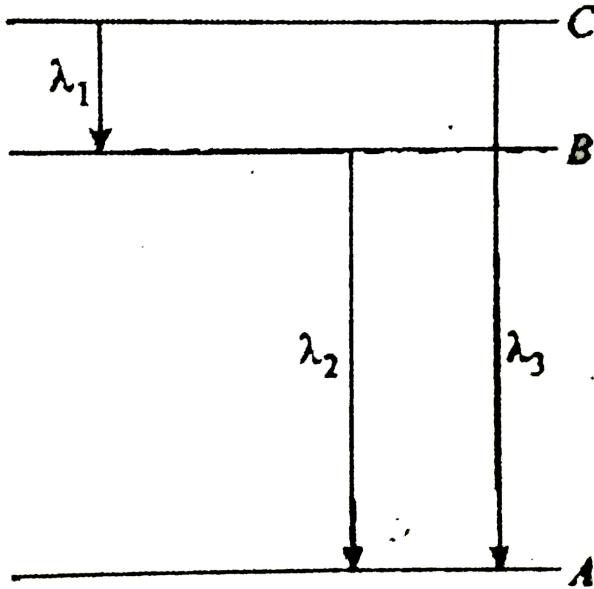# CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 94

Chemistry

1. Energy levels A,B and C of a certain atom correspond to increasing values of energy i.e. $E_A < E_B < E_C$ .If $\lambda_1, \lambda_2, \lambda_3$ are the wavelengths of radiation corresponding to transition C to B,B to A and C to A respectively, which of the following statements is

correct ?

A. $\lambda_3 = \lambda 1 + \lambda_2$

B. $\lambda_3 = \dfrac{\lambda_1 \lambda_2}{\lambda_1 + \lambda_2}$

C. $\lambda_1 + \lambda_2 \lambda_3 = 0$

D. $\lambda_3^2 = \lambda_1^2 \lambda_2^2$

Answer: B

2. 0.15 mole of pyridinium chloride has been added into $500cm^3$ of $0.2M$ pyridine solution. Calculate pH and hydroxyl ion contration in the resulting solution, assuming no change in volume. $\left(K_b\text{for pyridine} = 1.5 \times 10^{-9}M\right)$

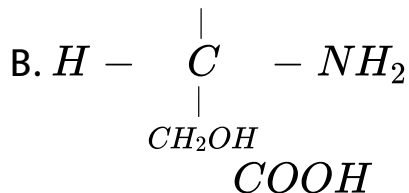A. 5, 10^{-8} mol/litre

B. 5, 10^{-9} mol/litre

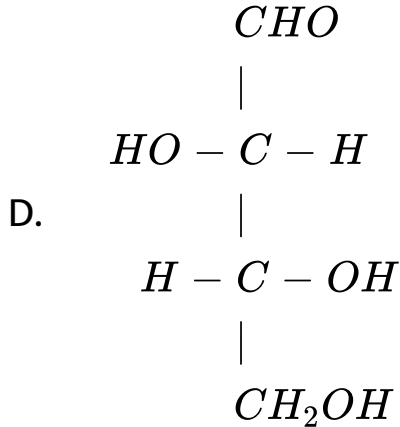C. 6, 10^{-9} mol/litre

D. 7, 10^{-9} mol/litre

Answer: B

3. Which among the following compound has [L]

configuration

A.
$$H - \overset{\displaystyle CHO}{\underset{\displaystyle CH_2OH}{C}} - OH$$

B.
$$H - \overset{\displaystyle COOH}{\underset{\displaystyle CH_2OH}{C}} - NH_2$$

C.
$$\begin{array}{c} COOH \\ | \\ H - C - OH \\ | \\ H - C - OH \\ | \\ HO - C - H \\ | \\ CH_2OH \end{array}$$

D.
$$HO - C - H$$

with structure:
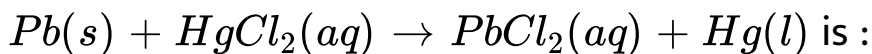
$$CHO$$
$$|$$
$$HO - C - H$$
$$|$$
$$H - C - OH$$
$$|$$
$$CH_2OH$$
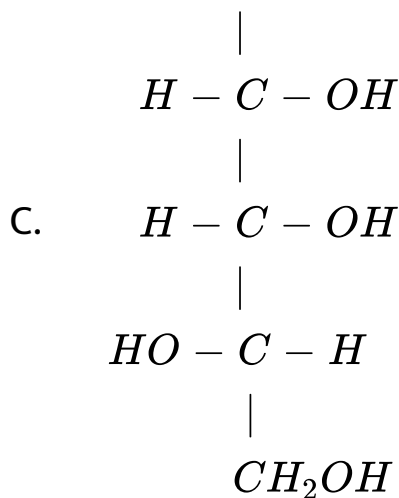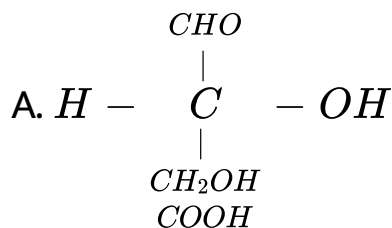
Answer: C

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4. The temperature coefficient of a cell whose operation is based on the reaction

$$Pb(s) + HgCl_2(aq) \rightarrow PbCl_2(aq) + Hg(l) \text{ is :}$$

$$\left(\frac{dE}{dT}\right)_P = 1.5 \times 10^{-4} VK^{-1} \text{ at 298 K}$$

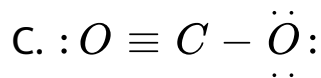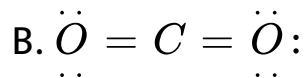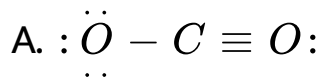The change in entropy (in J/k mol) during the operation is :

A. 12.6

B. 28.95

C. 56.8

D. 88.86

Answer: B

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5. Which of the following Lewis dot structure of CO_2 is incorrect ?

A. $: \overset{..}{O} - C \equiv O :$

B. $\overset{..}{\underset{..}{O}} = C = \overset{..}{\underset{..}{O}} :$

C. $: O \equiv C - \overset{..}{\underset{..}{O}} :$

D. None of these

Answer: B

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6. How many σ and π bonds are present in methyl acrylate

A. 11σ and 2π

B. 9σ and 2π

C. 11σ and 1π

D. 10σ and 3π

Answer: A

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7. If the radii of A^+ and B^- in the crystalline solid AB are 96 pm and 200 respectively. Then expected structure of AB will be
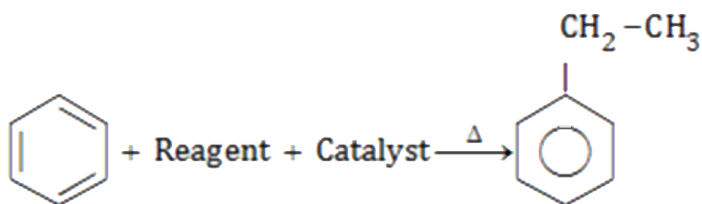
A. trigonal

B. octahedral

C. hexagonal

D. cubic

Answer: B

8. Consider the following reaction

In the above reaction reagent / catalyst will be

A. $CH_3 - CH_2 - Cl$, Anyl. $AlCl_3$

B. $CH2 = CH_2$, conc. H_2SO_4

C. $CH_3 - CH_2 - OH, BF_3$

D. All of these

Answer: D

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9. An ideal gas expands from $10^{-3}m^3$ to $10^{-2}m^3$ at 300 K against a constant pressure of $10^5 Nm^{-2}$. The workdone is
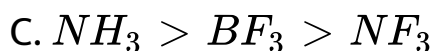
A. $-0.9kJ$

B. $-9kJ$

C. $-900kJ$

D. $-90 kJ$

Answer: A

10. Which one of the following arrangements of molecules is correct on the basic of their dipole moments?

A. $BF_3 > NH_3 > NF_3$

B. $BF_3 > NF_3 > NH_3$

C. $NH_3 > BF_3 > NF_3$

D. $NH_3 > NF_3 > BF_3$

Answer: D

11. The conductivity of 0.001 M acetic acid is $5 \times 10^{-5} Scm^{-1}$ and $\Lambda(\circ)$ is 390.5 $Scm^2 mol^{-1}$ then the calculated value of dissociation constant of acetic acid would be

A. 81.78×10^{-4}
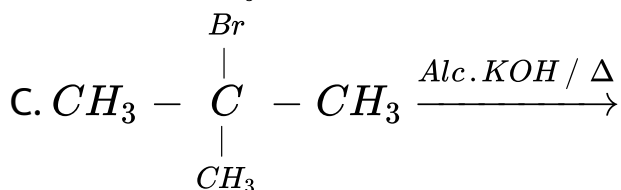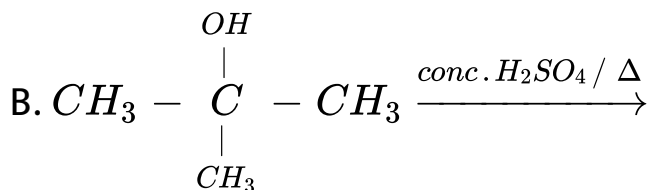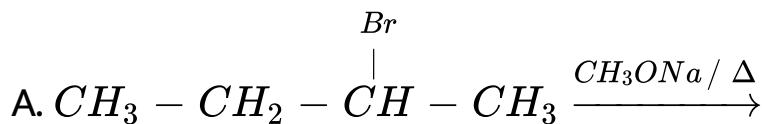
B. 81.78×10^{-5}

C. 18.78×10^{-6}

D. 18.78×10^{-5}

Answer: C

12. In which reaction product formation takes place by Saytzeff rule

A. $CH_3 - CH_2 - \overset{\overset{\displaystyle Br}{|}}{CH} - CH_3 \xrightarrow{CH_3ONa / \Delta}$

B. $CH_3 - \overset{\overset{\displaystyle OH}{|}}{\underset{\underset{\displaystyle CH_3}{|}}{C}} - CH_3 \xrightarrow{conc. H_2SO_4 / \Delta}$

C. $CH_3 - \overset{\overset{\displaystyle Br}{|}}{\underset{\underset{\displaystyle CH_3}{|}}{C}} - CH_3 \xrightarrow{Alc. KOH / \Delta}$

D. $CF_3 - CHCl_2 \xrightarrow{AlC. KOH / \Delta}$

Answer: A

13. The coagulation of 100ml of colloidal solution of gold is completely prevented by addition of $0.25g$ of a substance "X" to it before addition of 1 ml of 10% NaCl solution. The gold number of "X"is :
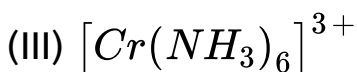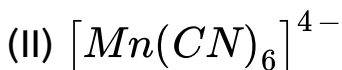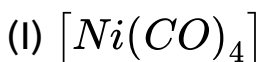
A. 0.25

B. 25

C. 250

D. 2.5

Answer: B

14. The magnetic moment of complex given below are in the order:

(I) $\left[Ni(CO)_4\right]$

(II) $\left[Mn(CN)_6\right]^{4-}$

(III) $\left[Cr(NH_3)_6\right]^{3+}$

(IV) $\left[CoF_6\right]^{3-}$

A. $I > II > III > IV$

B. $I < II < III < IV$

C. $IV > II > I > III$

D. $IV > II > I > III$

Answer: B

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15. Number of moles of $K_2Cr_2O_7$ can be reduced by 1 mole of Sn^{2+} ions is:
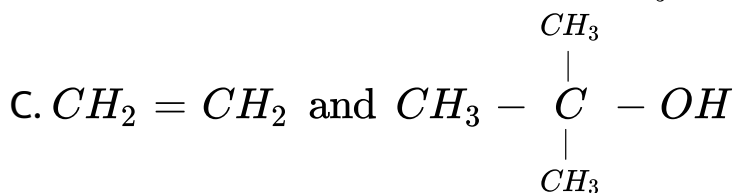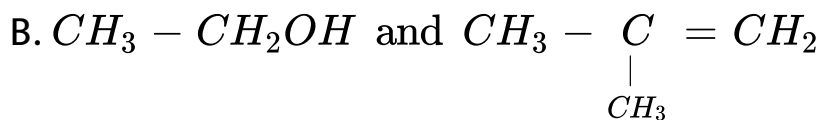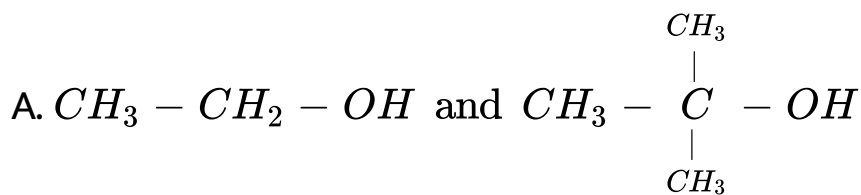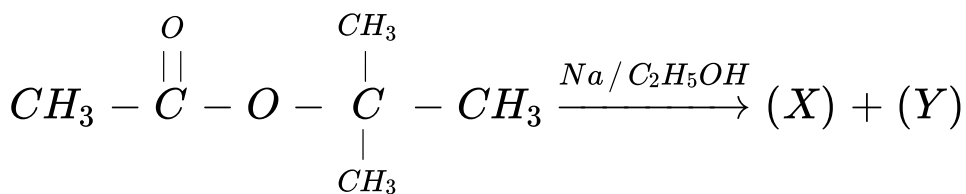
A. $\dfrac{1}{3}$

B. $\dfrac{3}{2}$

C. $\dfrac{5}{6}$

D. $\dfrac{6}{5}$

Answer: A

16. In given reaction [X] and [Y] respectively are

$$CH_3 - \overset{\overset{O}{\|}}{C} - O - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH_3 \xrightarrow{Na/C_2H_5OH} (X) + (Y)$$

A. $CH_3 - CH_2 - OH$ and $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - OH$

B. $CH_3 - CH_2OH$ and $CH_3 - \overset{}{\underset{\underset{CH_3}{|}}{C}} = CH_2$

C. $CH_2 = CH_2$ and $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - OH$

D. None of these

Answer: A

17. $Fe_2O_2(s) + \dfrac{3}{2}C(s) \to \dfrac{3}{2}CO_2(g) + 2Fe(s)$
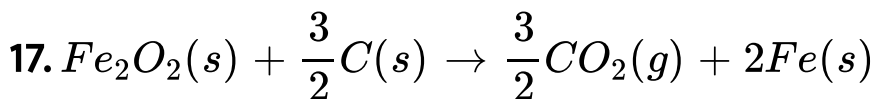
$\Delta H^\circ = +234.12KJ$

$C(s) + O_2(g) \to CO_2(g)\Delta H^\circ = -393.5KJ$
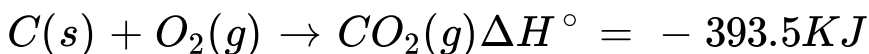
Use these equations and ΔH° value to calculate

ΔH° for this reaction :

$4Fe(s) + 3O_2(g) \to 2Fe_2O_3(s)$
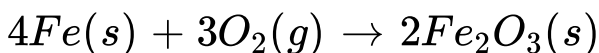
A. $-1648.7kJ$

B. $-1255.3kJ$

C. $-1021.2kJ$
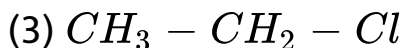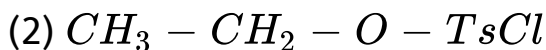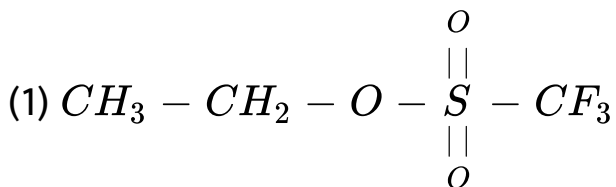
D. $-129.4kJ$

Answer: A

18. Arrange decreasing order of reactivity of these compounds for nucleophilic substitution reaction.

(1) $CH_3 - CH_2 - O - \overset{\overset{O}{\|}}{\underset{\underset{O}{\|}}{S}} - CF_3$

(2) $CH_3 - CH_2 - O - TsCl$

(3) $CH_3 - CH_2 - Cl$

(4) $CH_3 - CH_2 - Br$
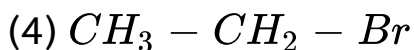
Select the correct answer from the codes given below

A. 3,4,1,2

B. 3,4,2,1

C. 1,2,3,4

D. 1,2,4,3

Answer: D

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19. In an electroplating experiment m g of silver is deposited, whe 4 amperes of current flows for 2 mimtes. The amout (in g) of silver deposited by 6 amperes of current flowing for 40 seconds will be .

A. 4 m

B. $\dfrac{m}{2}$

C. $\dfrac{4m}{3}$

D. 3 m

Answer: B

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20. The complexes

$[Co(NH_3)_4(H_2O)Cl]Br_2$ and $[Co(NH_3)_4Br_2]Cl.H_2O$

are examples of

A. ionization isomerism

B. linkage isomerism

C. geometrical isomerism

D. optical isomerism

Answer: A

21. $B(OH)_3 + NaOH \Leftrightarrow Na[B(OH)_4]$ How this reaction can is made to proceed in forward direction ?

A. addition of cis 1,2 diol

B. addition of borax

C. addition of trans 1,2 diol

D. addition of Na_2HPO_4

Answer: A

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22. Total Vapour pressure of mixture of 1molA $\left(p_A^0 = 150\text{torr}\right)$ and 2molB $\left(p_B^0 = 240\text{torr}\right)$ is 200torr. In this case

A. there is positive deviation from Raoult's law

B. there is negative deviation from Raoult's law

C. there is no deviation from Raoult's law

D. molecular masses of A and B are also required

for calculating the deviation

Answer: B

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23. 0.1 M solution of which of the following compounds

will have the lowest freezing point ?

A. $FeSO_4. (NH_4)_2SO_{4.6}H_2O$

B. $[CrCl_2(NH_3)]Cl$

C. $K_3[Fe(CN)_6]$

D. $[Co(Cl)(NH_3)_5]Cl_2$

Answer: A

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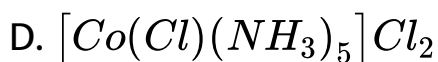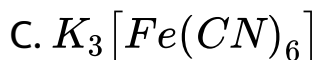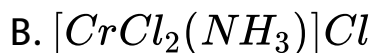
24. Which compounds will show optical isomerism

A. 2 - Butanol

B. 2 -Amino butane

C. Lactic acid

D. All of these

Answer: D
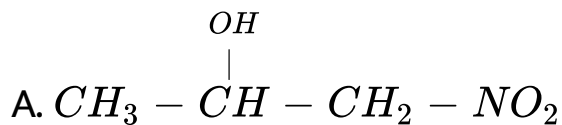
25. Which alcohol is most reactive for dehydrogenation ?

A.
$$CH_3 - \overset{\overset{\displaystyle OH}{|}}{CH} - CH_2 - NO_2$$

B.
$$CH_3 - \overset{\overset{\displaystyle OH}{|}}{CH} - CH_2 - CHO$$

C.
$$CH_3 - \overset{\overset{\displaystyle OH}{|}}{CH} - CH_2 - CN$$

D.
$$CH_3 - \overset{\overset{\displaystyle OH}{|}}{CH} - CH_2 - COCH_3$$
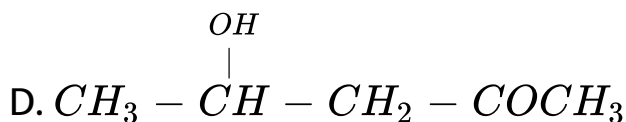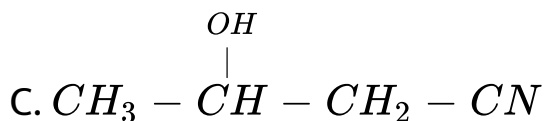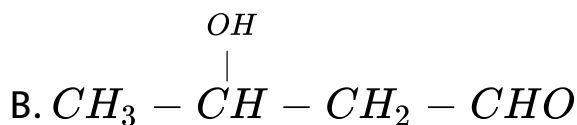
Answer: A

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26. In the given reaction

$$CH_3 - CH_2 - C \equiv C - H \xrightarrow[(ii)\,H_2O_2\,/\,O\overset{\ominus}{H}]{(i)\,BH_3} (X), \quad (X)\text{will}$$
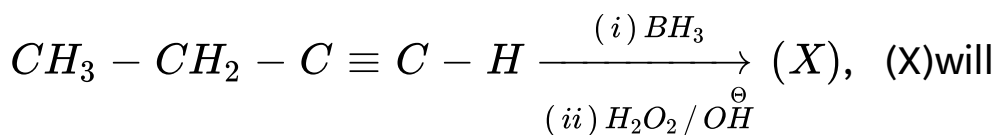
be

A. Butanal

B. Butanone

C. 2 - butanol

D. 1 - butanol

Answer: A

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27. Silver iodide is used for producing artificial rains because AgI

    A. is easy to spray at high altitude

    B. is insoluble in water

    C. is easy to synthesize

    D. has crystals similar to ice

Answer: A

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28. The anode mud in the electrolytic refining of silver contains :

    A. Zn, Cu,Ag, Au

    B. Zn, Ag, Au

    C. Cu, Ag, Au
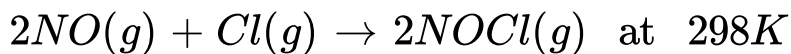
    D. Au only

Answer: D

29. The given data are for the reaction, $2NO(g) + Cl(g) \rightarrow 2NOCl(g)$ at $298K$

	$[Cl_2]$	[NO]	Initial rate (mol $L^{-1}sec^{-1}$)
I	0.05 M	0.05 M	1×10^{-3}
II	0.15 M	0.05 M	3×10^{-3}
III	0.05 M	0.15 M	9×10^{-3}

The rate law of the reactions is

A. rate $= k[NO][Cl_2]$

B. rate $= k[Cl_2][NO]^2$

C. rate $= k[Cl_2]^2[NO]$

D. rate $= k[Cl_2]$

Answer: B

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30. In which of the following oxoacids of sulphur, S-O-O-S link is present ?
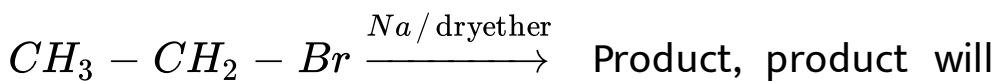
A. Caro's acid

B. Marshell's acid

C. Sulphurous acid

D. None of these

Answer: B

31. In the given reaction

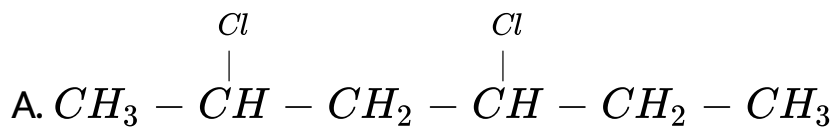$$CH_3 - CH_2 - Br \xrightarrow{Na/\text{dryether}}$$ Product, product will be

A. Pure n - butane

B. Mixture of butane and hydrogen

C. Mixture of butane, ethene and ethane
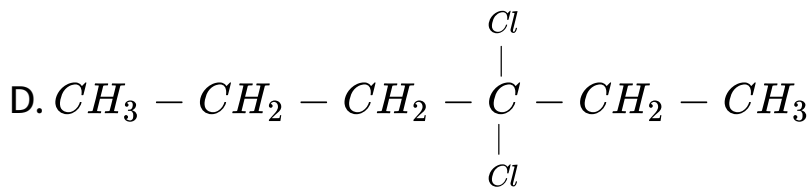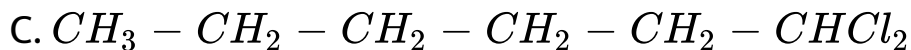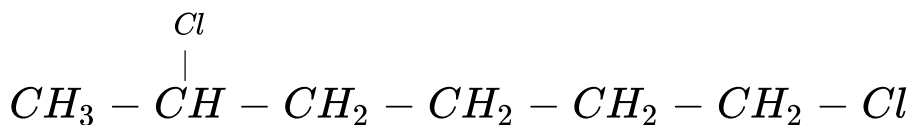
D. Mixture of ethene and ethane

Answer: C

32. Compound (X) having molecular formula $C_6H_{12}Cl_2$ on hydrolysis gives a ketone. Therefore (X) will be

A. $CH_3 - \overset{\overset{\displaystyle Cl}{|}}{C}H - CH_2 - \overset{\overset{\displaystyle Cl}{|}}{C}H - CH_2 - CH_3$

B.

$CH_3 - \overset{\overset{\displaystyle Cl}{|}}{C}H - CH_2 - CH_2 - CH_2 - CH_2 - Cl$

C. $CH_3 - CH_2 - CH_2 - CH_2 - CH_2 - CHCl_2$

D. $CH_3 - CH_2 - CH_2 - \overset{\overset{\displaystyle Cl}{|}}{\underset{\underset{\displaystyle Cl}{|}}{C}} - CH_2 - CH_3$

Answer: D

33. The given structure of α - amino acid will exist at which pH ?

$$\overset{\oplus}{N}H_3 - \overset{\overset{COOH}{|}}{\underset{\underset{R}{|}}{C}} - H$$
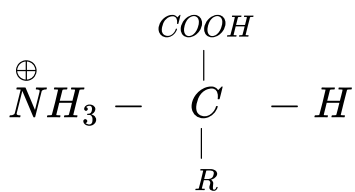
A. 7

B. 14
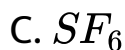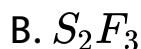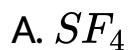
C. 6

D. 12

Answer: C

34. A yellow coloured crystalline substance gave a colourless gas X on reaction with fluorine, which is thermally stable and has octahedral geometry. X can be
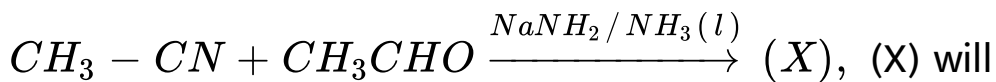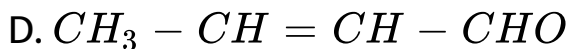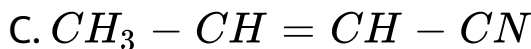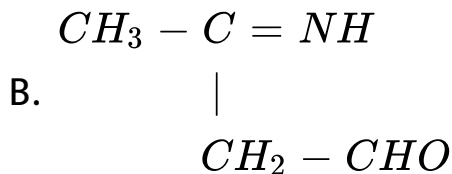
    A. SF_4

    B. S_2F_3

    C. SF_6

    D. S_2F_6

Answer: C

35. Which one of the following compounds on dehalogenation gives, 2,3 - dimethyl - but - 2 - ene ?

A. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{Cl}{|}}{C}} - \underset{\underset{CH_3}{|}}{\overset{\overset{Cl}{|}}{C}} - CH_3$

B. $CH_3 - (CH_2)_4 - CHCl_2$

C. $CH_3 - CH_2 - CHCl_2$
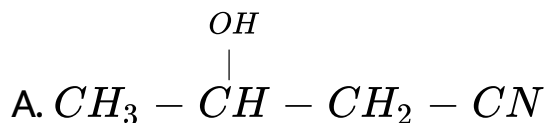
D. $CH_2Cl - (CH_2)_4 - CH_2Cl$
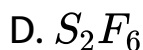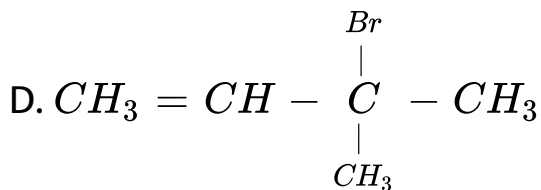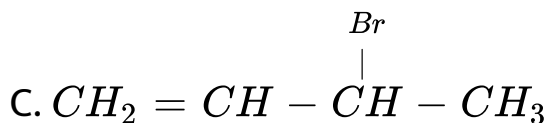
Answer: A

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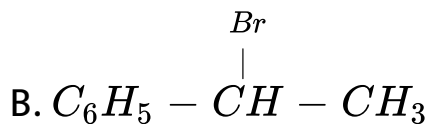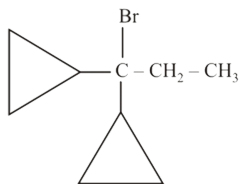**36.** In the given reaction

$$CH_3 - CN + CH_3CHO \xrightarrow{NaNH_2 / NH_3(l)} (X),\ (X) \text{ will}$$

be

A. $CH_3 - \overset{\overset{\displaystyle OH}{\displaystyle |}}{CH} - CH_2 - CN$

B. $\begin{array}{c} CH_3 - C = NH \\ | \\ CH_2 - CHO \end{array}$

C. $CH_3 - CH = CH - CN$

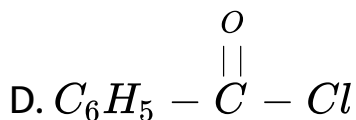D. $CH_3 - CH = CH - CHO$

Answer: C

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37. Which one of the following is most reactive for E_1 reaction

A.

B. $C_6H_5 - \overset{\overset{\displaystyle Br}{|}}{CH} - CH_3$

C. $CH_2 = CH - \overset{\overset{\displaystyle Br}{|}}{CH} - CH_3$

D. $CH_3 = CH - \underset{\underset{\displaystyle CH_3}{|}}{\overset{\overset{\displaystyle Br}{|}}{C}} - CH_3$

Answer: A

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38. Which one of the following compounds is least reactive with water?

A. $CH_3 - \overset{\overset{\displaystyle O}{\|}}{C} - Cl$

B. $C_6H_5 - \overset{\overset{\displaystyle O}{\|}}{C} - NH_2$

C. $CH_3 - \overset{\overset{\displaystyle O}{\|}}{C} - NH_2$

D. $C_6H_5 - \overset{\overset{\displaystyle O}{\|}}{C} - Cl$
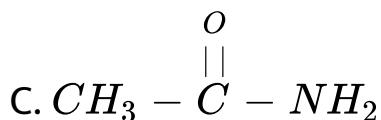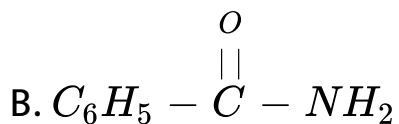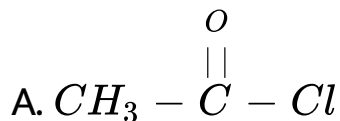
Answer: B

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39. How many moles of H_2O are liberated when one mole hydrated $MgCl_2$ is heated?

A. 6

B. 5

C. 4

D. 3

Answer: B

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40. How many unit cell are present in a cubic-shaped ideal crystal of $NaCl$ of mass $1.0g$?

    A. 2.57×10^{21}

    B. 5.14×10^{21}

    C. 1.28×10^{21}

    D. 1.71×10^{21}

Answer: A

41. Which of the following oxides is most acidic and most basic respectively?

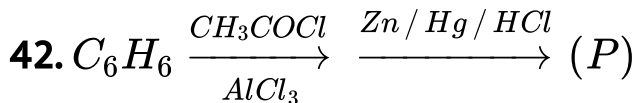I(CaO), II(K_2O), III(H_2O), IV(SO_3), V(N_2O_5), VI(SO_2).
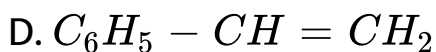
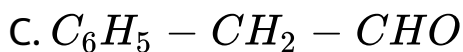   A. IV, II
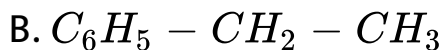
    B. V, I

    C. VI, II

    D. V, II

Answer: A

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42. $C_6H_6 \xrightarrow[AlCl_3]{CH_3COCl} \xrightarrow{Zn/Hg/HCl} (P)$

In the reaction sequence product (P) will be

A. $C_6H_5 - CH_3$

B. $C_6H_5 - CH_2 - CH_3$

C. $C_6H_5 - CH_2 - CHO$

D. $C_6H_5 - CH = CH_2$
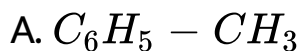
Answer: B

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43. Salicylaldehyde can be separated from the mixture of salicyladehyde and p - hydroxy benzaladehyde by

A. Distillation

B. Fractional distillation

C. Solvent extraction

D. All of these

Answer: B

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44. $C_6H_5 - \overset{\overset{\displaystyle OH}{|}}{CH} - CH_3$ can be prepared form which

of the following combinations

A. $C_6H_5 - CHO$ and CH_3MgCl

B. C_6H_5MgBr and CH_3CHO

C. $C_6H_5 - \overset{\overset{\displaystyle O}{||}}{C} - CH_3$ and $NaBH_4$

D. All of these

Answer: D

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45. Which halogen oxidizes water at room temperature but does not undergo disproportionation into it?

A. F_2

B. Cl_2

C. Br_2

D. I_2

Answer: A

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