



CHEMISTRY

BOOKS - MTG WBJEE CHEMISTRY (HINGLISH)

ALIPHATIC COMPOUNDS

Wb Jee Workout Category 1 Single Option Correct Type

1. Soda-lime is a specific reagent for

- A. decarboxylation
- B. dehalogenation
- C. dehydration
- D. dehydrogenation

Answer: A



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2. The compound X produces methane when treated with water. The compound X is

- A. calcium carbide
- B. aluminium carbide
- C. calcium phosphide
- D. aluminium nitride

Answer: B



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3. Action of heavy water (D_2O) on methylmagnesium bromide gives

A. CD_4

B. CH_3D

C. CH_2D_2

D. CHD_3

Answer: B



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4. The

$2R - X + 2Na \xrightarrow{\text{ether}} R - R + 2NaX$ is an example of

A. Kolbe's reaction

B. Friedel- Crafts reaction

C. Wurtz reaction

D. Cannizzaro reaction .

Answer: C

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5. Which of the following reactions can be used to prepare methane?

- A. Wurtz reaction
- B. Decarboxylation of sodium acetate
- C. Kolbe's electrolytic reaction
- D. Hydrogenation of alkenes

Answer: B

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6. Which of the following will not produce ethane?

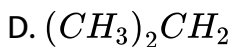
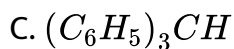
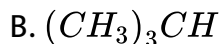
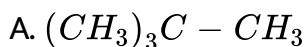
- A. Reduction of CH_3COOH with HI and red P
- B. Reduction of CH_3COCH_3 with HI and red P
- C. Soda lime decarboxylation of sodium propionate
- D. Hydrogenation of ethene in presence of Raney Ni

Answer: B



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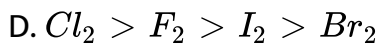
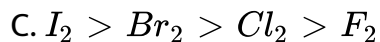
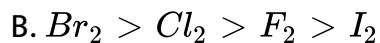
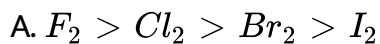
7. The maximum ease of abstraction of a hydrogen atom by a chlorine atom is shown by



Answer: C

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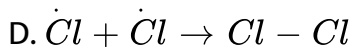
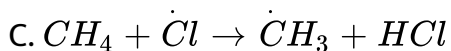
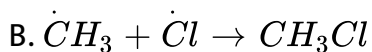
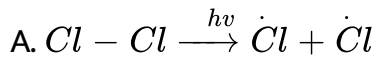
8. The order of reactivity of different halogens towards halogenation of alkanes follows the sequence



Answer: A

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9. During chlorination of methane to methyl chloride, the propagation step is represented by



Answer: C

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10. The number of monochloro derivatives of isohexane is

A. 3

B. 4

C. 5

D. 6

Answer: C

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11. Photochemical bromination of n-butane produces

A. 1-bromobutane as the major product

B. 2-bromobutane as the major product

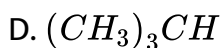
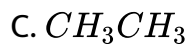
C. both 1-bromobutane and 2-bromobutane with equal percentage

D. both 1-bromobutane and 2-bromobutane whose percentages depend upon temperature.

Answer: B

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12. Which of the following decolourises a hot alkaline $KMnO_4$ solution?



Answer: D

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13. Which of the following is not an oxidation product of an alkane?

A. Alcohol

B. Aldehyde

C. Carboxylic acid

D. Ether

Answer: D

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14. The reaction $CH_3CH_2Br \xrightarrow[\Delta]{\text{Alc.KOH}} CH_2 = CH_2 + H_2O$, is a/an

A. addition reaction

B. substitution reaction

C. elimination reaction

D. rearrangement reaction

Answer: C

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15. 1,2-Dibromoethane when heated with alcoholic potash followed by $NaNH_2$ in liq. NH_3 gives

- A. ethane
- B. acetylene
- C. ethylene
- D. methane

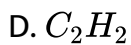
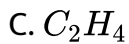
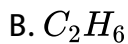
Answer: B



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16. Which of the following hydrocarbon is formed when electric discharge is passed between graphite electrodes in an atmosphere of hydrogen?

- A. CH_4



Answer: D

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17. Propyne is formed by the reaction of

A. CH_3Br with sodium acetylide

B. CH_3I with disodium acetylide

C. CH_3I with acetylene

D. CH_4 with chloroacetylene.

Answer: A

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18. The gas believed to be the cause of explosion in coal mines or damp fire is

A. methane

B. acetylene

C. CO

D. hydrogen

Answer: A

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19. Acetylene produced by the action of water on calcium carbide generally has foul smell due to

A. its characteristic smell

B. impurities of PH_3 and H_2S

C. impurities of SO_2 and SO_3

D. impurities of NH_3 and SO_2 .

Answer: B

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20. Reaction of ethene with Br_2 in CCl_4 gives

A. bromoethane

B. 1,2-dibromoethane

C. 1, 1-dibromoethane

D. 1,1,2,2-tetrabromoethane

Answer: B

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21. When ethylene is bubbled through an aqueous solution of bromine containing sodium chloride, the product/s formed is/are

- A. 1,2-dibromoethane
- B. 1-bromo-2-chloroethane
- C. 2-bromoethanol
- D. all of the above

Answer: D

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22. Markovnikov's rule governs the addition of

- A. unsymmetrical reagents to symmetrical alkenes
- B. symmetrical reagents to unsymmetrical alkenes

C. unsymmetrical reagents to unsymmetrical alkenes

D. symmetrical reagents to symmetrical alkenes.

Answer: C

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23. Propylene is passed through conc. H_2SO_4 and the product thus obtained on hydrolysis with boiling water gives

A. 1-propanol

B. 2-propanol

C. 1-propanal

D. 2-propanal.

Answer: B

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24. Addition of HCl to 2-methyl-2-butene mainly gives

- A. 1-chloro-2-methylbutane
- B. 2-chloro-2-methylbutane
- C. 2-chlorobutane
- D. 1-chlorobutane

Answer: B



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25. The addition of HCl in presence of peroxide does not follow anti-Markovnikov's rule because

- A. HCl bond is too strong to be broken homolytically
- B. Cl atom is not reactive enough to add on to a double bond

C. Cl atom combines with H atom to form HCl

D. HCl is a reducing agent.

Answer: A



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26. Cyclohexene reacts with cold dilute alkaline $KMnO_4$ to yield

A. cis-1,2-cyclohexanediol

B. trans-1,2-cyclohexanediol

C. cyclohexanone

D. hexane-1,6-dial

Answer: A



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27. Acetylene can be converted to acetaldehyde by the

- A. action of HOCl
- B. oxidation with $KMnO_4$
- C. addition of H_2O in presence of $HgSO_4$ and dilute H_2SO_4
- D. passing through a red hot iron tube

Answer: C



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28. When 1-butyne is treated with excess of HBr, the expected product is

- A. 1,2-dibromobutane
- B. 2,2-dibromobutane
- C. 1,1-dibromobutane

D. all of these.

Answer: B

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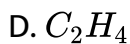
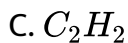
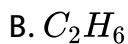
29. Which of the following on treatment with zinc-copper couple and ethanol will produce propane?

- A. Propanal
- B. Isopropyl bromide
- C. Isopropylamine
- D. Isopropyl alcohol

Answer: B

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30. One of the following cannot be prepared by Kolbe's electrolytic process?

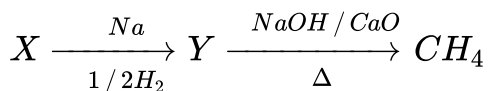


Answer: A

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Wb Jee Workout Category 2 Single Option Correct Type

1. What is X in the following sequence of reactions?



A. Methanoic acid

B. Ethanoic acid

C. Propane

D. Methane

Answer: B



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2. 20 mL of methane are burnt with 50 mL of oxygen, the volume of the gas left after cooling to room temperature will be

A. 80 mL

B. 60 mL

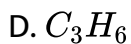
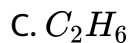
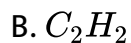
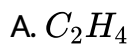
C. 30 mL

D. 20 mL

Answer: C

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3. 10 mL of a gaseous hydrocarbon require 30 mL of oxygen for complete combustion. The hydrocarbon is



Answer: A

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4. Assuming petrol is isooctane (C_8H_{18}) and has a density of 0.8 g mL^{-1} 1.425 litres of petrol on complete combustion will consume

- A. 100 moles of O_2
- B. 125 moles of O_2
- C. 150 moles of O_2
- D. 175 moles of O_2

Answer: B

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5. An alkane with molecular weight 72 upon chlorination gives only one monochlorination product. The alkane is

- A. 2-methylbutane
- B. 11-pentane

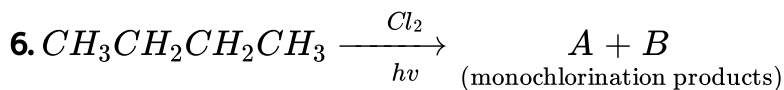
C. 2,2-dimethylpropane

D. all of these.

Answer: C



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The approximate ratio of percentage yields of A and B formed in the above reaction is

A. 50: 50

B. 72: 28

C. 45: 55

D. 60: 40

Answer: B

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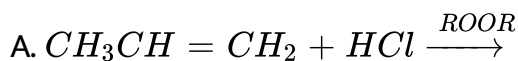
7. Addition of Cl_2 water (or HOCl) to propene gives

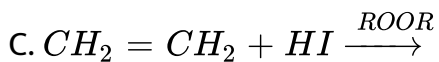
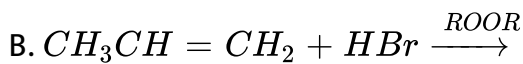
- A. 1-chloro-2-propanol
- B. 2-chloro-1-propanol
- C. 3-chloro-1-propanol
- D. 1-chloro-1-propanol.

Answer: A

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8. In which of the following reactions, addition does not occur according to Markovnikov's rule?



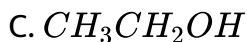
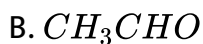
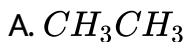
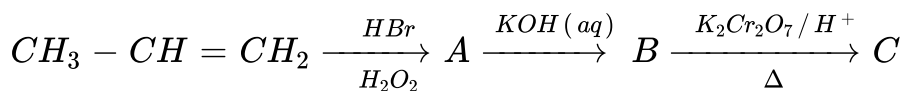


Answer: B



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9. Identify C in the following reaction :

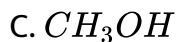
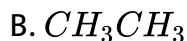


Answer: D



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10. A hydrocarbon (X) reacts with Cl_2 giving the substitution product (Y). By the Wurtz reaction 'Y' yields a gaseous hydrocarbon, 'Z' having vapour density = 14. Identify X.

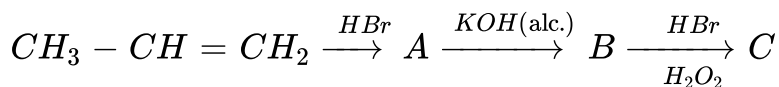


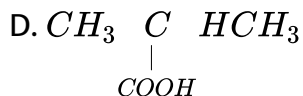
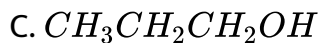
Answer: A



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11. Identify C in the following reactions :



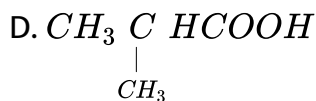
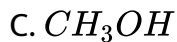
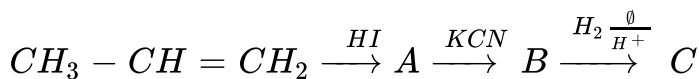


Answer: B



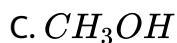
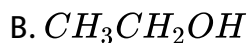
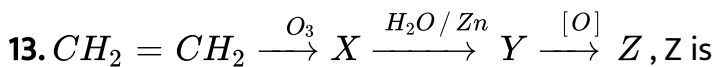
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12. In the following reaction, C is



Answer: D

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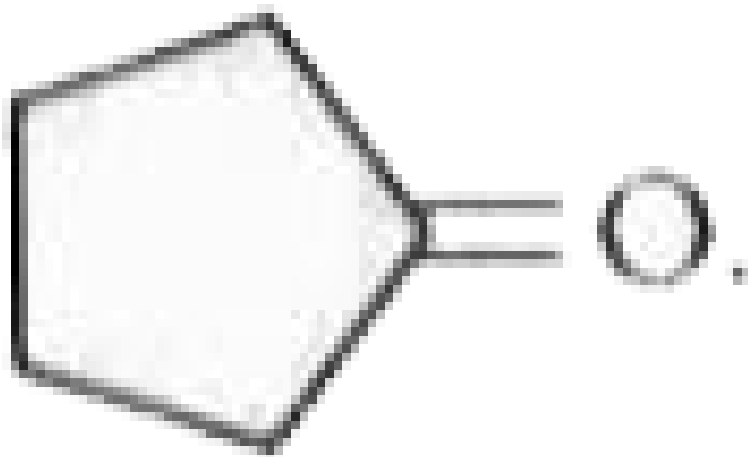


Answer: A

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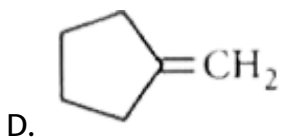
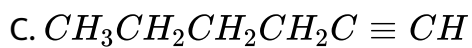
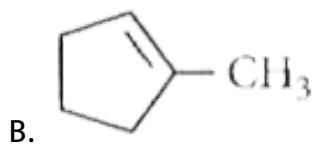
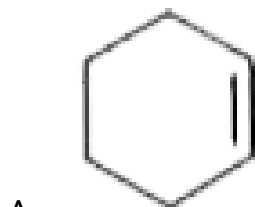
14. A compound (A) whose formula is C_6H_{10} reacts with H_2/Pt in excess to give a product C_6H_{12} , which does not decolorize

Br_2/CCl_4 . Ozonolysis of A gives 1 mol of HCHO and 1 mol of



. Give the

structure of A .

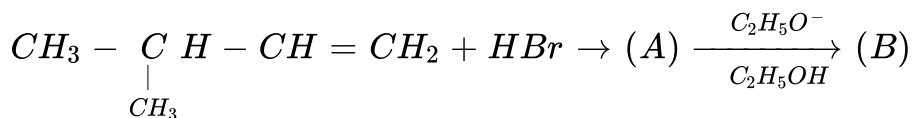


Answer: D

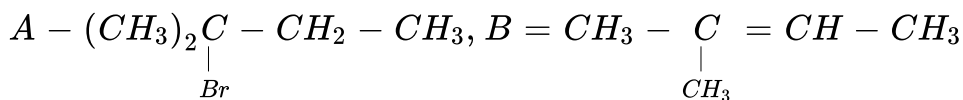


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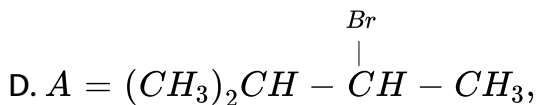
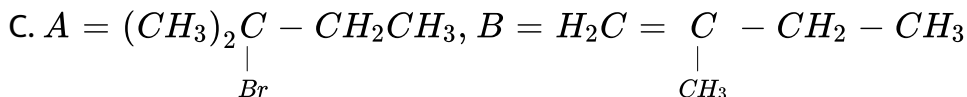
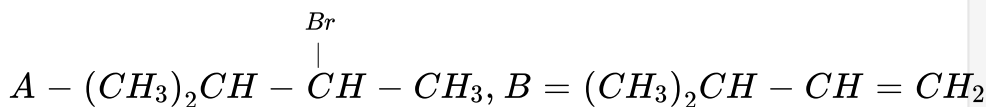
15. Identify A and B in the following reaction sequence .



A.



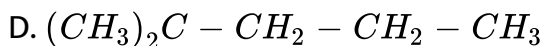
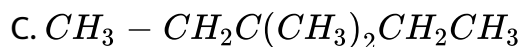
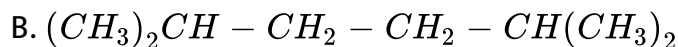
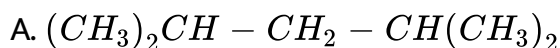
B.



Answer: A

Wb Jee Workout Category 3 One Or More Than One Options Correct Type

1. Which of the following alkanes cannot be synthesised by the Wurtz reaction in a good yield ?



Answer: A::C::D

2. Which of the following statement (s) is /are correct on the basis of heat of combustion ?

- A. Trans-2-hexene is more stable more than cis-2-hexene .
- B. Cis-2-pentene has higher heat of combustion than trans-2-pentene.
- C. 1-hexene has higher stability than propene.
- D. 2,3-dimethyl but-

Answer: A::C::D



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3. Reaction 1 : trans-2-butene $\xrightarrow[\text{H}_2\text{O}]{\text{HCO}_3\text{H}}$

Reaction 2 : cis-2-pentene $\xrightarrow{\text{KMnO}_4 / \text{OH}^-}$

Which of the following statements are incorrect about the above reactions ?

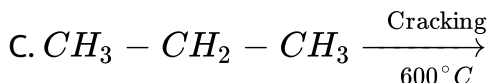
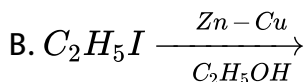
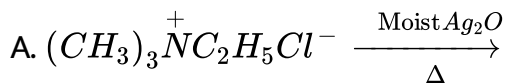
- A. Reaction 1 leads to racemic mixture
- B. Reaction 1 produces optically inactive compound.
- C. Reaction 2 yields meso compound.
- D. Reaction 1 and 2 give same product.

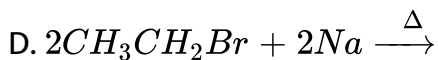
Answer: A::C::D



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4. Which of the following reactions yield ethene as major product ?





Answer: A

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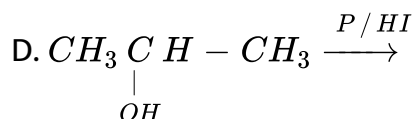
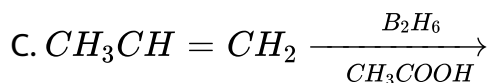
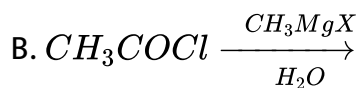
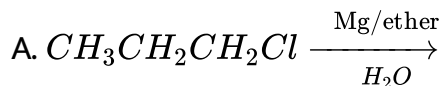
5. Which of the following statements is/are incorrect ?

- A. Alkynes are less reactive than alkenes towards halogen additions
- B. Alkynes are more reactive than alkenes towards halogen additions .
- C. Ethene is more acidic than ethyne .
- D. Acetylene is less acidic than water.

Answer: B::C

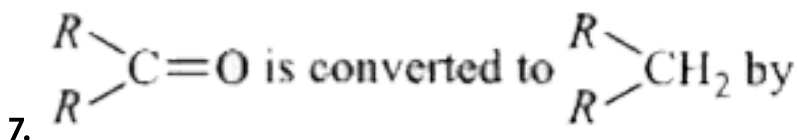
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6. Which of the following reactions will give propane ?



Answer: A::C::D

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A. Wolff-Kishner reaction

B. Clemmensen reduction

C. Red P +HI at $200^{\circ}C$

D. Wurtz reaction.

Answer: D



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8. Identify the incorrect statement (s).

A. Alkynes are more reactive than alkenes towards electrophilic addition reaction.

B. Alkynes are less reactive than alkenes towards electrophilic addition reaction .

C. Alkynes decolourise Br_2 water .

D. Addition of HBr to alkynes in presence of peroxide proceeds via Markovnikov's rule .

Answer: A::B::C



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9. Which of the following statement is/are incorrect in relation to the halogenation of alkane ?

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

.

B. For photochemical chlorination of methane , \dot{Cl} is formed in slowest step.

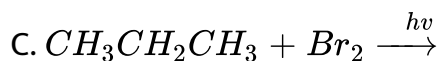
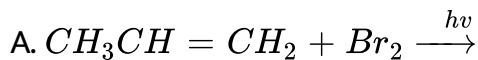
C. Free radicals are pyramidal intermediate , stabilised by hyperconjugation and resonance .

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

Answer: A::B::C

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10. Select the reactions that would result in the formation of 2-bromopropane.



Answer: A::B::D

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1. 2-Methylpropane on monochlorination under photochemical condition give

A. 2-chloro-2-methylpropane as major product

B. (1:1) mixture of 1-chloro-2-methylpropane and 2-chloro-2-methylpropane

C. 1-chloro-2-methylpropane as a major product

D. (1:9) mixture of 1-chloro-2-methylpropane and 2-chloro-2-methylpropane

Answer: C

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2. Baeyer's reagent is

A. alkaline potassium permanganate

B. acidified potassium permanganate

C. neutral potassium permanganate

D. alkaline potassium manganate.

Answer: A



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3. The best method for the preparation of 2,2-dimethylbutane is via the reaction of

A. Me_3CBr and $MeCH_2Br$ in Na/ether

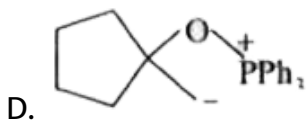
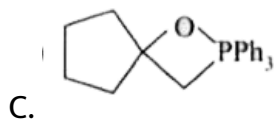
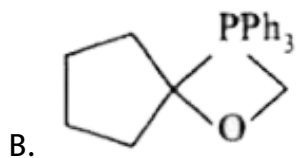
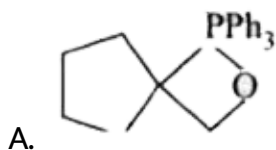
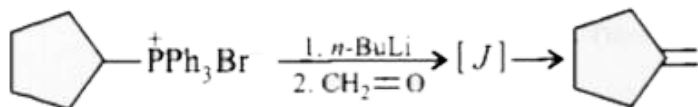
B. $(Me_3C)_2CuLi$ and $MeCH_2Br$

C. $(MeCH_2)_2CuLi$ and Me_3CBr

D. Me_3CMgI and $MeCH_2I$

Answer: B

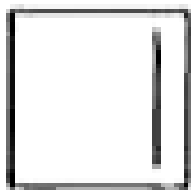
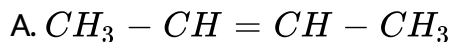
4. The intermediate 'J' in the following Wittig reaction is



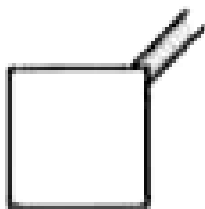
Answer: A

5. Ozonolysis of an alkene produces only one dicarbonyl compound .

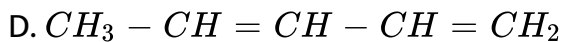
The structure of the alkene is



B.



C.



Answer: B



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6. The isomerisation of 1-butyne to 2-butyne can be achieved by treatment with

- A. hydrochloric acid
- B. ammoniacal silver nitrate
- C. ammoniacal cuprous chloride
- D. ethanolic potassium hydroxide

Answer: D

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7. $CH_3 - C \equiv CMgBr$ can be prepared by the reaction of

- A. $CH_3 - C \equiv C - Br$ with $MgBr_2$
- B. $CH_3 - C \equiv CH$ with $MgBr_2$
- C. $CH_3 - C \equiv CH$ with KBr and Mg metal

D. $CH_3 - C \equiv CH$ with CH_3MgBr .

Answer: D

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8. The correct order of the addition reaction rates of halogen acids with ethylene is

A. hydrogen chloride > hydrogen bromide > hydrogen iodide

B. hydrogen iodide > hydrogen bromide > hydrogen chloride

C. hydrogen bromide > hydrogen chloride > hydrogen iodide

D. hydrogen iodide > hydrogen chloride > hydrogen bromide

Answer: B

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Wb Jee Previous Years Questions Category 2 Single Option Correct Type

1. The major products obtained during ozonolysis of 2,3-dimethyl-1-butene and subsequent reductions with Zn and H_2O are

A. methanoic acid and 2-methyl-2-butanone

B. methanal and 3-methyl-2-butanone

C. methanol and 2, 3-dimethyl-3-butanone

D. methanoic acid and 2-methyl-3-butanone

Answer: B



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