CHEMISTRY

BOOKS - A2Z CHEMISTRY (HINGLISH)

HYDROCARBONS

Physical Properties Of Alkanes And Method Of Preparation

1. The number of isomeric sodium salt that will be required to obtain neopentane is

A. 3

B. 1

C. 4

D. 6

Answer: B

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2. Which of the following compounds will form a hydrocarbon on reaction with a Grignar reagent ?

A. CH_3CH_2OH

B. CH_3CHO

C. CH_3COCH_3

D. $CH_3CO_2CH_3$

Answer: d

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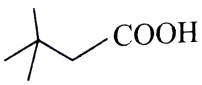
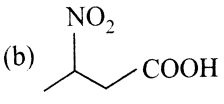
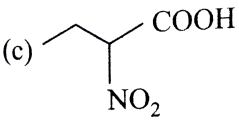
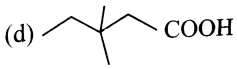
3. Which of the following carboxylic acid can undergo deccarboxylation on simple heating even in the absence of soda lime ?

A. (a) 

B. 

C. 

D. 

Answer: c

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4. The reagent used for catalytic hydrogenation of an alkene as well as bring about homogeneous catalysis is

A. Raney nickel

B. $(Ph_3P)_3RhCl$ Wilkinson's reagent

C. Pd/C

D. PtO_2

Answer: b

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5. Successive alkanes differ by

A. CH_2

B. CH

C. CH_3

D. C_2H_4

Answer: A

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6. Methane if formed when

A. Sodium acetate is heated with soda — lime

B. Iodomethane is reduced

C. Aluminium carbide reacts with water

D. All of these

Answer: D

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7. Which sodium salt will be heated with doalime to obtain propane ?

A. $CH_3 - CH_2 - \underset{\underset{O}{||}}{C} - O^- Na^+$

B. $CH_3 - CH_2 - CH_2 - \underset{\underset{O}{||}}{C} - O^- Na^+$

C. $(CH_3)_2 - CH - \underset{\underset{O}{||}}{C} - O^- Na^+$

D. (b) and (c) both

Answer: D

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8. Sodium propionate on decarboxylation with sodalime gives

A. Propane

B. Ethane

C. Butane

D. Pentane

Answer: B

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9. An optically active hydrocarbon X has molecular formula C_6H_{12}. X on catalytic hydrogenation gives optically inactive C_6H_{14}. X could be

A. $3-$ methyl$-1-$ pentene

B. $3-$ methl$-2-$ pentene

C. $4-$ methl$-2-$ pentene

D. $2-$ ethyl $-1-$ butene

Answer: A

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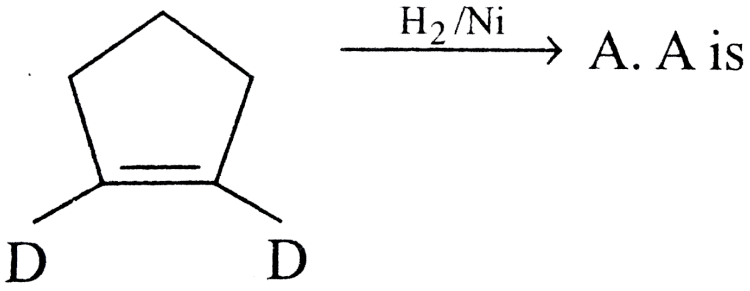
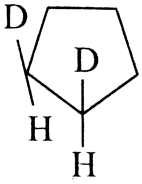
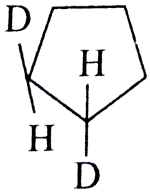
10. Complete the following reaction

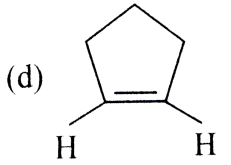


A. A is

A. $CH_3 - (CH_2)_4 - CH_3$

B. (b) 

C. (c) 

D. 

Answer: B

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11. Which of the following reactions can be used to prepare an alkane from an alkyl halide ?

A. Wurtz reaction

B. Kobe electrolysis

C. Hoffmann reaction

D. Fitting reaction

Answer: A

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12. Which of the following gieves CH_4 when treated with water ?

A. Aluminium carbide

B. Calcium carbide

C. Silicon carbide

D. Iron carbide

Answer: A

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13. A reaction between methyl magnesium bromide and ethyl alcohol gives

A. Butane

B. Ethane

C. Propane

D. Methane

Answer: D

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14. Which one of the following cannot be prepared by Wurtz reaction ?

A. CH_4

B. C_2H_6

C. C_3H_8

D. C_4H_{10}

Answer: A

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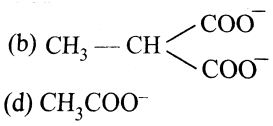
15. During electrolysis which anion migrates towards anode so as to produce $2, 3 -$ dimethyl butane

A. $CH_3 - CH_2 - COO^-$



B.

C. $CH_3 - \underset{\underset{CH_3}{|}}{C}\ HCOO^-$

D. CH_3COO^-

Answer: c

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16. Which of the following alkanes can be synthesized by the Wurtz reaction in good yield ?

A. $(CH_3)_2CH - CH_2 - CH(CH_3)_2$

B. $(CH_3)_2CH - CH_2 - CH_2 - CH(CH_3)_2$

C. $CH_3 - CH_2 - C(CH_3)_2CH_2 - CH_3$

D. $(CH_3)_3C - CH_2 - CH_2 - CH_3$

Answer: B

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17. $(CH_3)_3 - C - MgCl$ on reaction with D_2O produces

A. $(CH_3)_3CD$

B. $(CH_3)_3COD$

C. $(CD_3)_3CD$

D. $(CD_3)_3COD$

Answer: A

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18. Which of the following alkanes cannot be produced by Kolbe's electrolysis of sodium or potassium salts fo carboxylic acids ?

A. (a) Methane

B. (b) Ethane

C. (c) Butane

D. (d) Hexane

Answer: A

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19. During the preaparation of ethane by Kolbe's electrolytic method using inert electrode the pH of the elcetrolyte

A. (a) Increases progressively as the reaction proceeds

B. (b) Decreases progressively as the reaction proceeds

C. (c) Remains constant throughout the reaction

D. (d) May decrease as the concentration of the electrolyte is not very high

Answer: A

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20. Which of the following reaction can be employed for getting unsymmetrical alkanes in good yield?

A. (a) Wurtz reaction

B. (b) Corey $-$ House reaction

C. (c) Both

D. (d) None

Answer: b

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21. $(CH_3)_3COH + CH_3MgBr \rightarrow$ Hydrocarbon (A), (A) is

A. (a) $(CH_3)_3CCH_3$

B. (b) $(CH_3)_3CH$

C. (c) CH_4

D. (d) none of these

Answer: C

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22. When water vapours are passsedover aluminium carbide , we get :

A. (a) acetaldehyde

B. (b) ethylene

C. (c) methane

D. (d) methyl alcohol

Answer: C

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23. In catalytic reduction of hydrocarbons which catalyst is mostly used

A. (a) Pd

B. (b) Pt / Ni

C. (c) SiO_2

D. (d) Misch Metal

Answer: B

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24. Which among the following reagents convert alkyl halide into alkane ?

A. (a) Bu_3SnH

B. (b) $Na /$ dry ether

C. (c) R_2CuLi

D. (d) All of these

Answer: d

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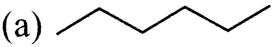
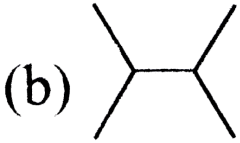
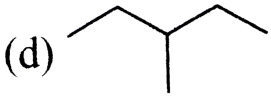
25. $C_6H_{12}(P)$ has only two types of alkenes that can be reduced to only one type of alkane $C_6H_{14}(Q)$. Q is :

A. 

B. 

C. 

D. 

Answer: b

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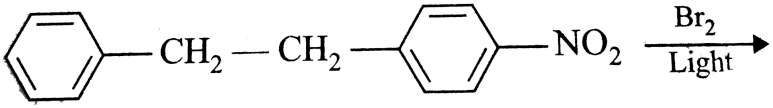
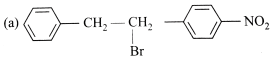
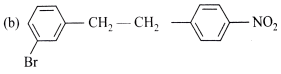
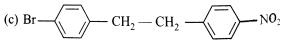
Chemical Properties Of Alkanes

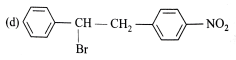
1. What is the major monobromination product in the following reaction ?



A. 

B. 

C. 

D. 

Answer: d

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2. The hymolytic fission of hydrocarbon results in the formation of

A. (a) Free radicals

B. (b) Carbocations

C. (c) Carbanions

D. (d) Carbenes

Answer: A

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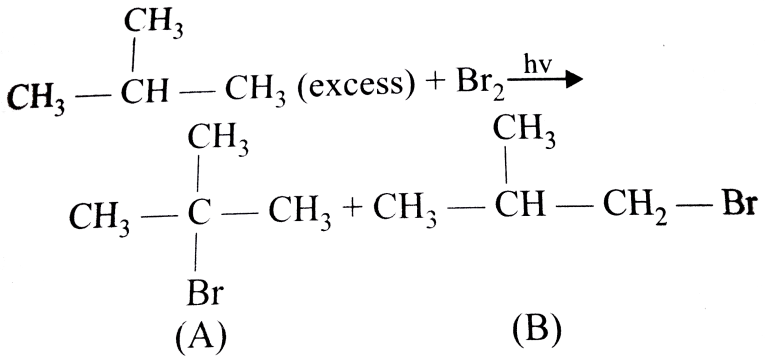
3. The relative reactivity of $1^{\circ} H, 2^{\circ} H$ and $3^{\circ} H$ in bromination reaction has been found to be $: 82: 1600$ respectively. In the reaction.



The percentage yields of the products (A) and (B) respectively are expected to be

A. (a) 99.4% , 0.6%

B. (b) 50% , 50%

C. (c) 0.6% , 99.4%

D. (d) 80% , 20%

Answer: a

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4. Halogenation of alkanes is an example of

A. Free radical addition reaction

B. Free radical substitution reaction

C. Nucleophilic substitution reaction

D. Nucleophilic addition reaction

Answer: B

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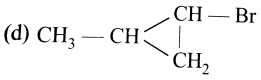
5. What is the major bromination product in the following reaction ?

$$CH_3 - CH = CH - CH_3 + Br \xrightarrow{hv}$$

A. (a) $CH_3 - CH = CH - CH_2 + Br$

B. (b) $CH_3 - CH = \overset{Br}{\overset{|}{C}} - CH_3$

C. (c) $CH_3 - \overset{Br}{\overset{|}{C}}H - CH = CH_2$

D. (d) 

Answer: C

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6. Chlorination of an alkane involves the attack of

A. (a) An electrophile

B. (b) A nucleophile

C. (c) A base

D. (d) A free radical

Answer: D

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7. When $n-$ butane is heated iin the presence of $AlCl_3HCl$ it will be converted into

A. (a) Ethane

B. (b) Propane

C. (c) Butane

D. Isobutane

Answer: d

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8. What is true about the reaction given below ?

$$CH_3 - CH = CH - CH_3 + CH_2I_2 \xrightarrow[Et_2O]{Zn-Cu}$$

A. Reaction involves a carbocation intermediat

B. Reaction involves a carbanion intermediate

C. Meso or racemic products are formed depending on configuration at double bond

D. Product is an acyclic alkane

Answer: c

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9. The reactivity of hydrogen atoms attached to carbon atom in the halogenatio of an alkane has the order :

A. (a) tertiary $>$ primary $>$ secondary

B. (b) secondary $>$ primary $>$ tertiary

C. (c) tertiary $>$ secondary $>$ primary

D. (d) primary $>$ secondary $>$ tertiary

Answer: c

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10. Which of the following is oxidised by $KMnO_4$?

A. Methane

B. Isobutane

C. Pentane

D. Neopentane

Answer: B

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11. In which of the following pairs, the bromination of first member is easier than the second member ?

A. (a) Isobutane, $n-$ butane

B. (b) $n-$ Butane, isobutane

C. (c) Methane,ethane

D. (d) none of these

Answer: A

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12. The addition of tetraethyl lead to petrol

A. Lowers its octane number

B. Has no effect on octane number

C. May raise or lower the octane number

D. Raises its octane number.

Answer: d

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13. Which of the following cannot be considered as a step of mechanism in chain reaction of methane with Cl_2?

A. $Cl_2 \rightarrow Cl^{\cdot}$

B. $CH_4 + Cl^{\cdot} \rightarrow CH_3Cl + H^{\cdot}$

C. $Cl^{\cdot} + CH^4 \rightarrow CH_3^{\cdot} + HCl$

D. $Cl^{\cdot} + CH_3^{\cdot} \rightarrow CH_3Cl$

Answer: b

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14. Which of the following has maximum boiling point ?

A. $n-$ octane

B. iso $-$ octane

C. $2,2,3,4-$ tetramethyl butane

D. $n-$ butane

Answer: a

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15. During clhorination of methane to methyl chloride, the propagation step is represented by

A. $Cl-Cl \rightarrow \dot{C}l+\dot{C}l$

B. $C\dot{H}_3+\dot{C}l \rightarrow CH_3Cl$

C. $CH_4+\dot{C}l \rightarrow C\dot{H}_3+HCl$

D. $\dot{C}l+\dot{C}l \rightarrow Cl-Cl$

Answer: C

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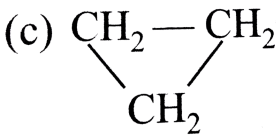
16. $BrCH_2 - CH_2CH_2Br$ reacts with Na in the presence of ether at $100^\circ C$ to produce

A. $BrCH_2 - CH = CH_2$

B. $CH_2 = C = CH_2$

C. (c) 

D. All of these

Answer: c

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17. Which of the following is not an endothermic reaction ?

A. Combustion of propane

B. Ethane to ethene

C. Dehydrogenation

D. Change of chloring molecule into chlorine atoms.

Answer: a

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18. Methane reacts with excess of chlorine in diffused sunlight to give the final product as

A. Chloroform

B. Carbon tetrachloride

C. Methylene chloride

D. Methyl chloride

Answer: B

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19. A mixture of propene and methane is obtained by the cracking of

A. $1-$ butene

B. $n-$ butane

C. $2-$ butene

D. Isobutane

Answer: B

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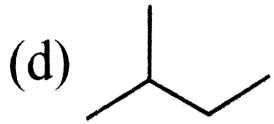
20. A gaeous hydrocation $'X'$ on reaction with bromine in light forms a mixture of two monbromo alkanes and HBr. The hydrocarbon $'X'$ is :

A. CH_3-CH_3

B. (b) 

C. 

D. 

Answer: c

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21. The final product of complete oxidation of hydrocarbons is

A. $H_2O + CO_2$

B. Aldehyde

C. Acid

D. Dihydric alcohol

Answer: A

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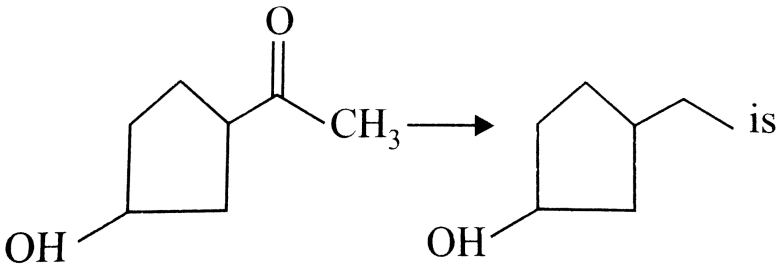
22. The appropriate reagent for the transformation



A. $Zn(Hg)$ / conc. HCl

B. NH_2NH_2, OH^-

C. H_2 / Ni

D. $NaBH_4$

Answer: b

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23. The number of monochloro derivatives of isohexane is (Only structural isomers)

A. 3

B. 4

C. 5

D. 6

Answer: c

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24. Which of the following represents the most oxidized form of hydrocarbon ?

A. $RCHO$

B. CO_2

C. $RCOOH$

D. $RCOOOH$

Answer: b

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25. Iodination of an alkanae is carried out in presence of

A. Alcohol

B. $P + I_2$

C. HNO_3 or HIO_3

D. A reducing agent

Answer: C

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26. What is the chief product obtained when $n-$ butane is treated with Br_2 in the presence of light at $130^\circ C$?

A. $CH_3 - CH_2 - CHBr - CH_3$

B. $(CH_3)_2CHCH_2Br$

C. $(CH_3)_3CBr$

D. $CH_3 - CH_2 - CH_2 - CH_2 - Br$

Answer: a

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27. A sample of petrol is a mixture of 30% $n-$ heptane and 70% iso $-$ octane . The sample has octane number

A. 70

B. 30

C. 15

D. 35

Answer: a

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28. The maximum ease of abstraction of a hydrogen atom by a chlorine atom is shown by

A. $(CH_3)_3C - CH_3$

B. $(CH_3)_2CH_2$

C. $C_6H_5CH_3$

D. $CH_2 = CHCH_3$

Answer: c

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29. Propene on reaction with methylen iodide in presence of $Zn - Cu$ couple gives :

A. Cyclopropane

B. Cyclopropene

C. Methyl cyclopropane

D. Cyclobutene

Answer: c

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30. For the given reaction how many monohalo products are optically active (all isomers) :

$$CH_3 - \underset{\underset{CH_3}{|}}{\overset{CH_3}{\overset{|}{C}}} - CH_2 - \overset{CH_3}{\overset{|}{C}}H - CH_3 \xrightarrow{Br_2 / hv}$$

A. 1

B. 2

C. 3

D. 4

Answer: D

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31. Gasoline has composition

A. $C_8 - C_{12}$

B. $C_6 - C_{11}$

C. $C_2 - C_5$

D. None of these

Answer: b

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32. Which of the following statement is correct in relation to the halogenation of alkane ?

A. The reactivity of chlorine is less than bromine towards alkanes.

B. Photochemical chlorination of methane is formed in slowest step.

C. Free radicals are pyramidal intermediat, stabilised by hyperconjugation and resonance.

D. Bromine has much higher regioselectivity than chlorine in abstractinig 3° hydrogen.

Answer: D

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33. Of the five isomeric hexanes, the isomer which can give two monochlorinated compounds is

A. $n-$ hexane

B. $2,2-$ dimethylbutane

C. $2,3-$ dimethylbutane

D. $2-$ methylepentane

Answer: c

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34. The number of possibel enantiomeric paira that can be produced during monochlorination of 2-methyl butane is :

A. 2

B. 3

C. 4

D. 1

Answer: a

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35. Which statement is incorrect about free radical halogenation of alkanes ?

A. The number of product molecules formed by one photon is very high.

B. If O_2 is added , initially the rate of reaction decreases, then increases.

C. Inhibitors combine with free radical and terminate the chain reaction.

D. Presence of $C_6H_5 - \underset{\underset{O}{||}}{CO} - \underset{\underset{O}{||}}{OC} - C_6H_5$ inhibits the free radical reaction.

Answer: D

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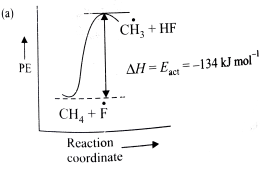
36. Which of the following is correct potential energy diagram for the given chain propagation step ?

$CH_{30} - H + F \cdot \rightarrow \dot{C}H_3 + H - F \, \Delta H^\circ = -134 Kj/mol$

A.



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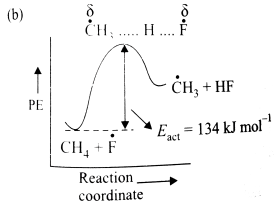

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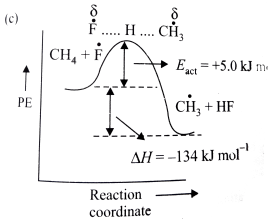

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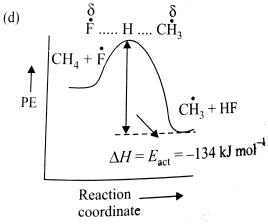

Answer: c

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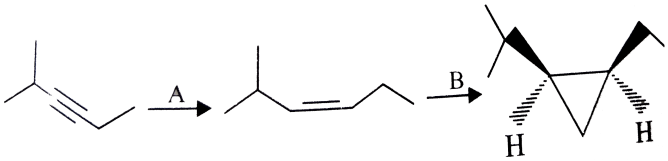

37. and

A and B are

A. $A - Na / Liq.\ NH_3, B - CH_2N_2, hv$

B. $A - Ni / H_2, B - CH_2 = C = O, hv$

C. $A -$ Lindlar's catalyst, $B - CH_2I_2 / Zn$

D. All of the above

Answer: c

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38. Number of isomers which can be theoreticaly obtained on monochlorination of $2 -$ methylbutane is :

A. 1

B. 2

C. 3

D. 4

Answer: d

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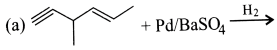
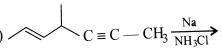
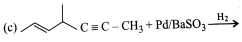
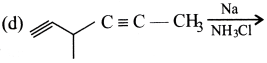
39. Which of the following compounds will lose optica activity after the reaction ?

A. 

B. 

C. 

D. 

Answer: b

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40. sec — Butyl chloride on boiling with alc. KOH gives ..... as the main product.

A. $1-$ Butene

B. $2-$ Butene

C. $1-$ Butanol

D. $2-$ Butanol

Answer: B

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41. In the above reaction if we take methylen chloride and isopropylidene cloride then products are

A. $CH_3-\underset{\underset{CH_3}{|}}{C}=CH_2$

B. $CH_2=CH_2$

C. $CH_3-\underset{\underset{CH_3}{|}}{C}-\underset{\underset{CH_3}{|}}{C}-CH_3$

D. All of the above

Answer: d

Watch Video Solution

42. An alkene is formed from a carbocation by

A. Elimination of a H^+ ion

B. Elimination of H^- ion

C. Addtion of a H^+ ion

D. Addition of a H^- ion

Answer: a

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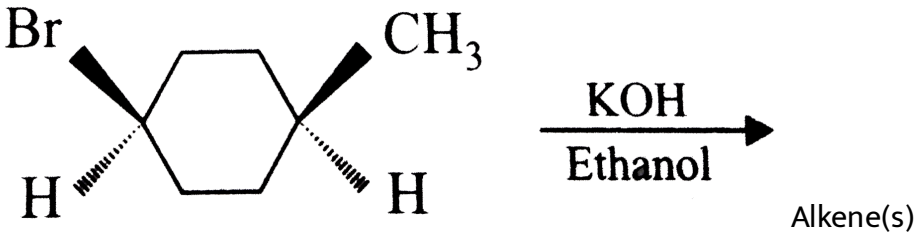
43. Consider the following reaction.



Alkene(s)

The correct statement concerning product of the above reaction is

A. only a single alkene is formed

B. a pair of geometrica isomers are formed

C. a pair of enantiomers in equal amount is formed

D. a pair of diastereomers in equal amount is formed

Answer: c

Watch Video Solution

44. Ethylene may be obtained by dehydration of which of the following with concentrated H_2SO_4 at $160 - 170^\circ C$

A. C_2H_5OH

B. CH_3OH

C. $CH_3CH_2CH_2OH$

D. $(CH_3)_2CHCH_2OH$

Answer: a

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45. When $3,3-$ dimethyl$-2-$ butanol is heated with H_2SO_4 the major product obtained is

A. cis and trans isomers of $2,3-$ dimethyl$-2-$ butene

B. $3,3-$ dimethyl$-1-$ butene

C. $2,3-$ dimethyl$-2-$ butene

D. $2,3-$ dimethyl$-1-$ butene

Answer: C

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46. Alcoholic solution of caustic potash is a specific reagent for

A. Dehydration

B. Dehydrohalogenation

C. Dehydrogenation

D. Hydration

Answer: B

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47. Isopropyl alcohol is obtained by reacting which of the following alknes with conc. H_2SO_4 and H_2O

A. Ethylene

B. Propylene

C. $2-$ methyl propene

D. Isoprene

Answer: b

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48. Consider the reaction

$$\left[CH_3CH_2CH_2-\overset{CH_3}{\underset{CH_3}{\overset{|}{\underset{|}{\overset{\oplus}{(N)}}}}}-CH_2CH_3\right]OH^- \xrightarrow{\text{Heat}}$$

Which of the following is formed in major amount ?

A. $CH_2=CH_2$

B. $CH_3CH=CH_2$

C. Both (a) and (b) in equal amount

D. None, as no reaction takes place

Answer: a

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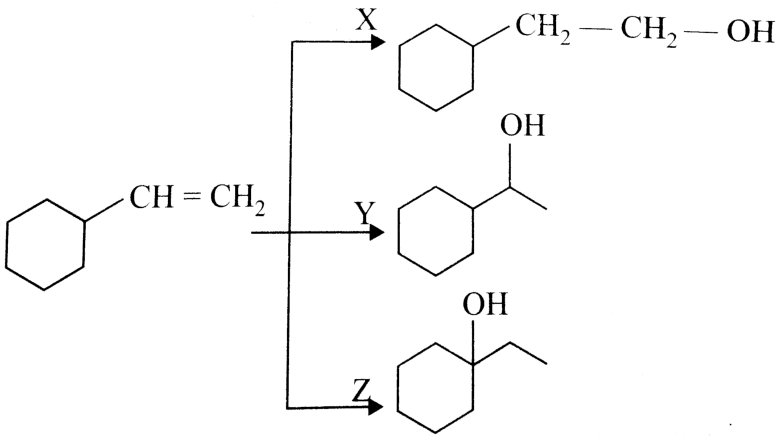

49.

X, Y, Z reaction are :

A. Simple hydration reaction

B. Hydroboration — oxidation, hydration and oxymercuration — demercuration

C. Hydroboration — oxidation, oxymercuration — demercuration and hydration

D. Oxymercuration — demercuration, hydroboration — oxidation and hydration

Answer: c

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50. Which of the following reactions produces an alkene ?

A. $CH_3 - CH_3 + N_2H_2 \xrightarrow{\Delta}$

B. $CH_3 - CH_2 - CH_3 \xrightarrow[Cr_2O_3 / \Delta]{Al_2O_3}$

C. `CH_(3)-overset(O)overset(||)(C)-CH_(3)+N_(2)H_(4) underset(Delta)overset(NaOH)(to)

D. $CH_3 - CH_2Cl \xrightarrow[CH_3COOH]{ZN}$

Answer: b

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51. What is the major product of the reaction given below?

A. $cis - 2 -$ butene

B. $1, 3 -$ butadiene

C. trans $-2-$ butene

D. $1-$ butene

Answer: C

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52. A mixture of $1-$ chloropropane and $2-$ chloropropane when treated with alcoholic KOH, it gives

A. $1-$ Propene

B. $2-$ Propene

C. Isopropylene

D. A mixture of $1-$ propene and $2-$ propene

Answer: A

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53. The synthesis of ethene from electrolysis of an aqueous solution of potassium succinate is known as :

A. Faradays electrolysis

B. Kolbe $-$ Schmidt reaction

C. Hoffmann's rearrangement

D. Kolbe's electrolytic synthesis

Answer: d

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54. When $2-$ bromobutane reacts with alcoholic $KOH,$ the reaction is called

A. Halogenation

B. Hydrogenation

C. Chlorination

D. Dehydrohalogenation.

Answer: D

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55. When alocoholic solution of ethylene dibromide is heated with granulated zinc, the compound formed is

A. Ethylene

B. Ethyne

C. Cyclobutane

D. Butane

Answer: a

Watch Video Solution

56. $RCH = CH_2$ can be obtained by :

A. $R - \overset{\overset{O}{||}}{C}H$ and $(C_6H_5)P = CH_2$

B. By heating $RCH_2CH_2\underset{\downarrow O}{N}(CH_3)_2$

C. By heating $RCH_2CH_2OCOCH_3$

D. All of these

Answer: d

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57. During debromination of meso $-$ dibromobutane, the major compound formed is

A. $n -$ butane

B. $1 -$ butane

C. trans $-2 -$ butene

D. cis$-2-$ butene

Answer: C

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58. A mixture of $1-$ chloropropane and $2-$ chloropropane which treated with alcoholic KOH gives

A. $1-$ propene

B. $2-$ propene

C. Isoprepylene

D. All the three

Answer: a

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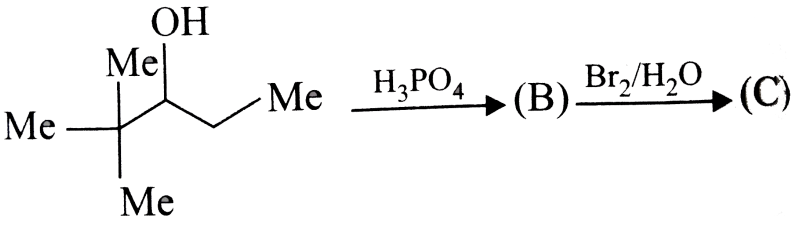
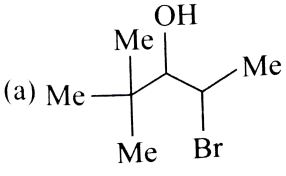
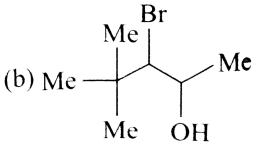
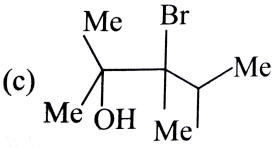
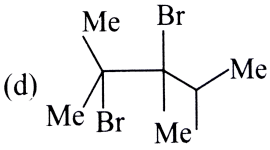
59. 

Compound (C)*is*:`

A. 

B. 

C. 

D. 

Answer: c

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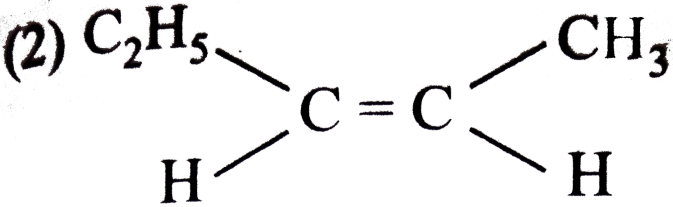
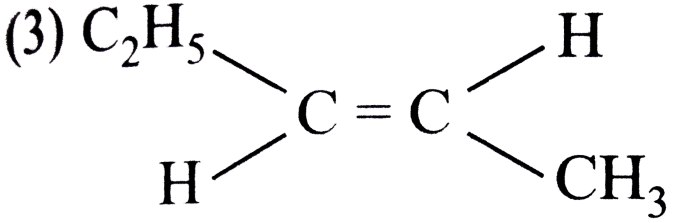
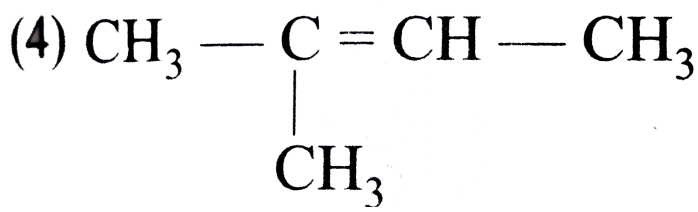
60. Which is the correct increasing order of the stability of isomers of pentene ?

$CH_3 - CH_2 - CH_2C = CH_2$

(2) 

(3) 

(4) 

A. $1 < 2 < 3 < 4$

B. $1 < 3 < 2 < 4$

C. $4 < 3 < 2 < 1$

D. $4 < 2 < 3 < 1$

Answer: A

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61. Which of the following will have zero dipole moment ?

A. $1, 1 -$ Dichlorethene

B. $cis - 1, 2$Dichloroethene

C. $trans - 1, 2 -$ Dichloroethene

D. All have equal dipole moment

Answer: c

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62. Predict wrong option for stability

A. $2, 3 -$ Dimetylbut$- 2 -$ ene $> 2 -$ Methylpent$- 2 -$ ene

B. trans $-$ Hex$-3-$ ene $>$ cis $-$ Hex$-3-$ ene

C. cis $-$ Hex$-3-$ ene $>$ Hex $-1-$ ene

D. trans $-$ Hex $-2-$ ene $>2-$ Methylpent$-2-$ ene

Answer: d

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63. But$-2-$ can be obtained by electrolysis of an aqueous solution of

A. $2,3-$ Dimethyl maelic acid

B. $2,2-$ Dimethylbutaneodioic acid

C. $2-$ Methylbutanedioci acid

D. $2,3-$ Dimethylbutanedioic acid

Answer: D

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64. When $1, 1, 2, 2 -$ tetrabomopropane is heated with zinc powder in alcohol, which is formed :

A. propyne

B. propene

C. propane

D. propadiene

Answer: a

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65. The correct order of alkene reactivity towards an electrophile is mentioned in

A. $CH_2 = CH - Cl > CH_2 = CH - OCH_3$

B. $CH_2 = CHCI > CH_2 = CCl_2$

C. ethene $>$ propene

D. $CH_2 = CH - OCH_3 > CH_2 = CH - \underset{+OH_2}{\underset{|}{CH}}$

Answer: D

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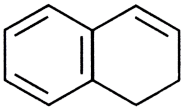
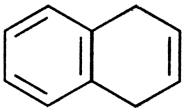
66. The correct order of reactivity towards electrophilic addition reaction

:

$(II)\, CH_3 - C \equiv CH, (II)\, CH_2 = CH_2$

(III) 

(IV) 

A. $II > I > IV > III$

B. $III > I > IV > II$

C. $I > III > IV > II$

D. $III > IV > II > I$

Answer: d

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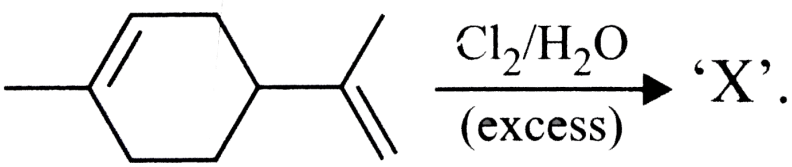
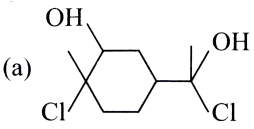
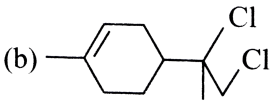
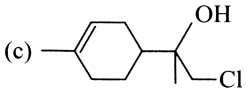


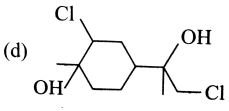
67.

Compound $'X'$ will be :

A.


B.


C.


D.


Answer: d

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68. Which of the following statements is correct ?

A. Alkynes are more reactive than alkenes towards halogen addition.

B. Alkenes are more reactive than alkynes towards halogen addition.

C. Both alkynes and alkenes are equally reactive towards halogen addition

D. Primary vinylic cation $RCH = \overset{\oplus}{C}H$ is less reactive than secondary vinylic cation $R\overset{\oplus}{C} = CH_2$

Answer: b

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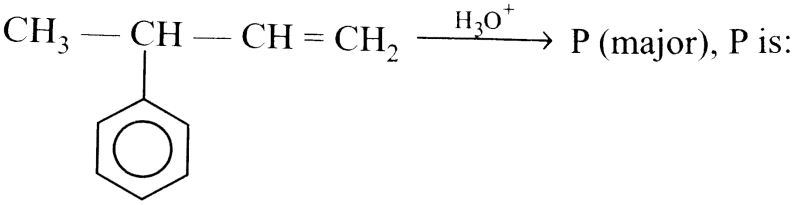
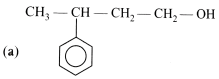
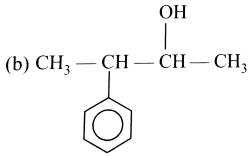
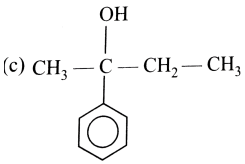


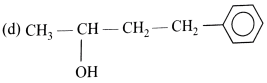
69. P(major) p

is:`

A. 

B. 

C. 

D. 

Answer: c

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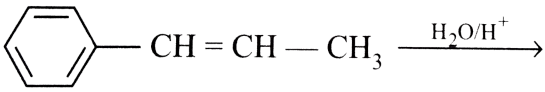
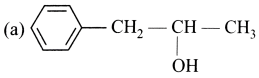
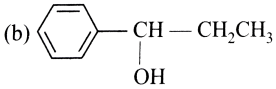
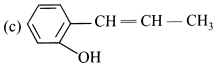
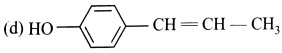
70.  P (major), P is:

P(major), P is :

A. 

B. 

C. 

D. 

Answer: b

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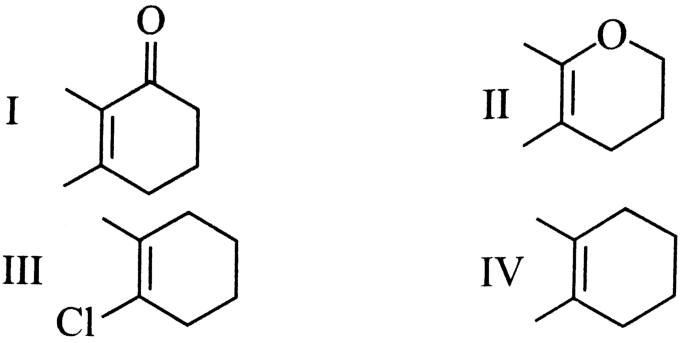
71. The correct relative rate of reaction of the given alkenes for any given electrophiles is



A. $I > II > IV > III$

B. $II > IV > III > I$

C. $II > III > IV > I$

D. $IV > I > III > II$

Answer: b

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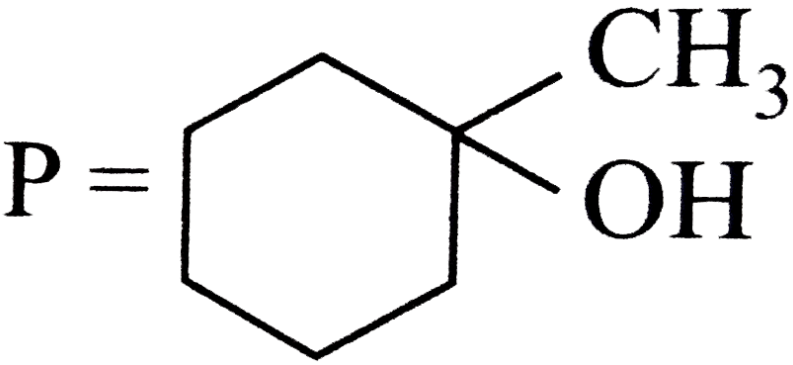
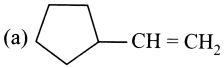
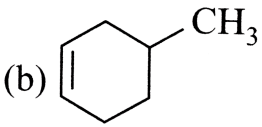
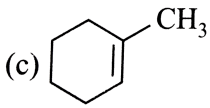
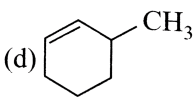
72. Which of the following alkene will give (P) on oxymercuration reduction reaction,



A. 

B. 

C. 

D. 

Answer: C

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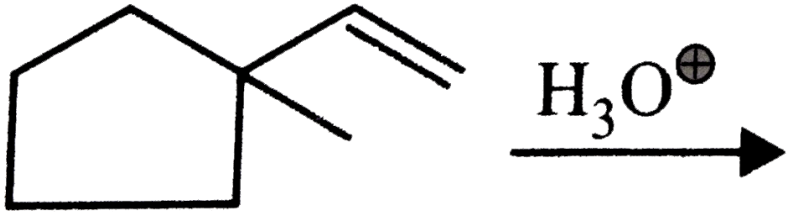
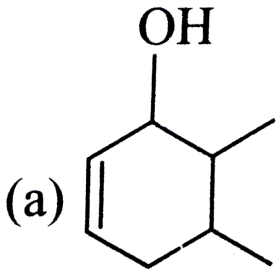
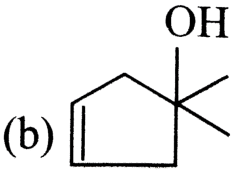
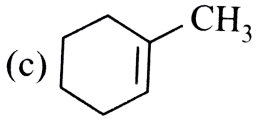
73. 

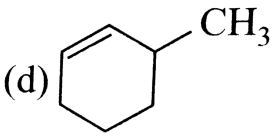
P.

Identify major product 'P' is :

A. 

B. 

C. 

D. 

Answer: c

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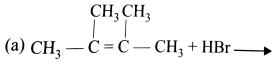
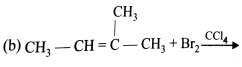
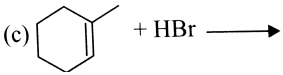
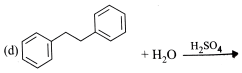
74. In which of the following reactions Markownikoff's rule of addition reaction is followed

A. 

B. 

C. 

D. 

Answer: C

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75. The correct order of rate of following reactions is

$$CH_3 - C = C - CH_3 \xrightarrow[\eta]{HBr\,(1eq.)} (X) \xrightarrow[r_2]{HBr\,(1eq.)} (Y)$$

$$H - C \equiv C - H \xrightarrow[r_3]{HBr\,(1eq.)} (Z)$$

$$CH_3 - CH = CH - CH_3 \xrightarrow[r_4]{HBr\,(1eq.)} (W)$$

A. $r_4 > r_2 > r_1 r_3$

B. $r_1 > r_2 > r_3 > r_4$

C. $r_4 > r_3 > r_2 > r_1$

D. $r_3 > r_4 > r_2 > r_4$

Answer: a

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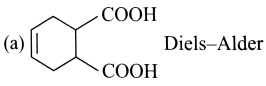
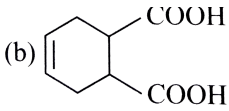
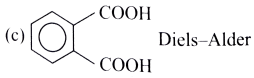
$$CH_2 = CH - CH = CH_2 + \begin{matrix} CHCOOH \\ || \\ CHCOOH \end{matrix} \longrightarrow$$

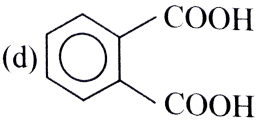
76.

product X by reaction R. X and R are

A. 

B. 

C. 

D. (d) 

Answer: a

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77. Which of the following shows least reactivity towards bormination ?

A. $CH_3 - CH = CH - CH_3$

B. $CH_2 = CH_2$

C. $CH \equiv CH$

D. $CH_3 - CH = CH_2$

Answer: c

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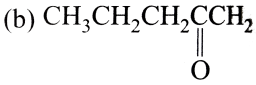
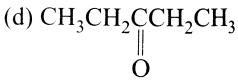
78. $CH_3CH_2CH_2C \equiv CH \xrightarrow{BH_3, THF} \xrightarrow{H_2O/OH^-} 'X'$

Identify the product $'X'$:

A. $CH_3CH_2CH_2CH_2CHO$

B. 

C. $CH_3CH_2CH_2CHO$

D. 

Answer: a

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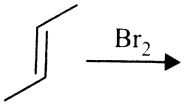
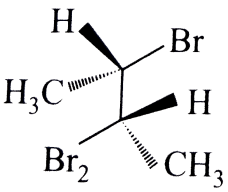
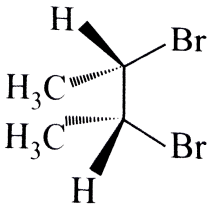
79. Complete the following reaction

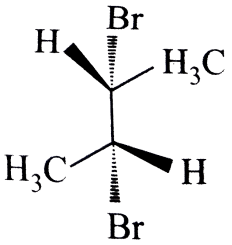




(I)



(II)



(III)

A. I and III

B. II and III

C. I only

D. II only

Answer: d

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80. What would be the main product when propene reacts with HBr ?

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

B. $CH_3 - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} - \overset{\overset{H}{|}}{\underset{\underset{Br}{|}}{C}} - H$

C. Both (a) and (b)

D. $Br - CH_2 - CH = CH_2$

Answer: a

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81. What would be the main product when propene reacts with HBr is presence of benzoyl peroxide ?

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

B. $CH_3 - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} - \overset{\overset{H}{|}}{\underset{\underset{Br}{|}}{C}} - H$

C. Both (a) and (b)

D. $Br - CH_2 - CH = CH_2$

Answer: b

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82. Ethene reacts with $HOCl$ to form

A. Hydroxyethene

B. Chloroethene

C. Ethylene chlorohydrin

D. None of these

Answer: C

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83. What would be the product when ethen is oxidised with cold dil. $KMnO_4$ solution ?

A. $\underset{|}{\underset{OH}{CH_2}} - \underset{|}{\underset{OH}{CH_2}}$

B. $H - \underset{||}{\underset{O}{C}} - H$

C. $H - \underset{||}{\underset{O}{-}} - OH$

D. $CO_2 + H_2O$

Answer: A

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84. Propene reacts with Cl_{20} at $500^\circ C$ the products is formed

A. $1 -$ chloro propene $- 1$

B. $2 -$ chloro propene $- 1$

C. $1, 2 -$ dichloro propane

D. $3-$ chloro propene -1

Answer: D

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85. Anti $-$ Markovwnikoff's addtion of HBr is not observed in

A. Propene

B. But$-2-$ ene

C. Butene

D. pent$-2-$ ene

Answer: B

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86. At low temperatures, the slow addition of molecular bromine to $CH_2 = CH - CH_2 \equiv CH$ gives

A. $CH_2 = CH - CH_2 - CH_2CBr_3$

B. $BrCH_2 - CHBr - CH_2 - C \equiv CH$

C. $CH_2 = CH - CH_2 - CBr = CHBr$

D. $CH_3 - CBr_2 - CH_2 - C \equiv CH$

Answer: c

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87. Reactivity of alkenes towards HX decreases in the order

A. Butene $>$ Propene $>$ Ethene

B. Butene $>$ Ethene $>$ Propene

C. Ethene $>$ Propene $>$ Butene

D. None of these

Answer: A

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88. $CH_3CH = CH_2 \xrightarrow[H_2O/OH]{DB_3}$ product X

X is

A. $CH_3 - \underset{\underset{OH}{|}}{C}H - CH_2D$

B. $CH_3 - \underset{\underset{D}{|}}{CH} - CH_2OH$

C. $CH_3 - \underset{\underset{OD}{|}}{C}H - CH_3$

D. None of these

Answer: b

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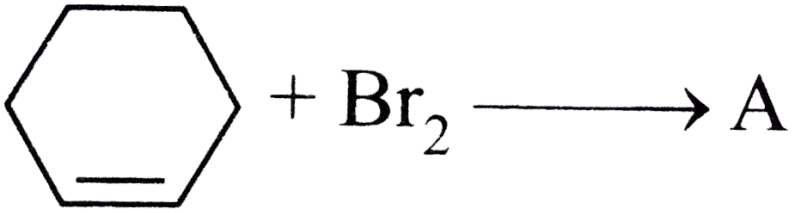
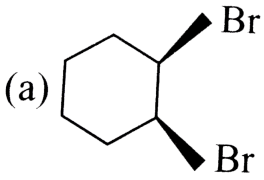
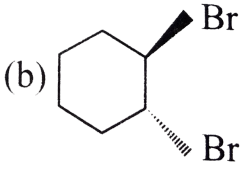
89. 

A will have configuration

A. 

B. 

C. both are true

D. None of these

Answer: b

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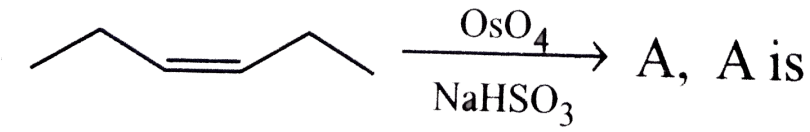
90. Complete the following reaction



A. meso diol

B. racemic diol

C. both are correct

D. none of these

Answer: a

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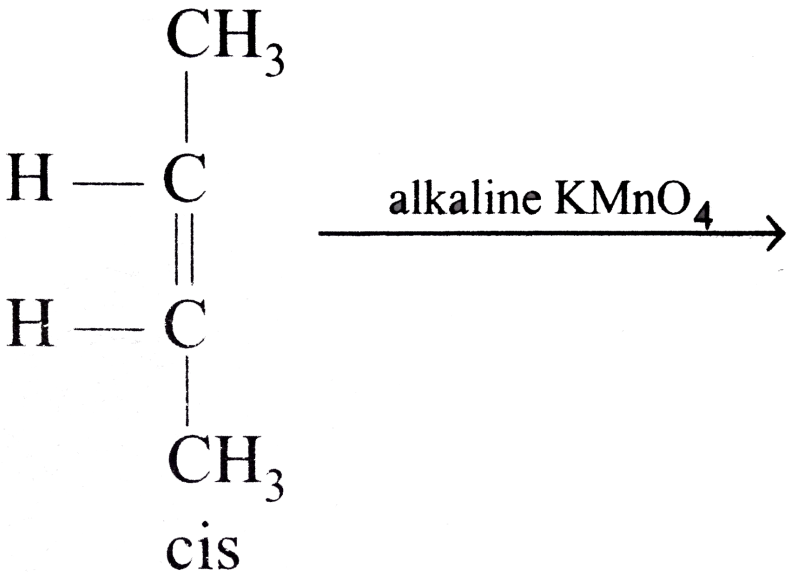

91. A , which is true about this reaction ?

A. A is meso $2, 3 -$ butan $-$ di $-$ ol dormed by syn addition

B. A is meso $2, 3 -$ butan $-$ di $-$ ol formed by anti addition

C. A is a racemic mixture of d and $1, 2, 3 -$ butyan $-$ di $-$ ol formed by syn addition

D. A is a racemic mixture of d and $1, 2 - 3 -$ butan $-$ di $-$ ol formed by syn addition

Answer: d

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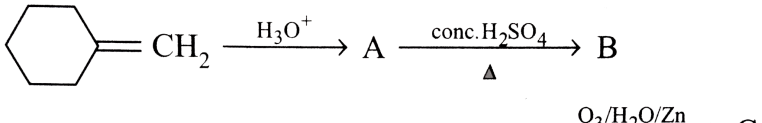
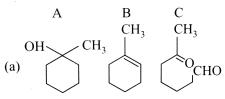
92.

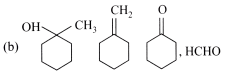


A, B and C are

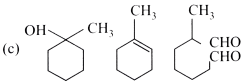
A.



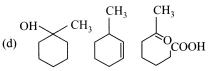
B.



C.



D.



Answer: a

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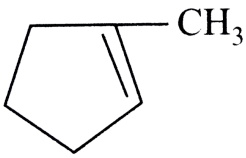
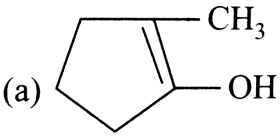
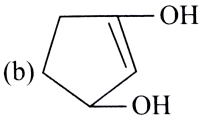
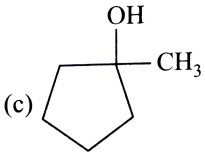
93. Complete the following reaction

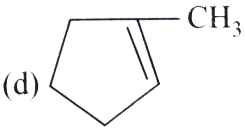
8. 

$\xrightarrow[(2)\,NaBH_4/NaOH/H_2O]{(1)Hg(OAc)_2/H_2O/THF}$ A. A is

A. 

B. 

C. 

D. 

Answer: c

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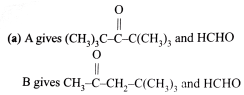
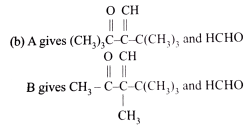
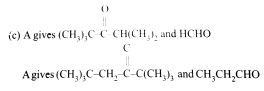
94. Dehydration of $2, 2, 3, 4, 4-$ pentamethy $1-3-$ pentanol gave two alkenes A and B. The ozonolysis product of A and B are

A. 

B. 

C. 

D. None of these

Answer: a

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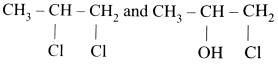
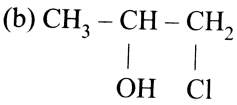
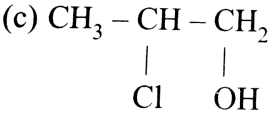
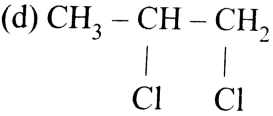
95. Identify $'Z'$ in the following reaction series,

$$CH_3CH_2CH_2Br \xrightarrow{NaOH\,(aq)} (X) \xrightarrow[heat]{Al_2O_3} (Y) \xrightarrow{Cl_2\,/\,H_2O} (Z)$$

A. Mixture of  and

B. 

C. 

D. 

Answer: b

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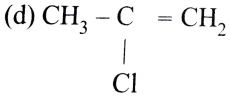
96. Propene reacts with Cl_2 at $500^\circ C$ the products is formed

A. $CH_3 - CH = CH - Cl$

B. 

C. $Cl - CH_2 - CH = CH_2$

D. All the above

Answer: c

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97. When HCl gas is passed through propene in the presence of benzoyl peroxide, it gives :

A. $n-$ Propyl chloride

B. $2-$ Chloropropane

C. Allylchloride

D. No reaction

Answer: B

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Methods Of Preparation Of Alkanes

1. The addition of OsO_4 on an alkene followed by hydrolysis produces the following product.

A. H_4Oso_4

B. H_3OsO_4

C. Os_2O_3

D. H_2OsO_4

Answer: D

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2. In hydroboration it is evident that in the overall reaction a molecule of a water has been added to propene and the addition is :

A. According to Markownikoff's rule

B. Contrary to Markownikoff's rule

C. Note concerned with Markownikoff's rule

D. None of above

Answer: b

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3. The $C = C$ bond is reduced to an alkane without making use of hydrogen and metal catalyst, by the following proces :

A. Sulphonation

B. Nitration

C. Hydrohalogenation

D. Boronation or hydroboronation

Answer: d

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4. Cyclopentene on treatment with alkaline $KMnO_4$ gives

A. $cis1, 2-$ cyclopentanediol

B. trans $1, 2-$ cyclopentanediol

C. Cyclopentanol

D. $1:1$ mixture of cis and trans $1, 2-$ ccyclopentanediol

Answer: A

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5. Which reactions are most common in alkenes ?

A. Electrophilic addtion reactions

B. Nucleophilic substitution reactions

C. Eleltrophilic substitution reactions

D. Nucleophilic addition reactions

Answer: A

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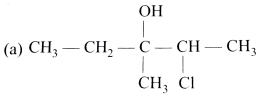
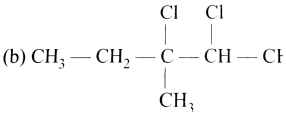
6. The predominant product formed when $3-$ methyl $-2-$ pentene reacts with $HOCl$ is

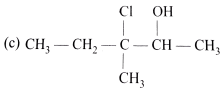
A.



B.



C.



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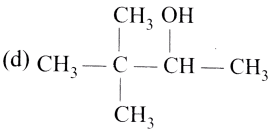

Answer: a

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7. How many grams of bromine will react with $21g$ of C_3H_6 ?

A. 320

B. 160

C. 240

D. 80

Answer: a

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8. Which one of the following reactions would be the best for the formation of $2-$ bromobutane ?

(1) $CH_3CH-CHCH_2 \xrightarrow{HBr}$

(2) $CH_3CH_2CH=CH_2 \xrightarrow{HBr}$

(3) $CH_3CH=CHCH_3 \xrightarrow{Br_2}$

(4) $CH_3CH_2CH=CH_2 \xrightarrow[\text{Peroxide}]{HBr}$

A. 1

B. 2

C. 3

D. 4

Answer: c

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9. What is the product of the reaction of $1, 3 -$ butadiene with Br_2?

A. $2, 3 -$ dibromo $- 2 -$ butene

B. $1, 2 -$ dibromobutene

C. $3, 4 -$ dibromobutene

D. $1, 4 -$ dibromobutene

Answer: d

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10. Addition of HI on the double bond of propene yield isopropyl iodide and not $n-$ propyl iodide as the major product. This is because the addition proceeds through

A. A more stable free radical

B. A more stable carbanion

C. A more stable carbonium ion

D. None of the above being a concerted reaction

Answer: C

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11. An alkene, on ozonolysis gives formaldehyde and acetaldehyde. The alkene is :

A. Ethene

B. Butene -2

C. Butene -1

D. Propene

Answer: D

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12. The only alcohol that can be prepared by the indirect hydration of alkene is

A. Isobutyl alcohol

B. Propyl alcohol

C. Ethyl alcohol

D. methyl alcohol

Answer: c

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13. Which is the wrong statement about osxy mercuration – demercuration ?

A. In the first step oxymercuration occurs, $i.e.$, water and $Hg(OAc0_2$ add to double bond .

B. In the second step demercuration occurs,$e.$, $NaBH_4$ reduces $-HgOAc$ group of hydrogen

C. The net reaction is addition of water according to Markownikoff's rule

D. Rearrangement takes place

Answer: d

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14. Which of the following alkenes will give anti-markownikoff's product as major product.

A. $CF_3CH = CH_2 \xrightarrow{HCl}$

B. $ClCH = CH_2 \xrightarrow{HCl}$

C. $CH_3OCH = CH_2 \xrightarrow{HCl}$

D. None of these

Answer: A

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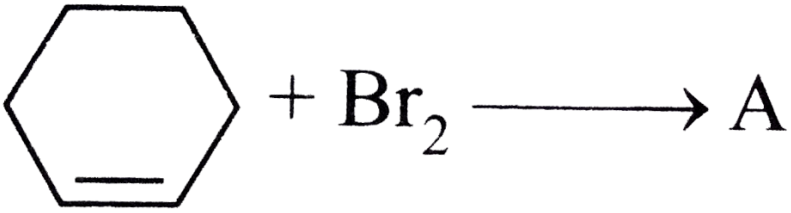
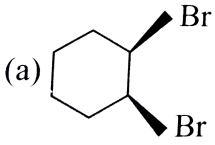
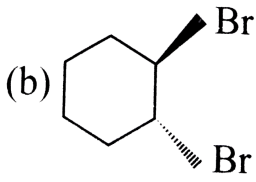
15.



A will have configuration

A. 

B. 

C. both are true

D. none of these

Answer: B

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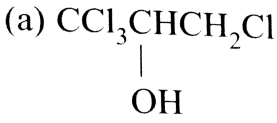
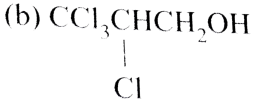
16. $CCI_3CH = CH_2 \xrightarrow{Cl_2 + H_2O} P,$

Identify major product P.

A. 

B. 

C. (c) $CCl_3\underset{Cl}{\underset{|}{C}}H\underset{Cl}{\underset{|}{C}}H_2$

D. (d) $CCl_3\underset{OH}{\underset{|}{C}}H\ \underset{OH}{\underset{|}{C}}H_2$

Answer: b

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17. $CH_2 = CHCH_2CH = CH_2 \xrightarrow{NBS} X(\text{ Major }), (X)$ is :

A. (a) $CH_2 = CH - \underset{Br}{\underset{|}{C}}HCH = CH_2$

B. $CH_{20} = CH - CH = CH - CH_2 - Br$

C. $CH_2 = CHCH_2CH = CHBr$

D. (d) $CH_2 = CHCH_2\underset{Br}{\underset{|}{C}} = CH_2$

Answer: b

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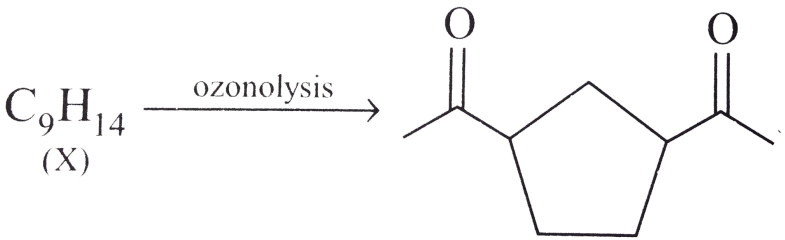
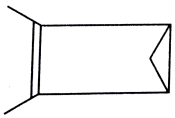
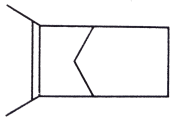
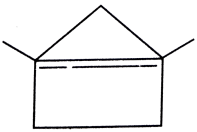
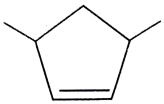


18. Hence X is

A. (a)


B. (b)


C. (c)


D. (d)


Answer: B

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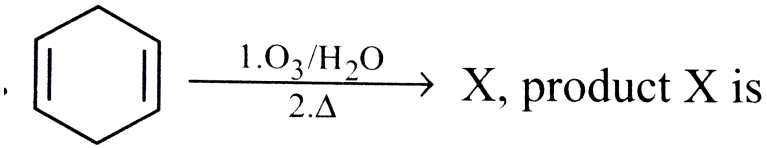
19. Complete the following reaction



A. CH_3COOH

B. $CH_2(COOH)_2$

C. both (a) and (b)

D. none of these

Answer: a

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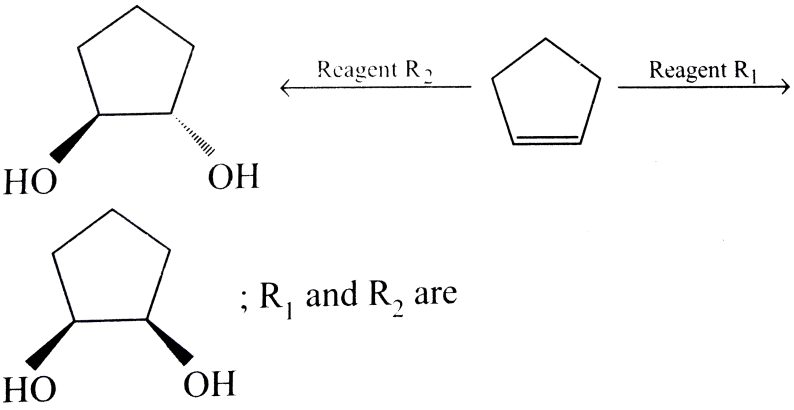
20. Complete the following reaction



; R_1 and R_2 are

A. Cold alkaline $KMnO_4$, OsO_4 / H_2O_2

B. Cold alkaline $KMnO_4$, HCO_3H and H_3O^+

C. Cold alkaline $KMnO_4$, $C_6H_5CO_3H$

D. $C_6H_5CO_3H$, HCO_3H

Answer: B

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21. The relative rates of hydrogenation is in the order of

A. $CH_2 = CH_2 > RCH = CH_2 > RCH = CHR > R_2C = CHR$

B. $R_2C = CHR > RCH = CHR > RCH = CH_2 > CH_2 = CH_2$

C. $RCH = CHR > R_2C = CHR > RCH = CH_2 > CH_2 = CH_2$

D. $R_2C = CHR > CH_2 = CH_2 > RCH = CHR > RCH = CH_2$

Answer: a

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22. $Ph - ch_2 - ch = ch_2 \xrightarrow{dil\, H_2SO_4} X,$

Identify product $'X'$ is :

A. $Ph - CH_2 - CH_2 - CH_2 - OH$

B. (b) Ph – C(H)(H) – C(H)(OH) – CH_3

C. (c) Ph – C(H)(OH) – C(H) – CH_3

D. $Ph - CH_2 - OH$

Answer: c

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23. $CH_3CH = CH_2 \xrightarrow[H_2O/OH]{BD_3/THF} X,$

A. (a) CH_3CHCH_2D (OH)

B. (b) CH_3CHCH_2OH (D)

C. (c) CH_3CHCH_3 (OD)

D. (d) $CH_2D–CH–CH_3$ (OH)

Answer: b

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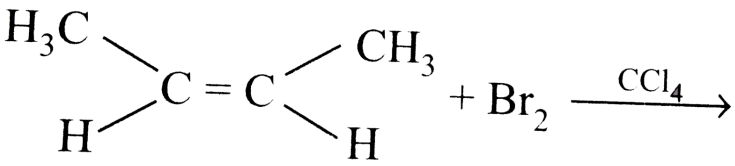
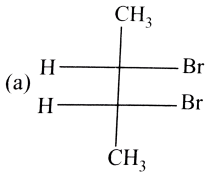
6.

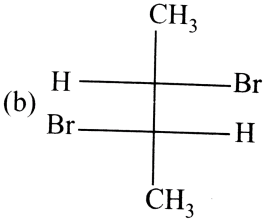


24. Product is :

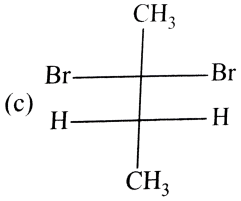
A.

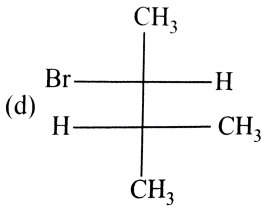


B.



C.





D.

Answer: B

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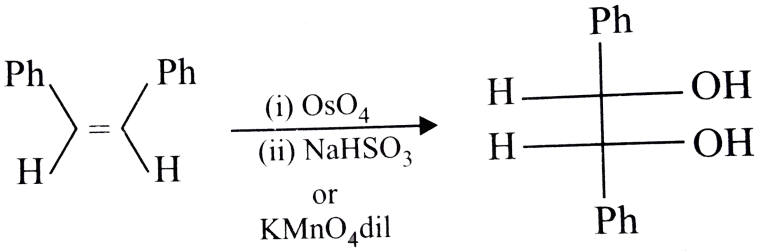
25. The given reaction,



is an example of :

A. Stereospecific reaction

B. Stereo selective reaction

C. (a) and (b) Both

D. Ordinary reaction

Answer: c

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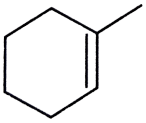
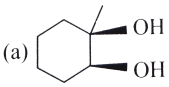
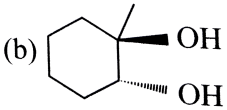
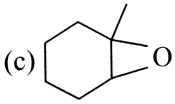
48.  $\xrightarrow[\text{at } 25^\circ C]{C_6H_5CO_3H,\ CHCl_3}$ X, product X is

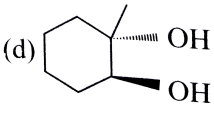
26. , product

X is

A. 

B. 

C. 

D. 

Answer: c

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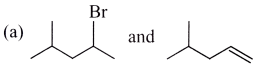
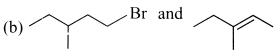
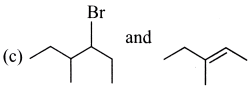
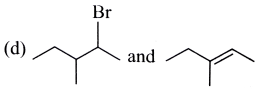
27. An organic compound $X(C_6H_{13}Br)$ is optically active, X on treatment with $(CH_3)_3COK$ in $(CH_3)_3COH$ gives $Y(C_6H_{12})$, a major product. Y on treatment with $Br_2 - CCl_4$ in the presence of $FeBr_3$ gives a dibromide which on further treatment with $NaNH_2$ gives C_6H_{10} which is still optically active. Hence, X and Y respectively are

A. 

B. 

C. 

D. 

Answer: d

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28. When $1-$ alkyne is treated with $Na + Liq.\ NH_3$ and product is reacted with methyl chloride, the end product of the reaction will be

A. Lower alkyne having two carbon less than $1-$ alkyne

B. Lower alkyne having one carbon less than $1-$ alkyne

C. Higher alkyne having one carbon more than $1-$ alkyne

D. Higher alkyne having two carbons more than $1-$ alkyne

Answer: c

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29. Which of the following will not react with an ammoniacal silver nitrate solution ?

A. $CH_3C = CH$

B. $(CH_3)_2CH - C \equiv CH$

C. $CH_3C \equiv CCH_3$

D. $HC \equiv CH$

Answer: c

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30. The product formed when acetylene is passed through red hot tube is

A. Benzene

B. Cyclohexane

C. Neoprene

D. Ethane

Answer: a

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31. $R - CH_2 - CCl_2 - R \xrightarrow{Reagent} R - C \equiv C - R$

The reagent is

A. Na

B. HCl and H_2O

C. KOH in C_2H_5OH

D. Zn

Answer: c

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Method of Preparation of Alkynes

1. Acetylene can be prepared from

A. Potassium fumarate

B. Calcium carbide

C. Ethylene bromide

D. All of these

Answer: d

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2. Ethylene dibromide on treating with alcoholic KOH gives

A. C_2H_6

B. CH_4

C. C_2H_4

D. C_2H_2

Answer: d

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3. Carbide which react with water to give propyne is

A. CaC_2

B. Mg_2C_3

C. SiC

D. Al_4C_3

Answer: b

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4. To prepare But$-2-$yne from $2,2,3,30$tetrachlorobutane, reagent used is :

A. Zinc dust $/\Delta$

B. Sodamide

C. Alc. KOH

D. aq. KOH

Answer: A

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5. Which of the following compounds on hydrolysis gives acetylene ?

A. CaC_2

B. Mg_2C_3

C. Al_4C_3

D. Cu_2Cl^2

Answer: A

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6. Acetylene may be prepared by electrolysis of

A. potassium oxalate

B. potassium acetate

C. potassium maleate

D. potassium succinate

Answer: c

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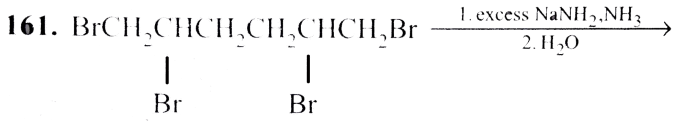
7. Complete the following reaction



A. $H-C=C-CH_2-CH_2-C\equiv C-H$

B. $H-C\equiv C-C\equiv C-H$

C. $H-C\equiv C-CH_2-C\equiv C-H$

D. $H-C\equiv C-H$

Answer: a

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8. Acetylene can be prepared from

A. Sodium succinate

B. Potassium fumarate

C. Both (a) and $(b0$

D. None of these

Answer: b

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9. Which of the $C-C-$ bond is strongest

A. Formed by sp^2-sp^3 hybridised carbon atoms (as in alkanes)

B. Formed by sp^2-sp^2 hybridised carbon atoms (as in alkenes)

C. Formed by $sp-sp$ hybridised carbon atoms (as in alkynes)

D. All are equal

Answer: c

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10. $1, 2 -$ dibromoethane when heated with alcohilic potash gives

A. Ethane

B. Acetylene

C. Ethylene

D. Methane

Answer: b

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11. Acetylene can be obtained by the reaction

A. $HCOOK \xrightarrow{electrolysis}$

B. $CHI_3 + 6Ag + CHI_3 \xrightarrow{\Delta}$

C. $CH_3CH_2OH \xrightarrow[443^\circ C]{Conc.\,H_2SO_4}$

D. $Be_2C + H_2O \rightarrow$

Answer: b

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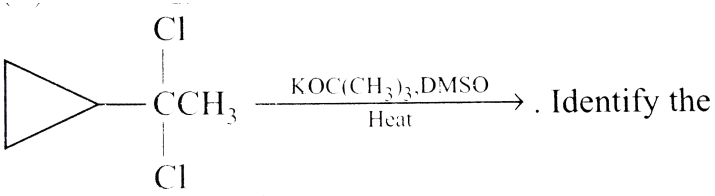
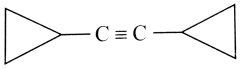
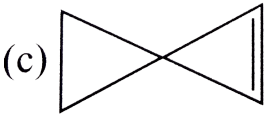
12. 

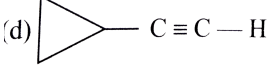
. Identify the

Identify the product.

A. 

B. $H - C \equiv C - H$

C. 

D. 

Answer: d

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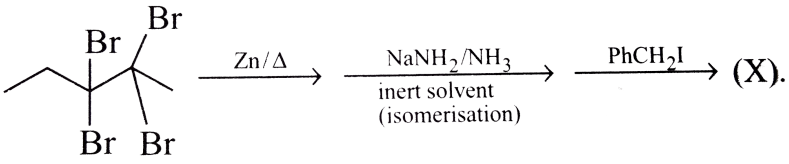
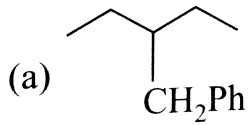
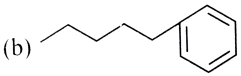
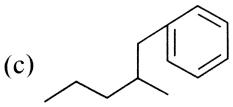
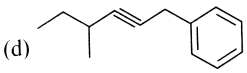
13. 

The end product (X) is

A. 

B. 

C. 

D. 

Answer: d

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14. Gem dihalide is formed by the reaction of alkyne and

A. HX

B. X_2

C. H_2

D. O_2

Answer: a

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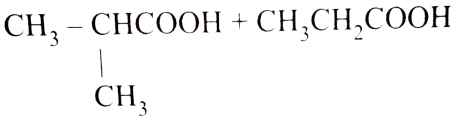
15. An alkyne C_7H_{12} on reaction with hot alkaline $KMnO_4$ and subsequent acidification with HCl yields a mixture of



The alkyne is

A. $3-$ Hexyne

B. $2-$ Methyl$-3-$ hexyne

C. $2-$ Methyl$-2-$ hexyne

D. $2-$ Methyl$-2-$ hexene

Answer: B

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16. Which of the following reagents cannot be used to locate the position of triple bond in $CH_3-C\equiv C-CH_3$?

A. Br_2

B. O_3

C. Cu_2^{2+}

D. $KMnO_4$

Answer: c

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17. The product of reaction between one mole of acetylene and two mole of $HCHO$ in the presence of Cu_2Cl_2

A. $HOCH_2 - C \equiv C - CH_2OH$

B. $H_2C = CH - C \equiv C - CH_2OH$

C. $HC = C - CH_2OH$

D. None of these

Answer: a

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18. In the presence of strong bases, triple bonds will migrate within carbon skeletons by the

A. removal of protons

B. addition of protons

C. removal and re $-$ addition of protons

D. addition and removal or protons

Answer: C

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19. $B \xleftarrow[H_2O_2, OH]{BH_3THF} CH_3 - C \equiv CH \xrightarrow{hGSO_4 / H_2SO_4} A$

A and B are

A. (a) $CH_3CH_2\overset{O}{\overset{\|}{C}}H$, $CH_2 - \overset{O}{\overset{\|}{C}} - CH_3$

B. (b) $CH_3 - \overset{O}{\overset{\|}{C}} - CH_3$, CH_3CH_2CHO

C. CH_3CH_2CHO(both)

D. $\overset{\overset{O}{\|}}{(d)\ CH_3 - C - CH_3}$ (both)

Answer: b

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20. $B \xrightarrow{Lindlar} R - C \equiv C - R \xrightarrow{Na/liq.NH_3} A.$

A and B are geometrica isomers $(R - CH = CH - R)$

A. A is trans, B is cis

B. A and B both are cis

C. A and B both are trans

D. A is cis, B is trans

Answer: A

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21. Which is expected to react most readily with bromine

A. $CH_3CH_2CH_3$

B. $CH_2 = CH_2$

C. $CH \equiv CH$

D. $CH_3 - CH = CH_2$

Answer: a

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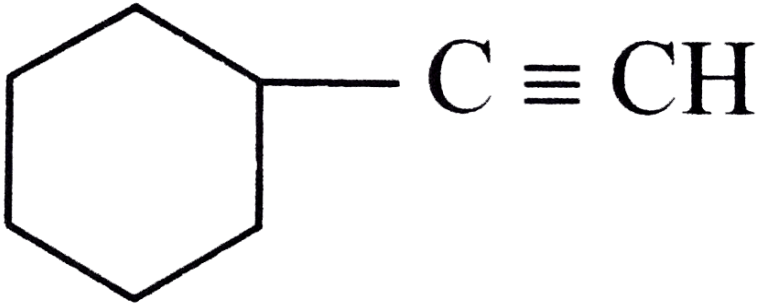
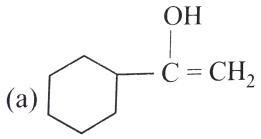
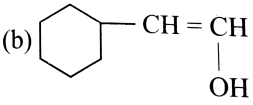
22. Hydration of

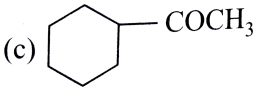


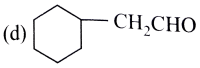
in presence of

$H_2SO_4 / HgSO_4$ gives (as a major product)

A. 

B. 

C. 

D. 

Answer: c

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23. A compound (C_5H_8) reacts with ammoniacal $AgNO_3$ to give a white precipitate and reacts with excess of $KMnO_4$ solution to give $(CH_3)_2CH-COOH$. The compound is

A. $CH_2=CH-CH=CH-CH_3$

B. $(CH_3)_2CH-C\equiv CH$

C. $CH_3(CH_2)_2C \equiv CH$

D. $(CH_3)_2C = C = CH_2$

Answer: B

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24. A mixture of CH_4, C_2H_4 and C_2H_2 gases are passed through a Wolf bottle containing ammoniacla cuprous chloride. The ga coming out is

A. Methane

B. Acetylene

C. Mixture of methane and ethylene

D. Original mixture

Answer: c

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25. $CH_3CH_2C \equiv CH \overset{A}{\Longleftrightarrow} CH_3C \equiv CH_3$

A and B respectively are:

A. alcoholic KOH and $NaNH_2$

B. $NaNH_2$ and alcoholic KOH

C. $NaNH_2$ and Lindlar

D. Lindlar and $NaNH_2$

Answer: a

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26. Alkyne can be reduced to alkenes by hydrogenation in presence of

A. Ranyey Ni

B. Anhy. $AlCl_3$

C. Pd

D. Lindlar's catalyst

Answer: D

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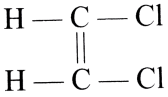
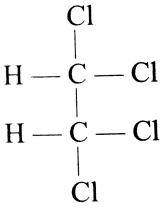
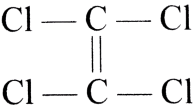
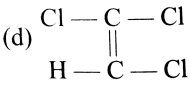
27. Westrosol has the following formula

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: d

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28. The compounds A and B in the sequence $CH \equiv CH + H_2O \xrightarrow[60^\circ C]{H_2SO_4, HgSO_4} A \xrightarrow{[O]} B$ are

A. Acetone and acetic acid respectively

B. Acetaldehyde and acetic acid respectively

C. Acetaldehyde and ethyl alcohol respectively

D. Acetone and acetaldehyde respectively

Answer: b

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29. $CH \equiv C - COOH \xrightarrow{HgSO_4 / H_2SOH_4}$ product (A) is

A. $CH_2 = \underset{\underset{OH}{|}}{C} - COOH$

B. $CH_3 - \underset{\underset{O}{||}}{C} - COOH$

C. $OHC - CH_2 - COOH$

D. $OH - CH = CH - COOH$

Answer: C

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30. Acetylene and ethylene react with alkaline $KMnO_4$ to give

A. Oxalic acid and formic acid

B. Acetic acid and ethylene glycol

C. Ethyl alcohol and ethylene glycol

D. None

Answer: a

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31. Acetic acid is the only product of ozonolysis of

A. $1-$ Butyne

B. Dimethyl acetylene

C. Ethyl acetylene

D. $2-$ Butene

Answer: B

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32. Acetylenic hydrocarbons are acidic because

A. Sigma electron density of $C-H$ bond in acetylene is nearer a carbon which has $50\%\ s-$ character

B. Acetylen has only one hydrogen atom at each carbon atom

C. Acetylene contains least number of hydrogen atoms among the possible

D. Acetylene belongs to the class of alkynes with formula C_nC_{2n-2}

Answer: A

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33. Which is the most suitable reagent amon the following to ditinguish compoun (C) from the rest of the compounds ?

$(A)\ CH_3C \equiv CCH_3$,$(B)(CH_3CH_2 - CH_2CH_3$

$(C)\ CH_3CH_2C \equiv CH$, $(D)\ CH_3CH = CH_2$

A. Br_{20} in CCl_4

B. Br_2 in CH_3COOH

C. Alkaline $KMnO_4$

D. Tollen's reagent

Answer: d

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34. Acetylene gives

A. White ppt. with $AgNO_3$ and re ppt. with $CuCl_2$

B. White ppt. with Cu_2Cl_2 and red ppt. with $AgNO_3$

C. White ppt. with both

D. Red ppt. with both

Answer: A

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35. Starting compound for PVC preparation is

A. Ethylene

B. Acetylene

C. Ethane

D. None

Answer: b

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36. Acetylene trimerises to give benzene. The reaction occurs in the presence of

A. Iron

B. Silica

C. $(C_6H_5)_3 + Ni(CO)_4$

D. $Cr_2O_3 + p_2o_5$

Answer: c

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37. Acetylene reacts with CO and H_2O to form acrylic acid in the presence of the following

A. $Hg^{+2} + H_2SO_4$

B. Ni

C. $BF_3 + HgO$

D. $Pd + BaSO_4$

Answer: b

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38. Which of the following compound can be prepared from acetylene by carbonylation ?

A. $CH_3 - COOC_2H_5$

B. $CH_2 = CH - COOH$

C. $CH_3CH_2 - COOH$

D. $CH_3 - CH_2 - COOCH_3$

Answer: b

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39. $HC \equiv CH$ on treatment with NH_3 in the presence of $FE-$ pyrite produces the following products.

A. Pyridine

B. Ethyl amine

C. Methyl amine

D. Pyrrole

Answer: d

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40. Acetylene reacts with HCN in the presence of $Ba(CN)_2$ to yield :

A. Viyny cyanide

B. $1, 1-$ dicyanoethane

C. $1, 2 -$ dicyanoethene

D. None

Answer: a

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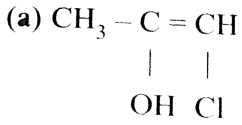
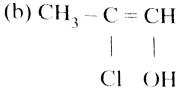
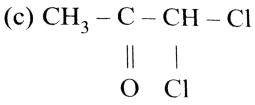
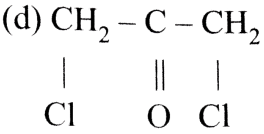
41. The addition of $HOCl$ to $CH_3 - C \equiv CH$ in the presence of mineral acids produces.

A. 

B. 

C. 

D. 

Answer: c

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42. When $2-$ butyne reacts with sodamide in an inert solvent in the presence of dilute HCl, the product formed is :

A. $n-$ butane

B. $2-$ Butene

C. $1-$ Butyne

D. $1-$ Propyne

Answer: c

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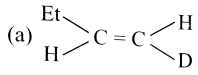
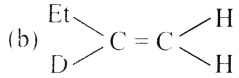
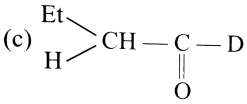
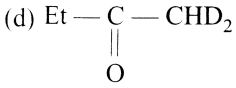
43. The major product in the reaction

$CH_3CH_3C \equiv CH \xrightarrow[THF]{BD_3} \xrightarrow{CH_3COOH}$ Product is

A. 

B. 

C. 

D. 

Answer: B

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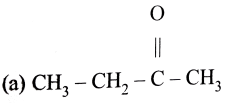
44. The product (s) via $-$ oxymercuration $(HgSO_4 + H_2SO_4)$ of $1-$ butyne would be :

A. 

B. $CH_3 - CH_2 - CH_2 - CHO$

C. $CH_3 - CH_2 - CHO + HCHO$

D. $CH_3 - CH_2 - COOH + HCOOH$

Answer: a

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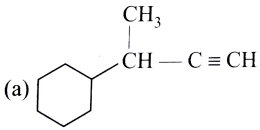
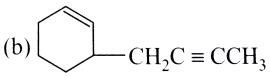
45. Catalytic hydrogenation of compound $'X'(C_{10}H_{14})$ gives butyl cyclohexane. Treatment of $'X'$ with $Cu(NH_3)_2 + NaNH_2$. When $'X'$ is first reacted with H_2/Ni_2B and then oxidatively ozonized, a non resolvable compound is formed. The organic compound $'X'$ is

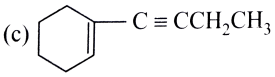
A.



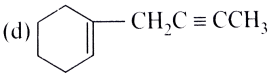
B.



C.



D.



Answer: d

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46. Propyne and propene can be distinguished by :

A. Conc. H_2SO_4

B. Br_2 in CCl_4

C. Dil. $KMnO_4$

D. $AgNO_3$ in ammonia

Answer: d

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47. Polyethylene can be produced from calcium carbide according to the following sequence of reactions

$CaC_2 + H_2$ or $arrCaO + HC \equiv CH$

$nHC \equiv CH + nH_2 \rightarrow (-CH_2 - CH_2 -)_n$

The mass of polyethylene which can be produced from $40.0kg$ of CaC_2 is

A. $6.75kg$

B. $17.5kg$

C. $8.75kg$

D. $9.75kg$

Answer: b

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48. Identify a reagent from the following list which can easily distinguish between 1-butyne and 2-butyne.

A. bromine, CCl_4

B. H_4, Lindlar catalyst

C. dilute H_2SO_4, $HgSO_4$

D. ammoniacal Cu_2Cl_2 solution

Answer: d

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49. Predict the order of base strength of anions from the reactions given below.

$HC = CH + LiNH_2$ hArr HC-= C^(-)Li^(+)+NH_(3)HC-=C Li+H_(2)O hArr HC-=CH+LiOH`

A. $OH^- < HC \equiv C^- < NH_2^-$

B. $HC \equiv C \prec OH^- < NH_2^-$

C. $OH^- < NH_2^- < HC \equiv C^-$

D. $NH_2^- < OH^- < HC \equiv C^-$

Answer: A

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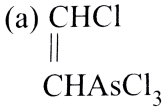
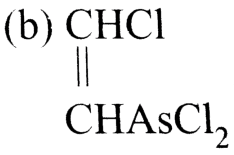
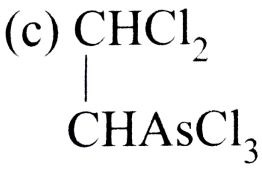
50. Structural formula for lewisite is

A. 

B. 

C. 

D. None of these

Answer: b

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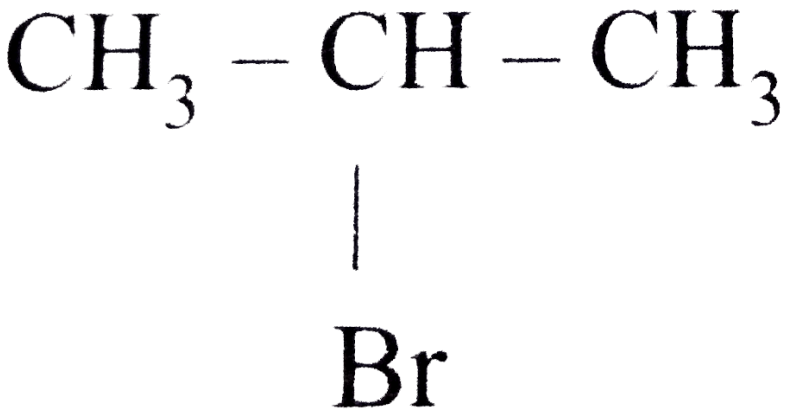
51. Identify the set of reagents / reaction conditions $'X'$ and $'Y'$ in the following set of transformations.

$CH_3 - CH_2CH_2Br \xrightarrow{X} Product \xrightarrow{Y}$



A. $X =$ dil. Aq.$NaOH$, $20^\circ C$, $Y = HBr /$ acetic acid, $20^\circ C$

B. $X =$ dil. Aq. $NaOH$, $20^\circ C$, $Y = HBr /$ acetic acid , $20^\circ C$

C. $X =$ dil. Aq. $NaOH$, $20^\circ C$, $Y = Br_{20\,/\,CHCl_3, 0^\circ C}$

D. $X =$ conc. Alc. $NaOH$, $80^\circ C$, $Y = Br_2 / CHCl_3$, $0^\circ C$

Answer: A

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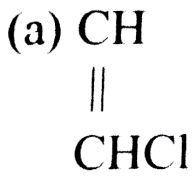
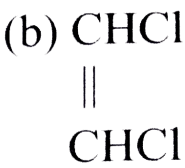
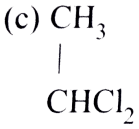
52. Which of the following will be the final product when C_{20H_2} reacts with HCl ?

A. 

B. 

C. 

D. None of these

Answer: c

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53. When propyne reacts with aqueous H_2SO_4 in the presence of $HgSO_4$, the major product is

A. Propanal

B. Acetone

C. Propyl hydrogen sulphate

D. Propanol

Answer: b

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54. The distinguishing test for tiple bond containing acidic hydrogen is

A. $AlCl_3$

B. Br_{20} in CCl_4

C. Alkaline $KMnO_4$

D. $Ag(NH_3)_2^+$

Answer: d

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55. $\begin{matrix} CH \\ \| \\ CH \end{matrix} \xrightarrow{O_3/NaOH} X \xrightarrow{Zn/CH_3COOH} Y.$ 'Y'

A. $CH_{43}COOH$

B. CH_3CH_2OH

C. (c) $\begin{matrix} CH_2OH \\ | \\ CH_2OH \end{matrix}$

D. CH_3OH

Answer: c

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56. $1, 2 -$ dibromoethane when heated with alcohilic potash gives

A. Ethane

B. ethylene

C. Acetylene

D. Methane

Answer: c

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57. In its reaction with silver nitrate acetylene shows

A. Acidic property

B. Reducting property

C. Basic property

D. Oxidisting property

Answer: a

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58. Acetylene reacts with HCN in the presence of $Ba(CN)_2$ to yield :

A. $1, 1-$ dicyano ethane

B. Viny cyanide

C. Ethyl cynide

D. Divnyl cyanide

Answer: b

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59. $ICH_2 = C = CH_2 \xrightarrow{H_3O^+}$

$IICH_3C \equiv CH \xrightarrow{H_2SO_4 / HgSO_4}$

$IIICH_3C \equiv CH \xrightarrow[H_2O_2 / OH]{BH_3 . THF}$

Acetone is the major product in :

A. I, II

B. I, III

C. II, III

D. I, II, III

Answer: a

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Benzene

1. The electrophile involved in chlorination of benzene is

A. chloride ion

B. Chlorornium ion

C. Nitronium ion

D. None of the above

Answer: b

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2. Benzene reacts with CH_3Cl in the presence of anhydrous $AlCl_3$ to form

A. Toluene

B. Chlorobenzene

C. Benzyl chloride

D. Xylene

Answer: A

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3. Benzene reacts with fuming sulphuric acid to give

A. Sodium benzene sulphonate

B. Benzene sulphonic acid

C. Sodium benzoate

D. All the above

Answer: B

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4. $C_6H_6 + CH_3Cl \xrightarrow[AlCl_3]{anhydrous} C_6H_5CH_3 + HCl$ is an example of :

A. Friedel $-$ Crafts reaction

B. Kolbe's synthesis

C. Wurtz reaction

D. Grignar reaction

Answer: A

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5. Benzene reacts with benzoyl chloride to form

A. benzophenone

B. Acetophenone

C. Benzyl chloride

D. Maleic anhydride

Answer: a

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6. Which of the following reactions takes place when a mixture of concentrated HNO_3 and H_2SO_4 reacts on benzene at $350K$?

A. Sulphonation

B. Nitration

C. Hydrohalogenation

D. Dehydration

Answer: B

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7. Toluene may be prepared by

A. Friedel — Crafts reaction

B. Wurtz — Fitting reaction

C. Methyl lithium

D. All of the above

Answer: d

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8. Attacking or reactive or electrophilic species in nitration of benzene is or In the nitration of benzene with concentrated HNO_3 and H_2SO_4, the attck on ring is made by :

A. NO_2^-

B. NO_2^+

C. NO_3^-

D. NO_2

Answer: B

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9. Which among the following is deactivating group ?

A. $-Cl$

B. $-OR$

C. $-NH_2$

D. $-NHR$

Answer: a

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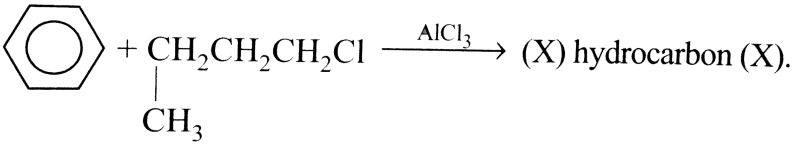
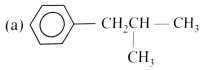
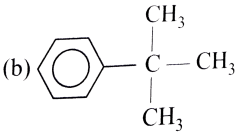
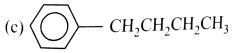


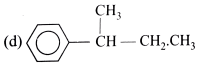
10.

Major product X is

A. 

B. 

C. 

D. 

Answer: d

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11. Nitration of toluene takes place at

A. o — position

B. $m-$ position

C. $p-$ position

D. Both$o-$ and $p-$ positions

Answer: d

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12. Chlorobenzene is $o, p-$ directing in electrophilic substitution reaction. The directing influence is explained by

A. $+M$ of Ph

B. $+I$ of Cl

C. $+M$ of Cl

D. $+I$ or Ph

Answer: c

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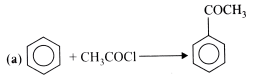
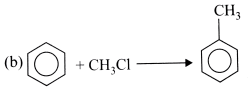
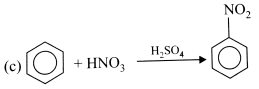
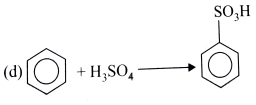
13. In which reaction , polysubstitution takes place :

A. 

B. 

C. 

D. 

Answer: b

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14. Presence of a nitro group in a benzene ring.

A. Activites the ring towards electrophilic substitution

B. Renders the ring basic

C. Deactivites the ring towards nucleophilic substitution

D. Deactivites the ring towards electrophilic substitution

Answer: d

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15. During nitration of benzene withnitrating mixture, HNO_3 acts as

A. an acid

B. a base

C. catalyst

D. reducing agent

Answer: C

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16. $n-$ Propyl benzene can be obtained in quantitative yield by following method :

(i) By treating benzene with $n-$ propyl chloride in presence of $AlCl_3$

(ii) By treating excess of benzene with $n-$ propyl chloride in presence of $AlCl_3$

(iii) By treating benzene with allyl chloride in presence of $AlCl_3$ followed by reduction

(iv) By treating benzene with propionyl chloride in the presence of $AlCl_3$ followed by Clemmensen reduction

A. By(ii), (iii) and $(iv0$

B. By (i), (iii) and (iv)

C. By (iii) and (iv)

D. By (ii) and (ii) only

Answer: c

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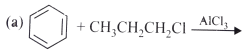
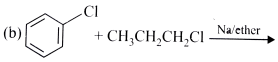
17. Which method is preferred for the preparation of $n-$ propyl chloride from benzene ?

A. 

B. 

C. Both are undesirable

D. Both give similar result

Answer: b

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18. When nitrobenzene is treated with Br_2 in presence of $FeBr_3$, the major product formed is $m-$ bromo $-$ nitrobenzene. Statement which is related to obtain the $m-$ isomer is

A. the elctron density on meta carbon is inicreased than that on ortho $-$ para $-$ positions

B. the intermediate carbonium ion formed after initial attack of Br^+ at the meta position is least destabilised

C. loss of aromaticity when Br^+ attcks at the ortho and para positions and not at meta position

D. easier loss of H^+ to reagain aromaticity from the meta position than from ortho and para positions.

Answer: b

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19. Identify the correct order of reactivity in electrophilic substitution reaction of the following compounds.

(1) Benzene

(2) Toluene

(3) Chlorobenzene,

(4) Nitrobenzene.

A. $A > B > C > D$

B. $D > C > B > A$

C. $B > A > C > D$

D. $B > C > A > D$

Answer: c

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20. During nitratio of benzene using a mixture of conc. HNO_3 and conc. H_2SO_4, function of conc. H_2SO_4 is to increase the rate of reaction by increasing the concentration of NO_2^+ according to following reaction.

$$HNO_3 + H_2SO_4 \rightarrow NO_2^+ + HSO_4^- + H_2O$$

Here nitric acid acts as

A. a stronger acid

B. a weaker acid

C. a base

D. none of the these

Answer: C

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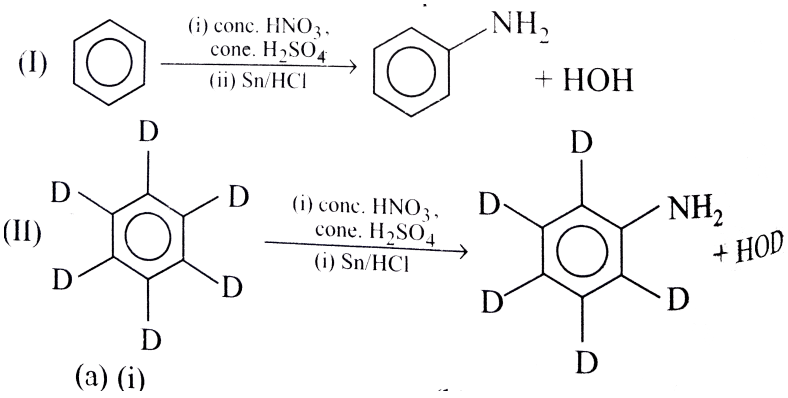
21. Which of the two reactions proceed faster ?



(a) (i)

A. (i)

B. (ii)

C. $(i) = (ii)$

D. `Not definite

Answer: C

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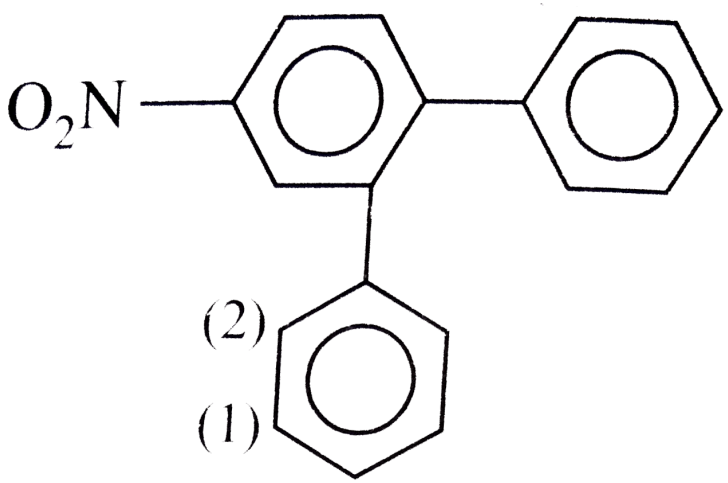
22. Which of the position in the following compound is liable to be attacked by an electrophile ?



A. 1

B. 2

C. 3

D. 4

Answer: d

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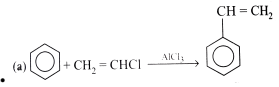
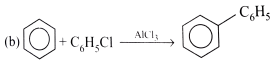
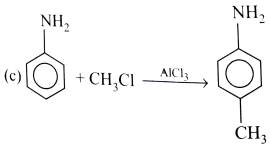
23. Which of the reaction is not possible ?

A. 

B. 

C. 

D. All of tthree

Answer: d

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Section B - Assertion Reasoning

1. Assertion : CH_4 does not react Cl_2 in dark.

Reason : Chlorination of CH_4 takes place in sunlight.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

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2. Assertion : $1, 3 -$ Butadiene is the monomer for natural rubber.

Reason : Natural rubber is formed though anionic addition polymerization.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: c

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3. Assertion : Acetylene on reacting with sodamide gives sodium acetylide and ammonic.

Reason : $sp-$ hybridised carbon atoms of acetylene are considerably electronegative.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: a

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4. Assertion : Friedel – Crafts reaction is used to introduce an alkyl or acyl group in benzene nucleus

Reason : Benzene is a solvent for the Friedel – Crafts alkylation of bromobenzene.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

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5. Assertion : $1-$ Butene on reaction with HBr in the presence of a peroxide produces $1-$ bromo $-$ butane

Reason : It involves the free radical mechanism.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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6. Assertion : trans $-2-$ Butene on reaction with Br_2 gives meso $-2,3-$ dibromobutane.

Reason : The reaction involves syn $-$ addition of bromine.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: c

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7. Assertion : $CH_3 - CHBrCH_3 \xrightarrow[\Delta]{alc.KOH}$

$CH_3 - CH = CH_2 \xrightarrow{BrCl} CH_3CHClCH_2Br$

Reason : In above reaction product formed is based on the principle of $E2$ and electrophilic addition reaction by Markownikoff's rule.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: a

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8. Assertion : When double and triple bonds are in conjugation, addition takes place at triple bond.

Reason: When double and triple bond are not in the conjugation, addition takes place at double bond.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: b

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9. Assertion-Addition of bromine to trans-2-butene yields meso-2,3-dibromobutane.

Reason- Bromine addition is an electrophilic addition.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

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10. Assertion : Cyclohexane floats over water.

Reason : Cyclohexane always has boat — like structure.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: c

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11. Assertion : Alkeanes having more than three carbon atoms exhibit chain isomerism.

Reason : All carbon atoms in alkanes are $sp-$ hybridized

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: c

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12. Assertion : $Cis-1,3$ dihydroxy cyclohexane exists in chair conformation.

Reason : In the chair form, there will not be hydrogen bonding between the two hydroxyl groups.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: c

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13. Assertion : $2,3-$ dimethyl but$-2-$ ene decolorizes Br_2 water.

Reason : $2,3-$ dimethyl but$-2-$ ene is an unsaturated compound.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: d

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14. Assertion : Reaction of HCl with But$-2-$ ene in the presence or absence of peroxide will give same products.

Reason : Above reaction is regiioselective reaction.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: c

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15. Assertion : Reaction of tert $-$ butychloride with Na gives $2, 2, 3, 3 -$ tetramethyl butane.

Reason : Tert $-$ butyl chloride on Wurtz reaction give alkene.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: d

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16. Assertion : $2, 3 -$ dimethyl but$-2-$ ene is more stable than but $-2-$ ene.

Reason : $2,3-$ dimethyl but$-2-$ ene possesses $12\alpha-$ hydrogen atoms whereas but $-2-$ ene possesses only $6alph-$ hydrogen atms and therefore former shows more pronounced hyperconjugation.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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17. Assertion: Trans-2-chloro propene has higher dipole moment than cis-2- chloro propene

Reason The resultant vectore sum of all the vectors in trans-2-chloro propene is more than cis-2-chloro propene .

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: a

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18. Assertion : Dimethyl sulphide is commonly used for the reduction of an ozonide of compound.

Reason : It reduces the ozonide giving water soluble dimethyl sulphoxide and excess of it evaporates.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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19. Assertion : Iodination of alkane is carried out in presence of iodic acid.

Reason : Iodine is an oxidizing agent.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: a

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20. Assertion : C_6H_6 does not decolourize Br_2 water.

Reason : All the six carbon atoms have delocalized $\pi -$ electrons.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: a

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21. Assertion : Tertiary butyl benzene on oxidation give benzoic acid.

Reason : A side chain containing benzylic hydrogen atom is oxidised to $-COOH$ group.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: d

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22. Assertion: Benzene is reactive while inorganic benzene is unreactive Reason:Inorganic benzene is borazine.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: d

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23. Assertion : Alkyl benzene is not prepared by Friedel — Crafts alkylation of benzene.

Reason : Alkyl halides are more reactive than acyl halides.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

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24. Assertion : Tropylium cation is aromatic in nature

Reason : The only property that determines its aromatic behaviour is its planar structure.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: c

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25. Assertion : $CH_3 - C \equiv C - CH_3$ is more reactive for electrophilic addition reaction than $CH_3CH = CH - CH_3$

Reason : Carbocation intermediat formed in alkene is more stable than the alkyne.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: d

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26. Assertion : Addition of HBr in the presence of peroxide on $1-$ methyl cyclopentene gives two optical isomers as major product.

Reason : The major product contains two chiral carbon atoms.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: d

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27. Assertion : Stability of alkene is governed by hyper conjugation

Reason : Hyperconjugation involves delocatisation of $\sigma -$ electron with sp^2 hybridised orbitals.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: c

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AIPMT/NEET Questions

1. In the preparation of alkene from alcohol using Al_2O_3, which is effective factor?

A. Temperature

B. Concentration

C. Surface area of Al_2O_3

D. Porosity of Al_2O_3

Answer: C

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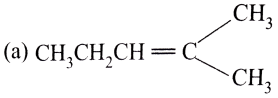
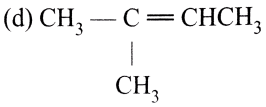
2. Which alkene on ozonolysis gives CH_3CH_2CHO and $CH_3\underset{\underset{O}{||}}{C}CH_3$?

A. 

B. $CH_3 - CH_2CH = CHCH_2CH_3$

C. $CH_3CH_2CH = CHCH_3$

D. 

Answer: A

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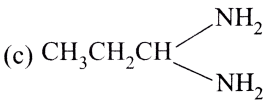
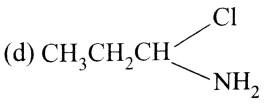
3. When $CH_2CH_2CHCl_2$ is treated with $NaNH_2$ the product formed is

A. $CH_3CH = CH_2$

B. $CH_3 - C \equiv CH_2$

C. 

D. 

Answer: b

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4. The compound $CH_3 - \overset{CH_3}{\underset{|}{C}} = CH - CH_3$

on reaction with $NalO_4$ in the presence of $KMnO_4$ gives

A. $CH_3CHO + CO_2$

B. CH_3COCH_3

C. $CH_3COCH_3 + CH_3COOH$

D. $CH_3COCH_3 + CH_3CHO$

Answer: C

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5. Reaction of HBr with propene in the presence of peroxide gives

A. Isopropyl bromide

B. $3-$ bromopropane

C. allyl bromide

D. $n-$ propyl bromide

Answer: D

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6. When HCl gas is passed through propene in the presence of benzoyl peroxide, it gives :

A. $n-$ propyl chloride

B. $2-$ chloropropane

C. allyl chloride

D. no reaction

Answer: b

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7. Using anhydrous $AlCl_3$ as catalyst, which one of the following reactions produces ethylbenzene $(PhEt)$?

A. $H_3C - CH_2OH + C_6H_6$

B. $CH_3 - CH = CH_2 + C_6H_6$

C. $H_2C = CH_2 + C_6H_6$

D. $H_3C - CH_2 \_ C_6H_6$

Answer: c

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8. The product of the following reaction are

$$CH_3C = C.CH_2CH_3 = \xrightarrow[(ii)\,Hydrolysis]{(i)\,O_3} ?$$

A. $CH_3COOH + CH_3COCH_3$

B. $CH_3COOH + CH_3CH_2COOH$

C. $CH_3CHO + CH_3CH_2CHO$

D. $CH_3COOH + CO_2$

Answer: B

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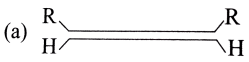
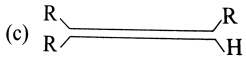
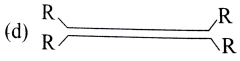
9. Which of the following alkenes will react faster with H_2 under catalytic hydrogenation conditions?

A. 

B. 

C. 

D. 

Answer: a

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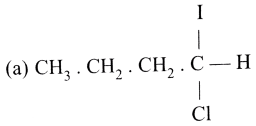
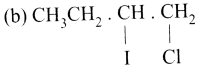
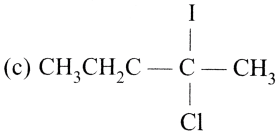
10. The product C is

$$CH_3.CH_2.C \equiv CH + HCl \rightarrow B \xrightarrow{HI} C$$

A. 

B. 

C. 

D. $CH_3.\underset{\underset{Cl}{|}}{C}HCH_2.CH_2I$

Answer: c

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11. Which of the compounds with molecular formula C_5H_{10}yields acetone on ozonolysis ?

A. $3-$ methyl$-1-$ butene

B. cyclopentane

C. $2-$ methyl$-1-$ butene

D. $2-$ methyl$-2-$ butene

Answer: D

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12. $CH_3\underset{CH_3}{\overset{|}{C}}HCH=CH_2 \xrightarrow{HBr} A$

A (predominantly) is

A. $CH_3-\overset{Br}{\overset{|}{\underset{CH_3}{\underset{|}{C}}}}-CH_2CH_3$

B. $CH_3-\underset{Br}{\underset{|}{CH}}-\underset{CH_3}{\underset{|}{C}}H-CH_3$

C. $CH_3-\underset{CH_3}{\underset{|}{C}}H-\underset{Br}{\underset{|}{CH}}=CH_3$

D. $CH_3-\underset{CH_3}{\underset{|}{C}}H-CH_2-CH_2Br$

Answer: a

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13. Benzene reacts with CH_3Cl in the presence of anyhydrous $AlCl_3$ to form

A. xylene

B. toluene

C. chlorobenzene

D. benzychloride

Answer: b

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14. Liquid hydrocarbon can be converted to a mixture of gaswous hydrocarbon by

A. oxidation

B. carcking

C. hydrolysis

D. distillationi under reduced pressure

Answer: b

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15. In the following reaction , $C_6H_5CH_2Br \xrightarrow[2.H_3O^+]{1.Mg,Ether} X$, the product $'X'$ is

A. $C_6H_5CH_2CH_2C_6H_5$

B. $C_6H_5CH_2OCH_2C_6H_5$

C. $C_6H_5CH_2OH$

D. $C_6H_5CH_3$

Answer: d

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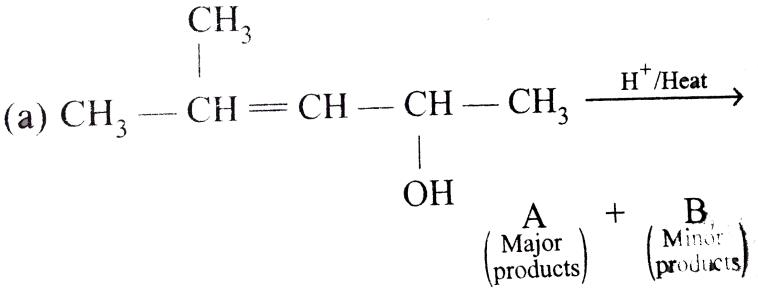
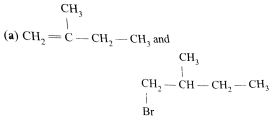
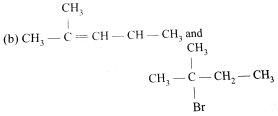
16. In the following reactions,

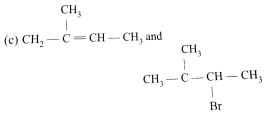


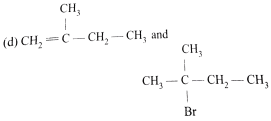
$$A \xrightarrow[\text{in the absence of peroxide}]{\text{HBr,dark}} \underset{(\text{Major product})}{A} + \underset{(\text{Minor products})}{B}$$

the major prducts (A) and (C) are respecitvely.

A. 

B. 

C. 

D. 

Answer: B

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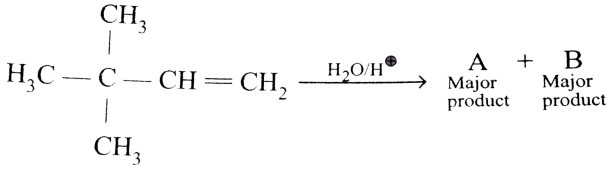
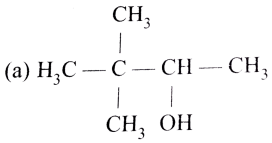
17. In the following reaction :

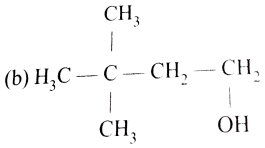


The major product is

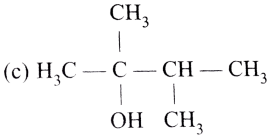
A.



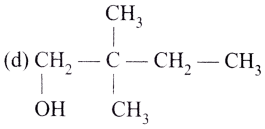
B.



C.



D.



Answer: a

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18. Which of the following reagents will be able to distinguish between $1-$ butyne and $2-$ butyne ?

A. $NaNH_2$

B. HCl

C. O_2

D. Br_2

Answer: a

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19. Among the following compounds the one that is most reactive towards electrophilic nitration is

A. Toluene

B. benzene

C. benzoic acid

D. nitrobenzene

Answer: A

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20. Some meta $-$ directing subsituents in aromatic substitution are given. Which one is most deactivating ?

A. $-SO_3H$

B. $-COOH$

C. $-NO_2$

D. $-C \equiv N$

Answer: c

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21. Which of the following compounds will not undergo Friedel — Crafts reaction easily ?

A. xylene

B. Nitrobenzene

C. Toluene

D. Cumene

Answer: B

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22. Which of the following organic compounds has the same hybridization as its combustion product (CO_2) ?

A. Ethane

B. Ethyne

C. Ethene

D. Ethanol

Answer: b

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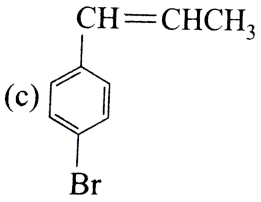
23. The reaction of $C_6H_{50CH=CHCH_3}$ with HBr produces

A. (a) $C_6H_5CH_2\underset{\underset{Br}{|}}{C}HCH_3$

B. $C_6H_5CH_2CH_2CH_2Br$

C. (c) 

D. 

Answer: d

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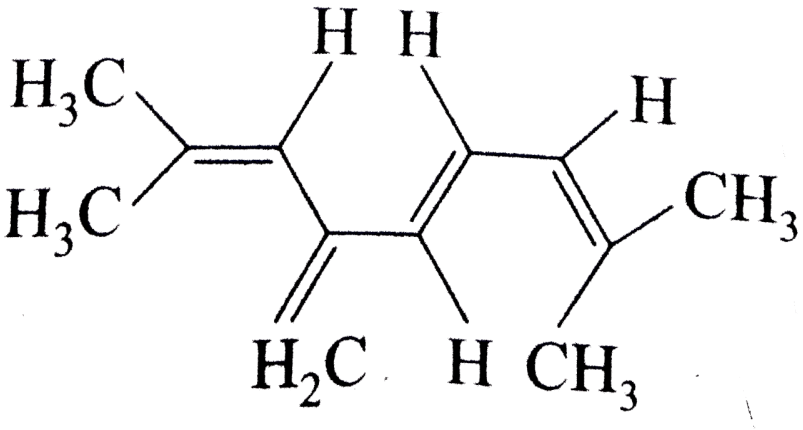
24. The total number of $p-$ bond electrons in the following structure is



A. 8

B. 12

C. 16

D. 4

Answer: a

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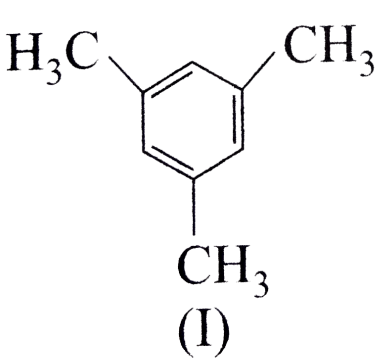
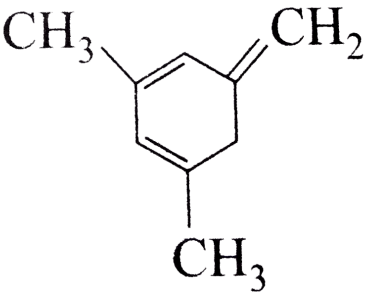
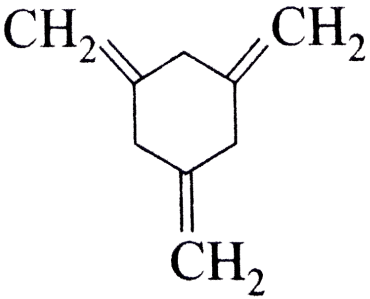
25. Given :



(I)



(II)



(III)

The enthalpy of the hydrogenation of these compounds will be in the order as :

A. $III > II > I$

B. $II > III > I$

C. $II > I > III$

D. $I > II > III$

Answer: a

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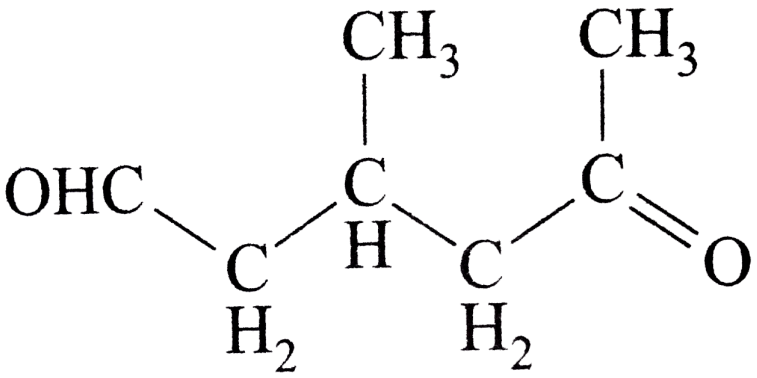
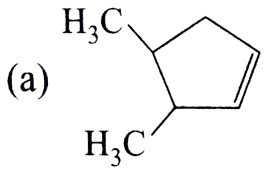
26. A single compound of the structure

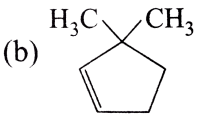


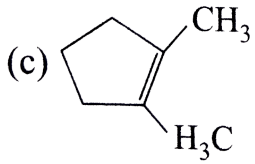
is obtained from ozonolysis of twhich of the followiing cyclic compounds ?

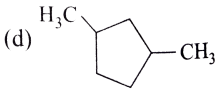
A.



B.



C. 

D. 

Answer: D

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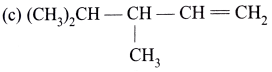
27. $2, 3 -$ Dimethyl$- 2 -$ butene can be prepared by heating which of the following compounds with a strong acid ?

A. $(CH_3)_2C = CH - CH_2 - CH_3$

B. $(CH_3)_2CH - CH_2 - CH = CH_2$

C. 

D. $(CH_3)_3C - CH = CH_2$

Answer: d

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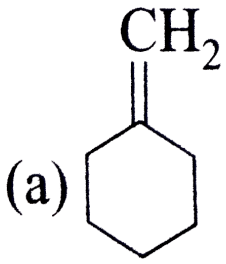
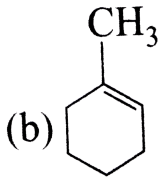
28. In the reaction with HCl, an alkene reacts in accordance with the Markovnikov's rule. The possible alkene is

A. 

B. 

C. (a) and (b)

D.

Answer: c

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29. The oxidation of benzene by V_2O_5 in the presence of aire produces

A. benzoic acid

B. benzaldehyde

C. benzoic anhydride

D. Maleic anhydride

Answer: d

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30. In the reactions $\xrightarrow[(2)\,CH_3CH_2Br]{(1)\,NaNH_2/liq.NH_3} X$

$\xrightarrow[(2)\,CH_3CH_2Br]{(1)\,NaNH_2/liq.NH_3} Y$, X and Y are :

A. $X = 1-$ Butyne, $Y = 2-$ Hexyne

B. $X = 1-$ Butyne, $Y = 3-$ Hexyne

C. $X = 2-$ Butyne, $Y = 3-$ Hexyne

D. $X = 2-$ Butyne, $= 2-$ Hexyne

Answer: B

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31. Consider the nitration of benzene using mixed conc. H_2SO_4 and HNO_3. If a large amount of $KHSO_4$ is added to the mixture, the rate of nitration will be :

A. doubled

B. faster

C. slower

D. unchanged

Answer: c

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32. Which one is the correct order of acidity ?

A. $CH \equiv CH > CH_3 - C \equiv CH > CH_2 = CH_2 < CH_3 - CH_3$

B. $CH \equiv CH > CH_2 = CH_2 > CH_3 - C \equiv CH > CH_3 - CH_3$

C. $CH_3 - CH_3 > CH_2 = CH_2 > CH_3 - C \equiv CH > CH \equiv CH$

D.

$$CH_2 = CH_2 > CH_3 - CH = CH_2 > CH_3 - C \equiv CH > CH \equiv C$$

Answer: a

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33. Predict the correct intermediat and product in the following reaction

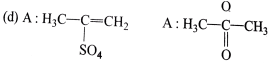
reaction :

$$H_3C - C \equiv CH \xrightarrow[HgSO_4]{H_2O, H_2SO_4} \underset{(A)}{Intermediate} \rightarrow \underset{(B)}{product}$$

A. (a) A : $H_3C-\underset{\underset{OH}{|}}{C}=CH_2$ B : $H_3C-\underset{\underset{SO_4}{|}}{C}=CH_2$

B. (b) A : $H_3C-\underset{\underset{O}{\|}}{C}-CH_3$ B : $H_3C-C\equiv CH$

C. (c) A : $H_3C-\underset{\underset{OH}{|}}{C}=CH_2$ B : $H_3C-\underset{\underset{O}{\|}}{C}-CH_3$

D. 

Answer: C

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34. With respect to the conformers of ethane, which of the following statements is true ?

A. Bond angle changes but bond length remains same

B. Both bond angle and bond length change

C. Both bond angles and bond length remains same

D. Bond angles remains same but bond length changes

Answer: C

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35. Hydrocarbon(A) reacts with bromine by substitution to form an alkyl bromide which by Wurtz reaction is converted to gaseous hydrocarbon containing less than four carbon atoms (A) is

A. $CH \equiv CH$

B. $CH_2 = CH_2$

C. $CH_3 - CH_3$

D. CH_4

Answer: d

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36. The compound C_7H_8 undergoes the following reactions

$$C_7H_8 \xrightarrow{3Cl_2 / \Delta} A \xrightarrow{Br_2 / Fe} B \xrightarrow{Zn / HCl}$$

The product 'C' is .

A. $m -$ bromotoluene

B. $o-$ bromotoluene

C. $3-$ bromo$-2,46-$ trichlorotoluene

D. $p-$ bromotoluene

Answer: A

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AIIMS Questions

1. $1-$ Butyne and cold alkaline $KMnO_4$ react to produce

A. CH_3CH_2COOH

B. $CH_3CH_2COOH + CO_2$

C. $CH_3CH_2COOH + HCOOH$

D. CH_3CH_2COOH

Answer: b

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2. Which is used as antiknock in petrol ?

A. Tetraethyl lead

B. Tetramethyl lead

C. Tetrapropyl lead

D. Tetrabutyl lead

Answer: A

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3. In the following reaction, Z is identifies as

$$CH \equiv Ch \xrightarrow{Z} CH_3CHO$$

A. concentrated H_2SO_4

B. CH_3COCl

C. $20\ \%\ H_2SO_4$

D. CH_3OH

Answer: c

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4. The number of sigma (σ) and pi (π) bonds present in acetylene are _____ respectively.

A. 6σ

B. 3σ

C. $4\sigma, 2\pi$

D. $5\sigma, 1\pi$

Answer: D

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5. $C_6H_6 + CH_3Cl \xrightarrow[AlCl_3]{anhydrous} C_6H_5CH_3 + HCl$ is an example of :

A. Wurz $-$ fitting reaction

B. Grignard reaction

C. Friedel $-$ Crafts reaction

D. Ullmann reaction

Answer: C

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6. $B.H.C.$ is used as

A. insecticide

B. disinfectant

C. mosquito repellent

D. antiseptic

Answer: a

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7. Which one of the following produce acyl halide by treatment with PCl_5 ?

A. Alcohols

B. Esters

C. Acids

D. Carbonyl compounds

Answer: c

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8. Alkynes usually show which type of reaction ?

A. Substitution

B. Elimination

C. Addition

D. Replacement

Answer: C

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9. The product obtained by treating benzene with chlorine in presence of ultraviolet light is

A. CCl_4

B. C_6H_5Cl

C. $C_6H_6Cl_6$

D. C_6Cl_6

Answer: c

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10. The product obtained by treating

$CH_3 - CH = CH_2 + HBr \rightarrow ?$

A. $CH_3 - CH_2 - CH_2Br$

B. (b) $CH_3 - \underset{\underset{Br}{|}}{CH_2} - CH_2Br$

C. $CH_2BrCH = CH_2$

D. $CH_3 - CH = CHBr$

Answer: b

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11. The natural gas mainly contains

A. methane

B. propane

C. butane

D. pentane

Answer: a

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12. With ammonical cuprous chloride solution, a reddish brown precipitate is obtained on treating with

A. CH_4

B. C_2H_4

C. C_2H_2

D. C_3H_6

Answer: c

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13. The boiling points four saturated hydrocarbons are given below. Which boiling point suggests maximum number of carbon atoms in its molecule ?

A. $-162^{\circ}C$

B. $-88.6^{\circ}C$

C. $-0.5^{\circ}C$

D. $-42.2^{\circ}C$

Answer: C

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14. Among the following, insecticide is

A. BHC

B. hosphene

C. Chloral

D. Aspirin

Answer: a

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15. The treatment of benzene with isobutene in the presence of sulphuric acid gives

A. iso $-$ butylbenzene

B. $tert-$ butylbenzene

C. $n-$ butylbenzene

D. no reaction

Answer: b

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16. The major product obtained on treatment of $CH_3CH_2CH(F)$ $CH_3 with CH_3O^- / CH_3OH$ is .

A. $CH_3CH_2CH(OCH_3)CH_3$

B. $CH_3CH = CHCH_3$

C. $CH_3CH_2CH = CH_2$

D. $CH_3CH_2CH_2OCH_2$

Answer: B

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17. 3-Phenylpropene on reaction with HBr gives (as major product)

A. $C_6H_5CH_2(Br)CH_3$

B. $C_6H_5CH(Br)(CH_2CH_2OCH_3$

C. $C_6H_5CH_2CH_2CH_2Br$

D. $C_6H_5CH(Br)CH = CH_2$

Answer: A

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18. Given below, catalyst and corresponding process/reaction are matched. The mismatch is

A. $\left[RhCl(PPh_3)_2\right]$: Hydrogenation

B. $TiCl_4 + Al(C_2H_5)_3$: Polymerization

C. V_2O_5 : Haber $-$ Bosch process

D. Nickel $-$ Hydrogenation

Answer: c

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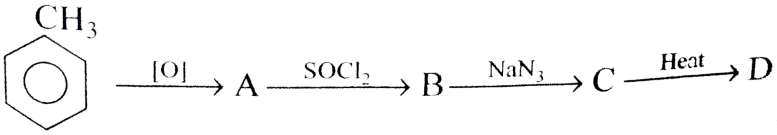
19. in the following sequence of reactions what is D



A. Primary amine

B. An amide

C. Phenyl isocyanate

D. A chain lengthened hydrocarbon

Answer: c

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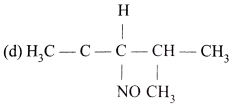
20. $(CH_3)_2C = CHCH_3 + NOBr \rightarrow$ Product . The structure of the product is

A. $(CH_3)_2C(NO) - CH(Br)CH_3$

B. $(CH_3)_2C(Br) - CH(NO)CH_3$

C. $(CH_3)_2CH - C(NO)(Br)CH_3$

D. 

Answer: b

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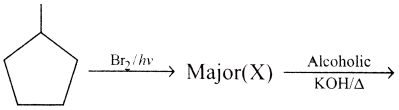
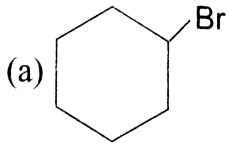
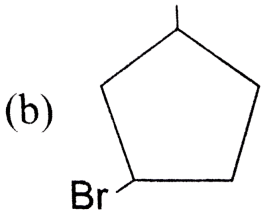
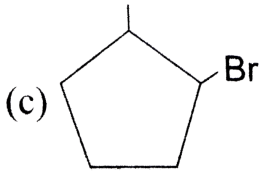
21.  Major $(Y) \xrightarrow[\text{Peroxide}]{H-Br}$ Major (Z)

Major final product (Z) is

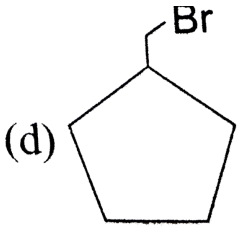
A. 

B. 

C.



D.



Answer: c

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22. The most important method of preparation of hydrocarbons of lower carbon number is

A. pyrolysis of higher carbon number hydorcarbons

B. electrolysis of salts of fatty acids

C. Sabatier and Senderen's reaction

D. direct synthesis

Answer: a

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23. The alkene $R - CH = CH_2$ reacts readily with B_2H_6 and formed the product B which on oxidation with alkaline hydrogen peroxide produces

A. $R - CH_2 - CHO$

B. $R - CH_2 - CH_2 - OH$

C. $R - \underset{\underset{CH_3}{|}}{C} = O$

D. $R - \underset{\underset{OH}{|}}{C}H - \underset{\underset{OH}{|}}{C}H_2$

Answer: b

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24. $1 -$ Butyne can be distinguished most easily from $2 -$ butyne by

A. bromine water

B. ozonolysis

C. Tollen's reagent

D. $KMnO_4$ solution

Answer: C

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25. Compound X of molecular formula C_4H_6 takes up one equivalent of hydrogen in presence of Pt to form another compound Y which on ozonolysis gives only ethanoic acid. The compound X can be

A. $CH_2 = CH - CH = CH_2$

B. $CH_2 = C = CHCH_3$

C. $CH_3C \equiv CCH_3$

D. All the three

Answer: D

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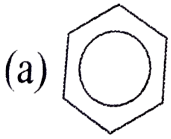
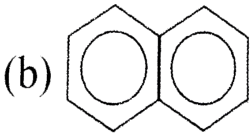
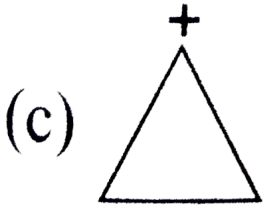
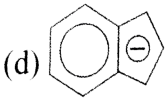
26. The chemical system that is non — aromatic is

A. 

B. 

C. 

D. 

Answer: C

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27. Consider the following statements : A hydrocarbon of molecular formula C_5H_{10} is a

(I) monosubstitutd alkene

(II) dissubstituted alkene

(III) trisubstituted alkene

Which of the following statement (s) is (are) correct ?

A. I, II and III

B. I and II

C. II and III

D. I and III

Answer: A

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28. Which one of the following cannot be prepared by Wurtz reaction ?

A. CH_4

B. C_6H_6

C. C_3H_8

D. C_4H_{10}

Answer: a

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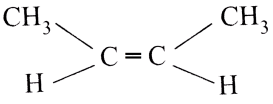
29. Which of the following hydrocarbons has the lowest dipole moment?

A. 

B. $CH_3C \equiv CCH_3$

C. $CH_3CH_2C \equiv CH$

D. $CH_2 = CH - C \equiv CH$

Answer: b

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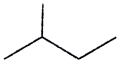
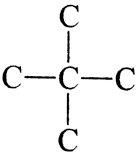
30. What is decreasing order of Boiling point

(A) 

(B) 

(C) 

A. $A > B > C$

B. $B > C > A$

C. $A > C > B$

D. $C > B > A$

Answer: a

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Assertion-Reasoning Questions

1. Assertion : Benzene removes a butter stain from a table cloth.

Reason : Butter has an affinity towards benzene

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: b

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2. Assertion : Ethane is much less reactive than ethene.

Reason : Bond angles in ethane are less than those in ethene.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: b

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3. Assertion : A mixture of HNO_3 and H_2SO_4 is used for the nitration of benzene.

Reason : H_2SO_4 works as an acid HNO_3 as a base to produce NO_2^+ ion.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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4. Assertion (A) : All the C atoms of but-2-ene lie in one plane

Reason (R): Double-bond C atoms are sp^2-hypbridised.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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5. Assertion : trans $-$ Pent $-2-$ ene is polar but trans $-$ but $-2-$ ene is non $-$ polar.

Reason : The polarity of cis-$-isomersism$ or $ethantrans$-$isomer, whichareeithernon$-` polar or less polar.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: b

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Section D - Chapter End Test

1. Anti $-$ Markovwnikoff's addtion of HBr is not observed in

A. Propene

B. $1-$ Butene

C. But$-2-$ ene

D. Pen$-2-$ ene

Answer: c

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2. Which of the following reactions will yield $2,2-$ dibromopropane ?

A. $HC \equiv CH + 2HBr \rightarrow$

B. $CH_3 - C \equiv CH + 2HBr \rightarrow$

C. $CH_3 - CH = CH_2 + HBr$

D. $CH_3 - CH = CH - Br + HBr \rightarrow$

Answer: b

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3. The products formed by the ozonolysis $-$ hydrolysis of compound of formula C_5H_8 are

$CH_3 - CH_2 - CH_2 - COOH$ and CO_2. The compound is

A. pent$-1-$yne

B. pent$-2-$yen

C. pent$-1,4-$diene

D. penta$-1,3-$diene

Answer: A

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4. When acetylen reacted with hydroxylic acid in presence of $HgCl_{20}$ the product obtained is

A. Methyl chloride

B. Acetaldehyde and acetic acid respectively

C. Vinyl chloride

D. Methanol

Answer: C

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5. When propyne reacts with aqueous H_2SO_4 in the presence of $HgSO_4$, the major product is

A. Propanol

B. propyl hydrogen sulphate

C. Acetone

D. Propanol

Answer: c

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6. Which one of the following does not dissolve in conc. H_2SO_4?

A. $CH_3 - C = C - CH_3$

B. $CH_3 - CH_2 - C = CH$

C. $CH \equiv CH$

D. $CH_2 = CH_2$

Answer: C

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7. Which one of the following compounds will give in the presence of peroxide a product different from that obtainded in the absence peroxide ?

A. $1-$ butane

B. $1-$ butene, HBr

C. $2-$ butene, HCl

D. $2-$ butene, HBr

Answer: B

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8. Which of the following alkene in acid catalysed hydration form $2-$ methyl propan $-2-ol$?

A. $(CH_3)_2CH=CH_2$

B. $CH_3CH = CH_2$

C. $CH_3 - CH = CH - CH_3$

D. $CH_3 - CH_2 - CH = CH_2$

Answer: A

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9. Which of the following compounds yields only one product on monobromination ?

A. Neopentane

B. Toluene

C. Phenol

D. Aniliine

Answer: a

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10. Aqueous solution of the following compounds are electrolysed . Acetylene gas is obtained from

A. Sodium fumarate

B. Sodium maleate

C. Sodium succinate

D. Both (a) and (b)

Answer: d

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11. Dehydration of butan $-2-ol$ with conc. H_2SO_4 gives preferred product.

A. but$-1-$ ene

B. but $-2-$ ene

C. propene

D. ethane

Answer: b

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12. $CH_3 - C \equiv C - CH_3 \xrightarrow{NaNH_2}$ 'X'. What is X ?

A. $CH_3CH_2CH = CH_2$

B. $CH_3CH_2C \equiv CH$

C. $CH_3 - CH = CH - CH_3$

D. $CH_2 = C = CH - CH_3$

Answer: b

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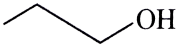
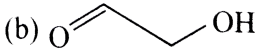
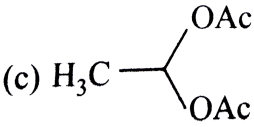
13. Identify the compound $'Y'$ in the following sequency of reaction

$$HC \equiv CH \xrightarrow[(ii)\, H_2o_2 / Zn]{(i)\, O_3} X \xrightarrow{Zn / CH_3COOH} Y$$

A. (a) 

B. (b) 

C. (c) 

D. CH_3COOH

Answer: a

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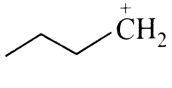
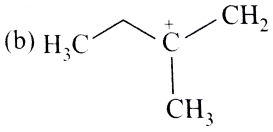
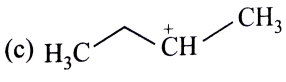
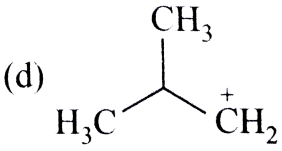
14. Dehydration of $1-$ butanol gives $2-$ butene as a major product , by which of the following intermediate the compound $2-$ butene obtained

A. (a) 

B. 

C. 

D. 

Answer: c

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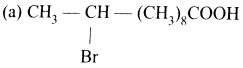
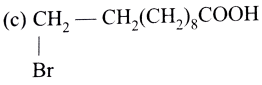
15. The prinicipal organic product formed is the reaction :

$$CH_2 = CH(CH_2)_8COOH + HBr \xrightarrow{\text{Peroxide}}$$

is

A. 

B. $CH_2 = CH(CH_2)_8COOH$

C. 

D. (d) $CH_2 = CH(CH_3)_7 - \underset{\underset{Br}{|}}{CH} - COOH$

Answer: c

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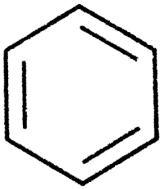
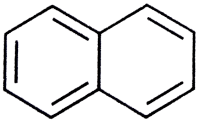
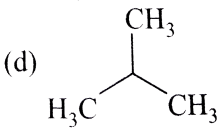
16. Which of the following decolorizes Potassium permanganate?

A. $H_2C = CH_2$

B. (b) 

C. (c) 

D. (d) 

Answer: a

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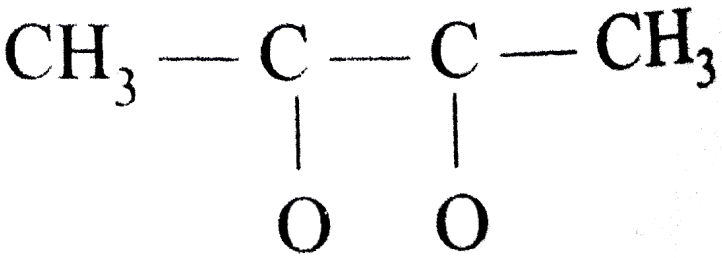
17. $CH_3C \equiv CCH_3 \xrightarrow[(ii)\, H_2O/Zn]{(i)\, X}$



X in the above reaction is

A. HNO_{30}

B. O_2

C. O_3

D. $KMnO_4$

Answer: c

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18. Which of the following is Friedel $-$ Craft's reaction

A. $C_6H_6 + FeCl_3 + Cl_2 \rightarrow C_6H_5Cl$

B. $C_6H_5CHO + CH_3CHO + KOH \rightarrow C_6H_5CH = CH - CHO$

C. $C_6H_6 + CH_3COCl + AlCl_3 \rightarrow C_6H_5COCH_3$

D. $C_6H_5OH + CHCl_3 + KOH \rightarrow$ Salicylaldehyde

Answer: C

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19. Condition for maximum yield of C_2H_5Cl is

A. $C_2H_6(\text{ excess}) + Cl_2(UV\,Light) \rightarrow$

B. $C_2H_6 + Cl_2 \xrightarrow[Roomtemp.]{Dark}$

C. $C_2H_6 + Cl_2(excess) \xrightarrow{UV\,Light}$

D. $C_2H_6 + Cl_2 \xrightarrow{UV\,Light}$

Answer: A

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20. When ethyl alcohol is heated with red phosphorus and HI, then which of the following is formed

A. C_2H_6

B. CH_4

C. C_3H_8

D. C_2H_4

Answer: a

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21. In the Fischer – Tropsch synthesis of petrol ..... and ..... are used as the raw materials

A. H_2, CO

B. CH_4H_2

C. CH_4, CH_3OH

D. CH_4OH, CO

Answer: a

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22. Formation of polyethylene from calcium carbide takes place as follows

$CaC_2 + 2H_2O \rightarrow Ca(OH)_2 + C_2H_2$

$C_2H_2 + H_2 \rightarrow C_2H_2$

$N(C_2H_4) \rightarrow (-CH_2 - CH_2-)_n$

The amount of polyethylene obtained from $64.1kgCaC_2$ is

A. $7kg$

B. $14kg$

C. $21kg$

D. $28kg$

Answer: d

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23. A group which deactivites the benzene ring towards eletrophilic substitution but which directs the incoming group principally to the $o-$ and $p-$ positons is

A. $-NH_2$

B. $-Cl$

C. $-NO_2$

D. $-C_2H_5$

Answer: b

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24. Identify Z in the following series

$$CH_2 = CH_2 \xrightarrow{HBr} X \xrightarrow{Hydrolysis} Y \xrightarrow[I_2 excess]{Na_2CO_3} Z$$

A. C_2H_5I

B. C_2H_5OH

C. CHI_3

D. CH_3CHO

Answer: c

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25. $n-$ pentane and iospentane can be distinguished by

A. Br_2

B. O_3

C. conc.H_2SO_4

D. $KMnO_4$

Answer: d

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26. $CH \equiv CH + Hbr \rightarrow X$, product X is

A. Ethylene

B. Viny bromide

C. Bromo ethane

D. Ethylidene bromide

Answer: b

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27. $CaC_2 + H_2O \rightarrow A \xrightarrow{H_2SO_4 / HgSO_4} B$. Identify A and B in the given reaction

A. C_2H_2 and CH_3CHO

B. CH_4 and $HCOOH$

C. C_2H_4 and CH_4COOH

D. C_2H_2 and CH_3COOH

Answer: A

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28. Assertion : $2-$ Bromobutane on reaction with sodium ethoxide in ethanol gives $2-$ butene as a major product.

Reason : $2-$ Butene is more stable than $1-$ butene.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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29. Assertion : Neopentene forms only one monosubstituted compound.

Reason : Neopentane has high bond energy

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: c

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30. Assertion : Propene reacts with HBr in presence of benzoyl peroxide to yield $1-$ bromopropane.

Reason : In presence of peroxide, the addition of HBr to propene follows ionic mechanism.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

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