



CHEMISTRY

BOOKS - NTA MOCK TESTS

HALOALKANES AND HALOARENES TEST

Multiple Choice Questions

1. An S_N2 reaction at an asymmetric carbon of a compound always gives -

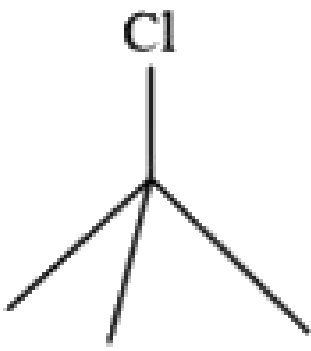
- A. An enantiomer of the substrate
- B. A product with opposite optical rotation
- C. A mixture of diastereomers
- D. A single stereoisomer

Answer: D



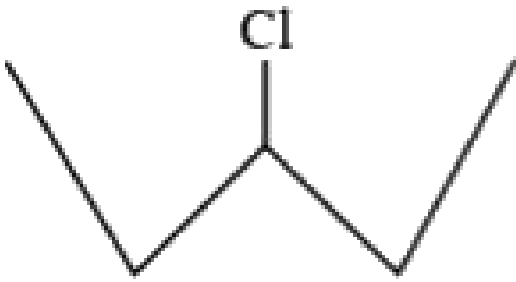
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2. Which one of the following two substances undergoes S_N1 reaction faster ?



or

(i)



(ii)

A. (i)

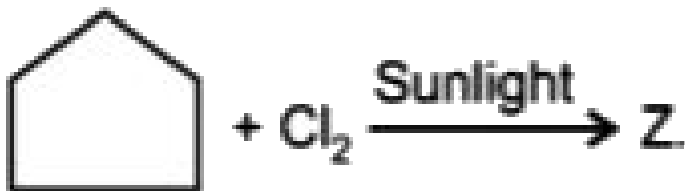
B. (ii)

C. (iii)

D. Both have equal rate for reaction.

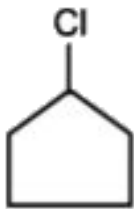
Answer: A

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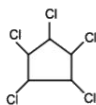


3.

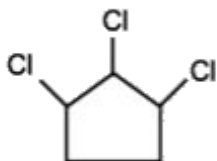
Major Product (Z) will be if Cl_2 is taken in large excess.



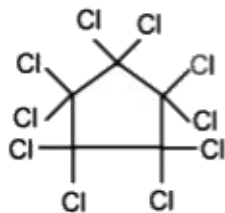
A.



B.



C.



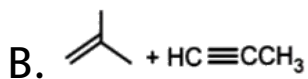
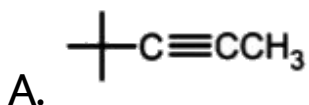
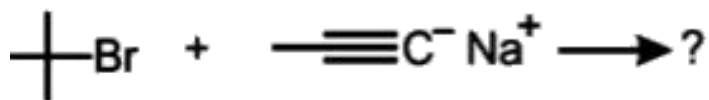
D.

Answer: D

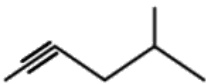


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4. What do you expect to be the main product when tertbutyl bromide reacts in the following manner ?



D.

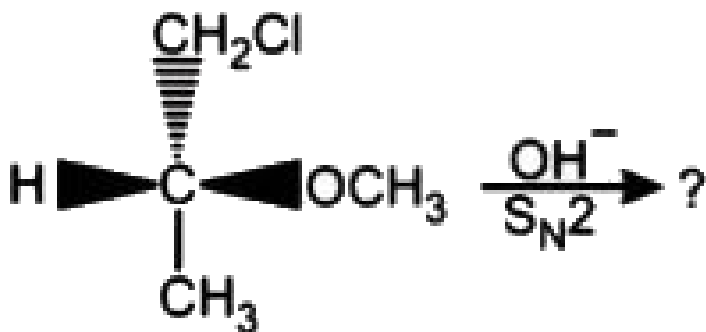


Answer: B

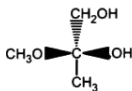


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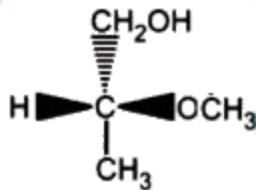
5. What is the major product of the reaction ?



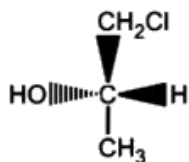
A.



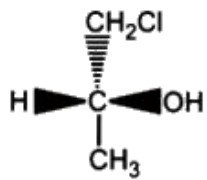
B.



C.



D.

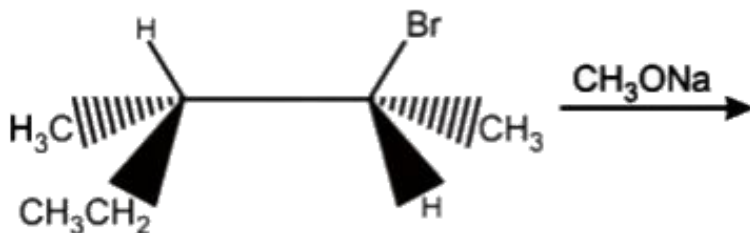


Answer: B



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6. Choose the correct statement about the major product formed in E_2 reaction ?



A. The major product will be optically active

B. The major product will be trans-3-Methyl-2pentene

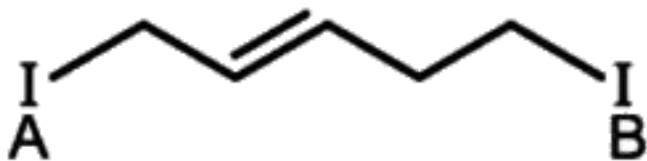
C. The major product will be cis-3-Methyl-2-pentene

D. The major product will be 3-Methyl-1-pentene

Answer: B

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7. Which one of the two Iodine atoms will be more reactive in the S_N1 and S_N2 reaction ?



A. A will be faster in S_N1 reaction but slower in S_N2

B. A will be faster both in S_N1 and S_N2 reaction

C. A and B will be equally reactive.

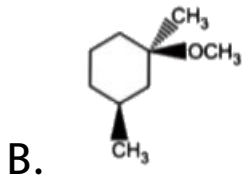
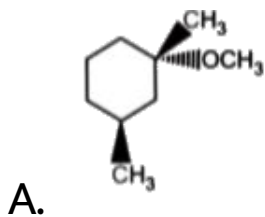
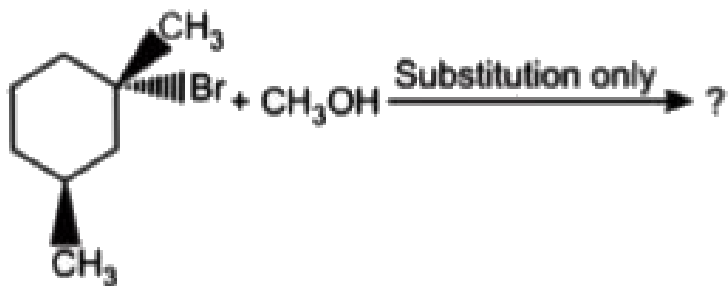
D. B will be faster in both S_N1 and S_N2 reaction

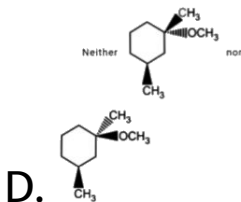
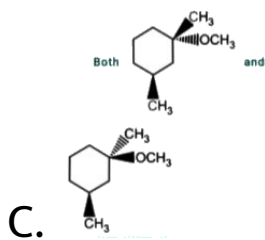
Answer: B



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8. What is the substitution product of the following reaction ?

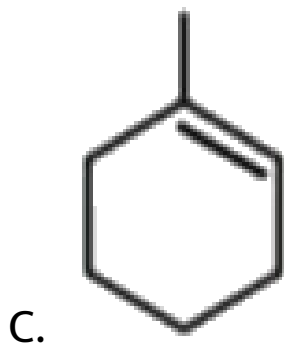
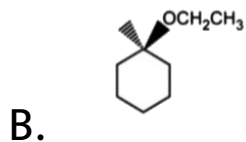
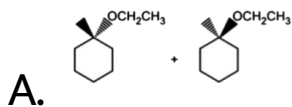
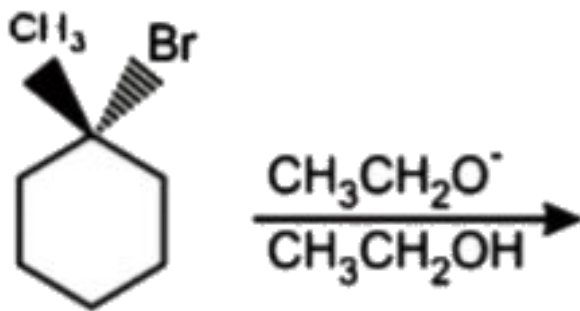


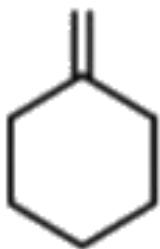


Answer: C

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9. What is the major product of the reaction shown ?

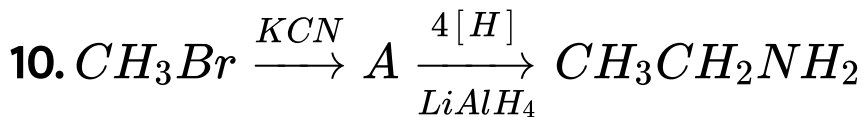




D.

Answer: C

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IUPAC name of A is:

A. Methyl cyanide

B. Methyl isonitrile

C. Acetonitrile

D. Ethane nitrile

Answer: D



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11. Which of the following would be the best (most reactive) nucleophile in the polar medium ?

A. I^-

B. Br^-

C. Cl^-

D. F^-

Answer: A



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12. The isomer of hexane that gives the minimum and maximum number of monochloro derivatives are respectively

A. 3-methylpentane and 2, 3-dimethylbutane

B. 2, 3-dimethylbutane and n-hexane

C. 2, 2-dimethylbutane and 2-methylpentane

D. 2, 3-dimethylbutane and 2-methylpentane

Answer: D



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13. Of the five isomeric hexanes, the isomer which can give only two monochlorinated compounds is (excluding stereoisomers)

- A. 2-methylpentane
- B. 2,2-dimethylbutane
- C. 2, 3-dimethylbutane
- D. n-hexane

Answer: C



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14. Which of the following alkane on mixing with chlorine and irradiating the mixture with ultraviolet light, form only one monochloroalkane.

A. Propane

B. Pentane

C. Iso-pentane

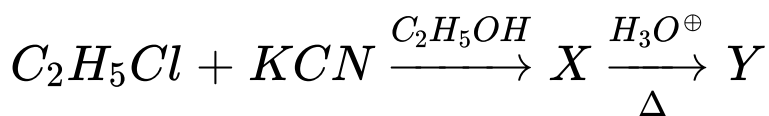
D. Neo-pentane

Answer: D

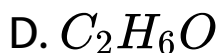
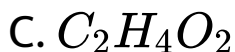
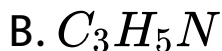
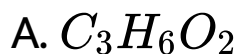


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15. In the reaction sequence,



What is the molecular formula of Y ?



Answer: A



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16. Which halide does not get hydrolysed by sodium hydroxide ?

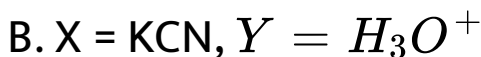
- A. Vinyl chloride
- B. Methyl Chloride
- C. Ethyl chloride
- D. Isopropyl chloride

Answer: A



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17. Identify X and Y in the following sequence:



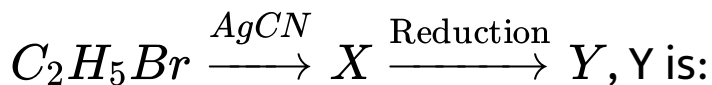
D. None of these

Answer: A



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18. In the following sequence of reactions:



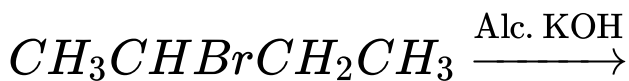
- A. n-propyl amine
- B. Isopropylamine
- C. Ethylamine
- D. ethylmethyl amine

Answer: D



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19. Which of the following applies in the reaction,



(i) $CH_3CH = CHCH_3$ (major product)

(ii) $CH_2 = CHCH_2CH_3$ (minor product)

A. Markownikoff's rule

B. Saytzeff's rule

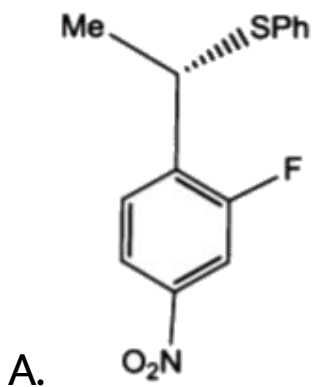
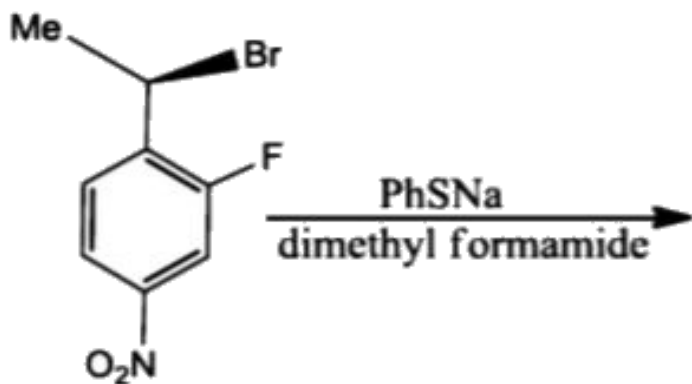
C. Kharasch effect

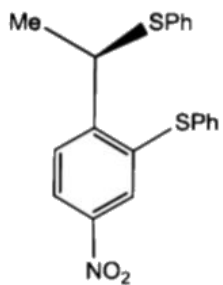
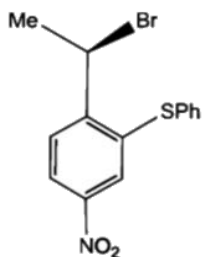
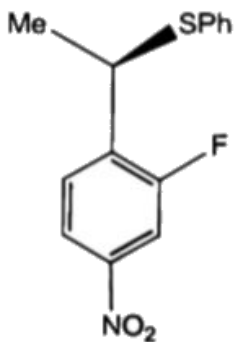
D. Hofmann's rule

Answer: B



20. The major product of the following reaction is:





Answer: A

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21. On warming with silver powder, chloroform is converted into:

A. Acetylene

B. Hexachloroethane

C. 1,1, 2, 2-tetrachloroethane

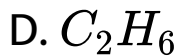
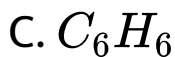
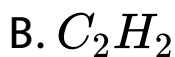
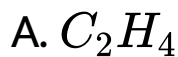
D. Ethene

Answer: A



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22. When Ethyl chloride and alcoholic KOH are heated, the compound obtained is:



Answer: A



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23. Which of the following will displace the halogen from the solution of the halide ?

A. Br_2 added to NaI

B. Br_2 added to NaCl

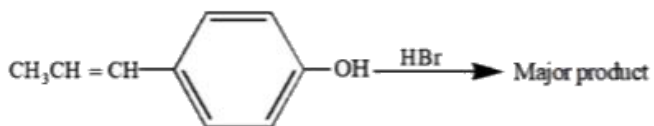
C. Cl_2 added to KCl

D. Cl_2 added to NaF

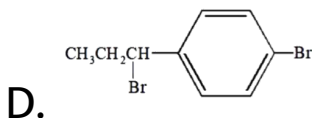
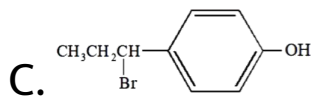
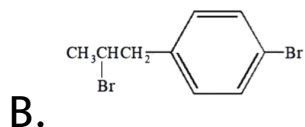
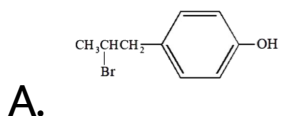
Answer: A



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The major product in the above reaction is:

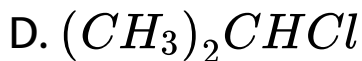
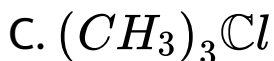
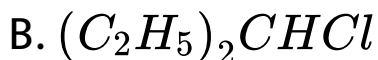


Answer: C



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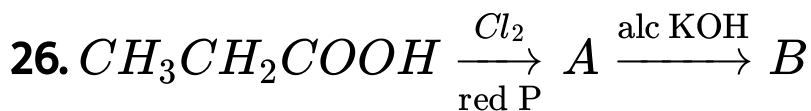
25. The organic chloro compound, which shows most readily S_N2 reaction, is:



Answer: A



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What is B?



Answer: D



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27. The S_N2 reaction involves back-side attack and therefore results in a "Walden Inversion."

For which one of the substrates shown would you be able to demonstrate that such back-side attack with "Walden Inversion" has in fact occurred ?

A. 1-bromopropane

B. 2-bromobutane

C. 3-bromopentane

D. Methyl bromide

Answer: B



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28. 2, 2-dimethyl-1-chloropropane undergo nucleophilic substitution reaction to produce an optically inactive product which of the following is correct regarding the product ?

(i) Formation of product takes place through SN^1 reaction.

(ii) The product is optically inactive due to internal compensation.

(iii) The product is optically inactive due to external compensation.

(iv) The carbocation is not an intermediate in the given reaction.

Choose the correct option.

A. only (i)

B. (i) and (ii)

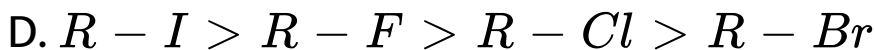
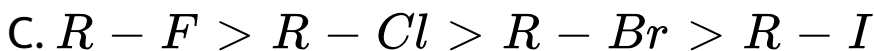
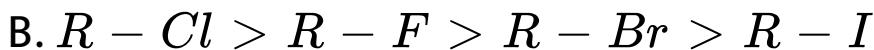
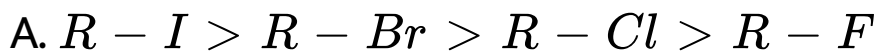
C. (i), (ii) and (iii)

D. All of these

Answer: A



29. In the nucleophilic substitution reactions (S_N2 or S_N1) the reactivity of alkyl halides follows the sequence.

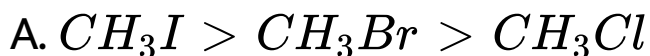


Answer: A



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30. The order of reactivities of methyl halides in the formation of Grignard reagent is,



Answer: A



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