

CHEMISTRY • CLASS 11

9

CHAPTER

Hydrocarbons

NCERT SOLUTIONS

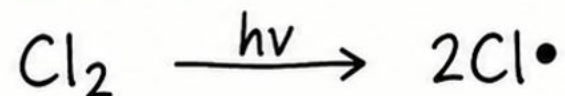


EXERCISE SOLUTIONS: 9.1

9.1 How do you account for the formation of ethane during chlorination of methane?

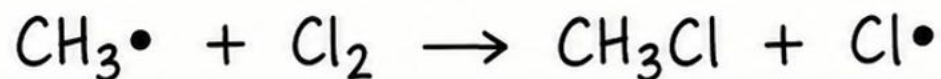
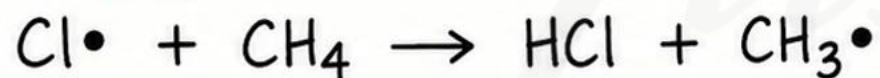
Answer:

(i) Initiation:



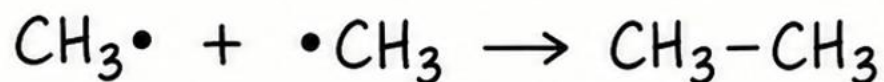
Light breaks the chlorine bond homolytically, producing chlorine radicals.

(ii) Propagation:



A chlorine radical removes hydrogen from methane, producing a methyl radical.

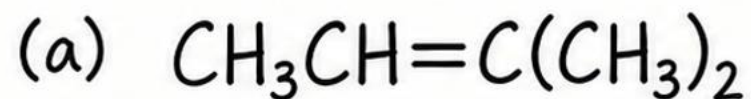
(iii) Termination: ethane formation:



Two methyl radicals can combine. Their unpaired electrons form a new carbon-carbon bond, giving ethane as a by-product and ending those radical chains.

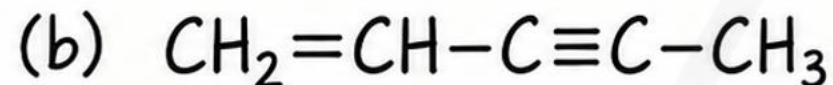
EXERCISE SOLUTIONS: 9.2a-c

9.2 (a-c) Write the IUPAC names of these compounds.



Answer: 2-Methylbut-2-ene

Choose a four-carbon chain containing the double bond. Number to give the methyl group the lower locant when the double-bond locant ties.



Answer: Pent-1-en-3-yne

Number from the alkene end to give the multiple bonds the lower set of locants.



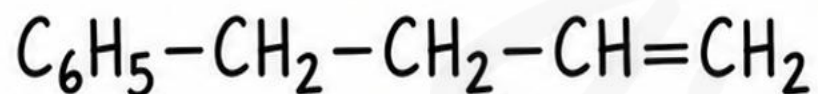
Answer: Buta-1,3-diene

The four-carbon chain has double bonds starting at carbons one and three.

EXERCISE SOLUTIONS: 9.2d-e

9.2 (d-e) Write the IUPAC names of the given aromatic compounds.

(d)

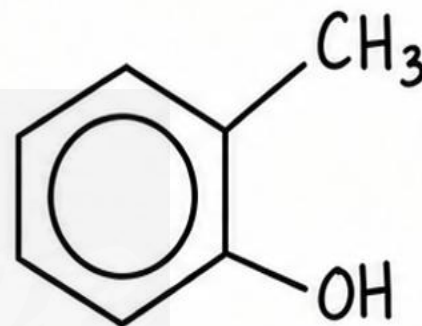


Answer:

4-Phenylbut-1-ene

Number the four-carbon side chain from its double-bond end. The phenyl group is on carbon four.

(e)



Answer:

2-Methylphenol

The hydroxyl group defines phenol and is on carbon one. The adjacent methyl group gets locant two.

EXERCISE SOLUTIONS: 9.2f-g

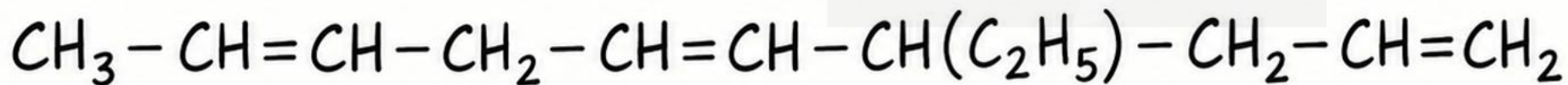
9.2 (f) Name the two branched compounds.



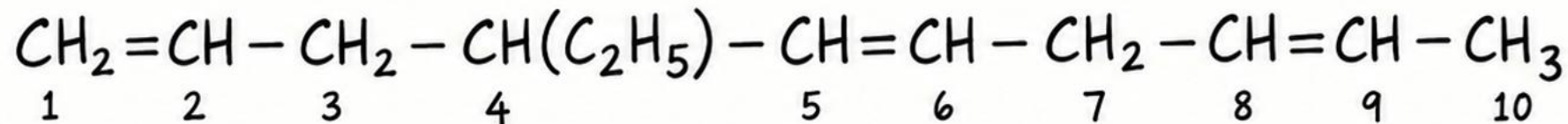
Answer: 5-(2-Methylpropyl)decane

The longest chain has ten carbons. Numbering from the right puts the branched four-carbon substituent at carbon five.

9.2 (g) Name the two branched compounds.



Answer: 4-Ethyldeca-1,5,8-triene



The ten-carbon parent includes all three double bonds. Numbering from the terminal methylene end gives double-bond locants one, five and eight and ethyl at carbon four.

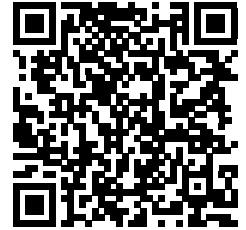


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