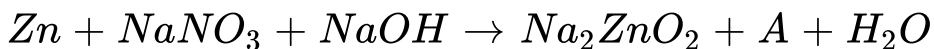
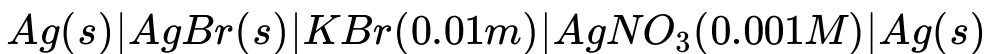The sum of stoichiometric coefficients of Zn and A in the balanced reaction with simplest integer coefficient is

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22. If the concentration of $\left[NH_4^+\right]$ in a solution having 0.02 M NH_3 and 0.005 M Ca $(OH)_2$ is $a \times 10^{-6}$ M, determine a.

$$\left[k_b(NH_3) = 1.8 \times 10^{-5}\right]$$

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23. EMF of the following cell is 0.6 volt.

$$Ag(s)|AgBr(s)|KBr(0.01m)|AgNO_3(0.001M)|Ag(s)$$

K_{sp} of AgBr is expressed as 1×10^{-x} , x is [Take

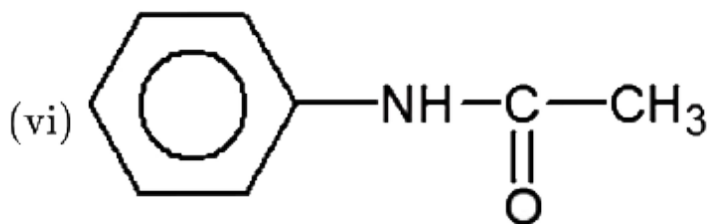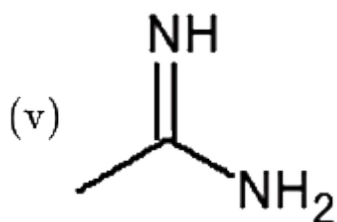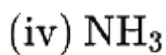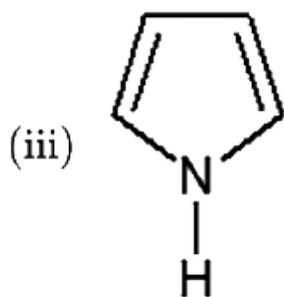$$\frac{2.303RT}{F} = 0.06V\Bigg]$$

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24. Find the sum of maximum number of electrons

having $+1$ and -1 value of 'm' in Ti

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25. How many compounds are less basic than aniline.

(iii)

(iv) NH_3

(v)

(vi)