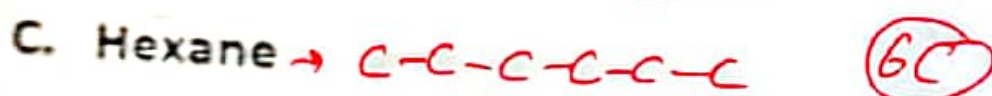
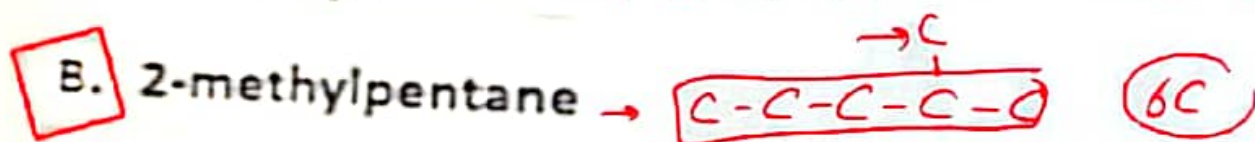
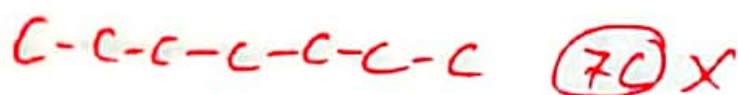


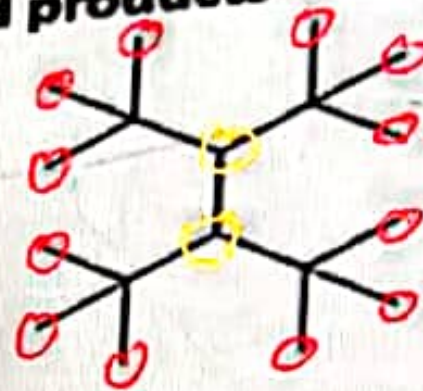
Which compound has lowest boiling point?



E. Heptane



How many mono-brominated products would this molecule have?

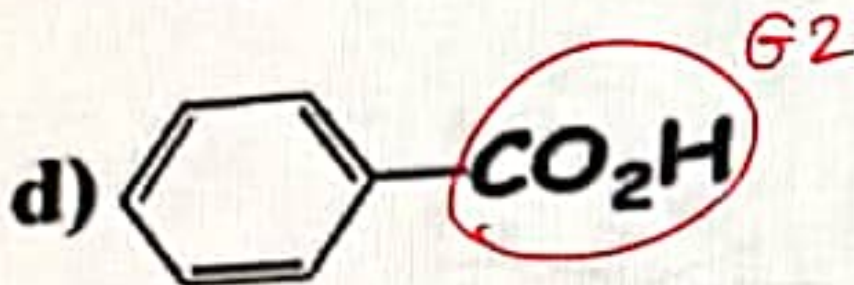
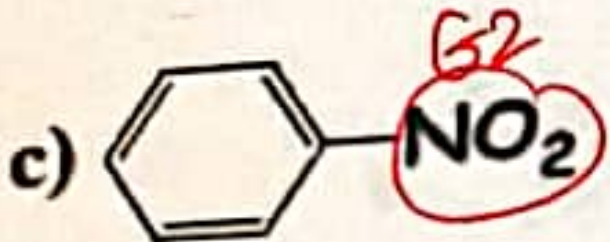
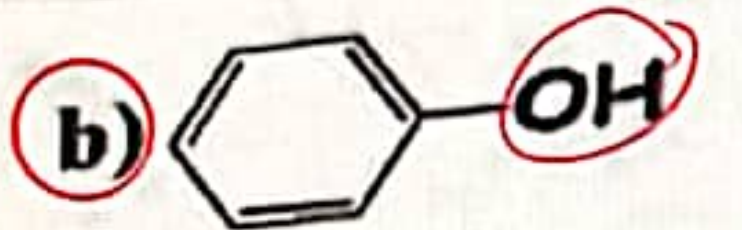
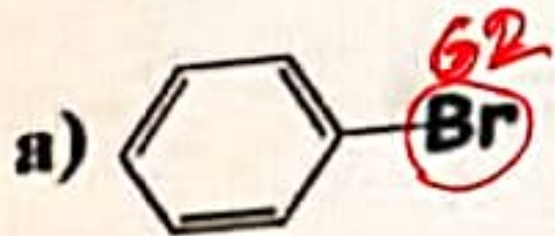


- A. 5
- B. 2**
- C. 4
- D. 3
- E. 1

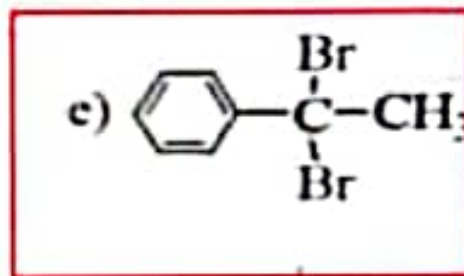
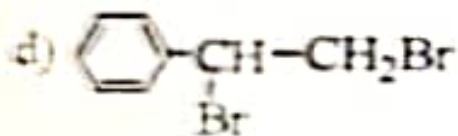
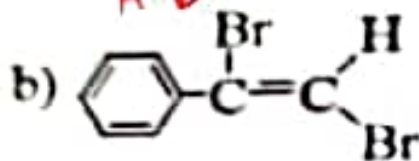
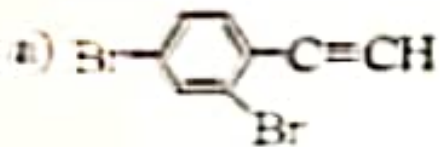
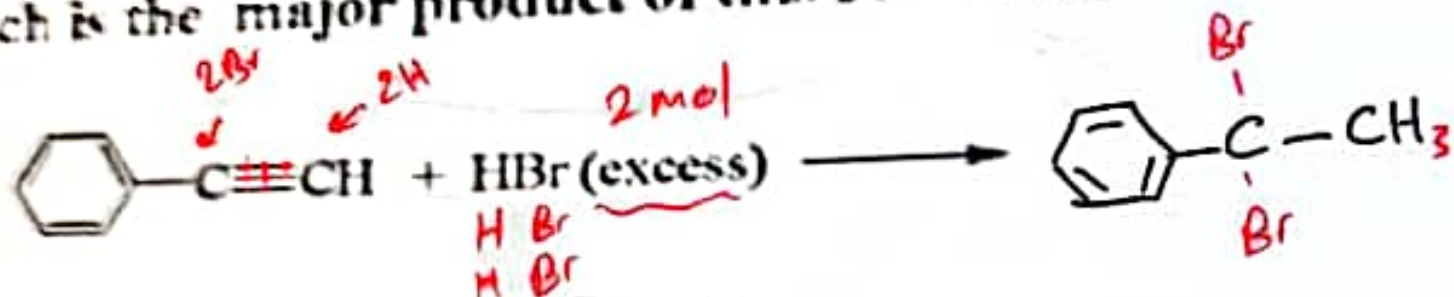
X

GI (activating group)

Which compound is most reactive towards ring bromination?



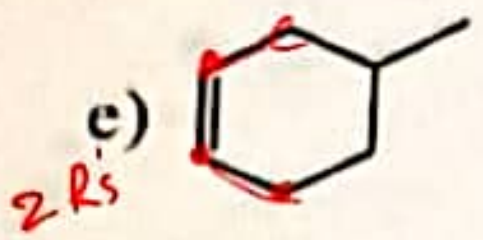
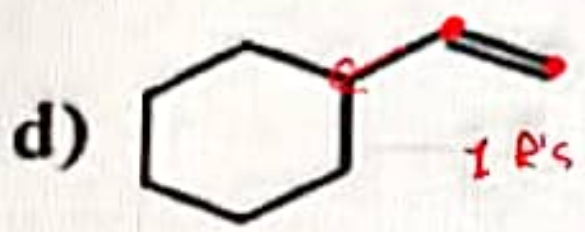
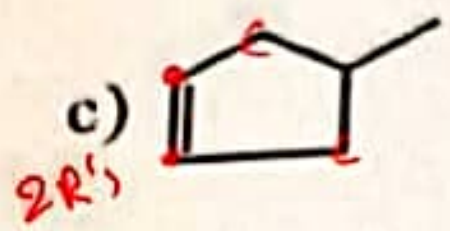
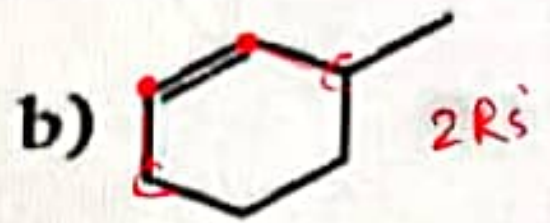
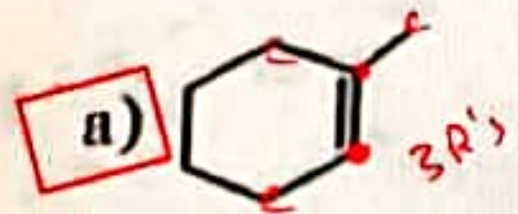
Which is the major product of this reaction?





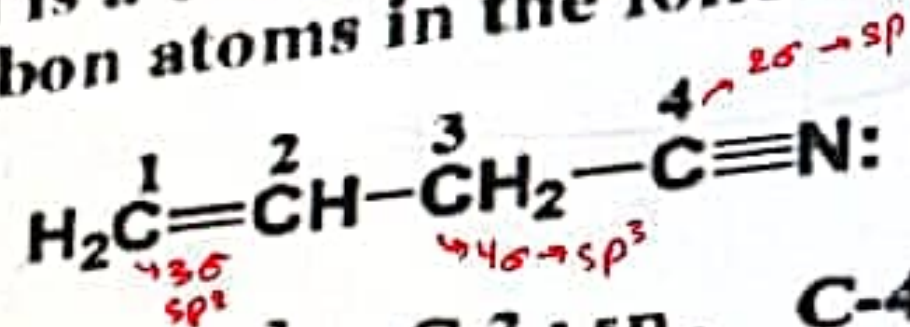


Which alkene is most reactive toward reaction with HCl?



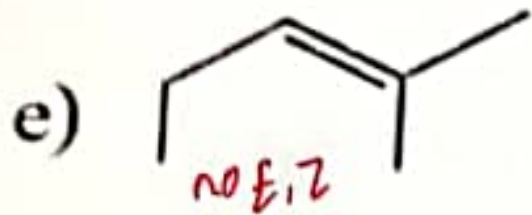
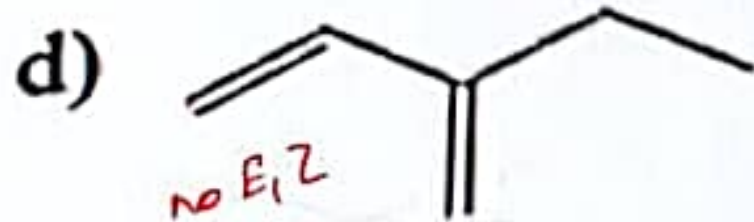
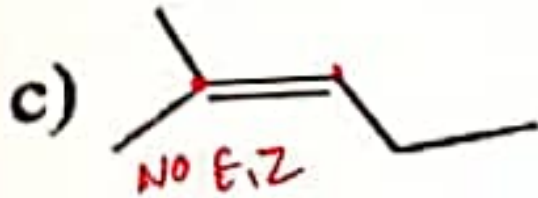
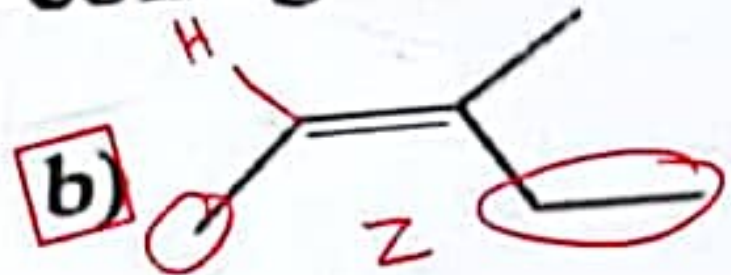
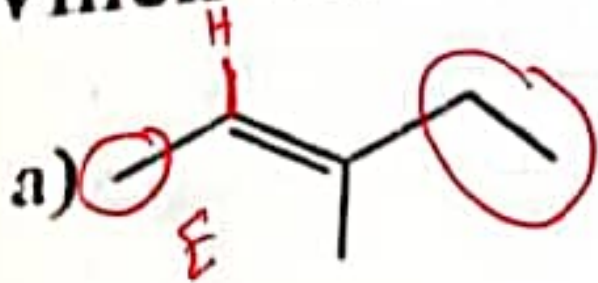


Which is a correct assignment of hybridizations of carbon atoms in the following structure ?

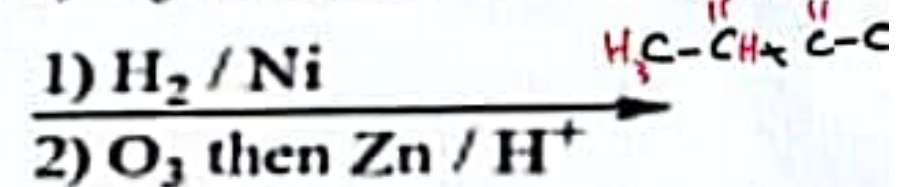
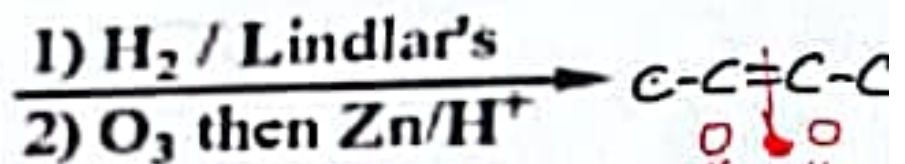
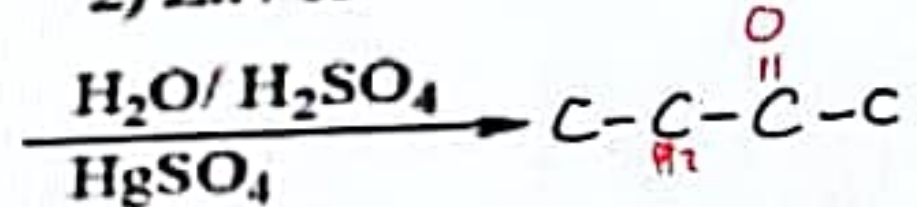
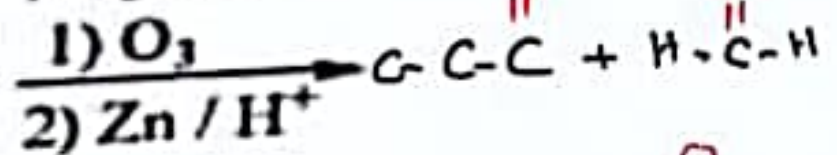
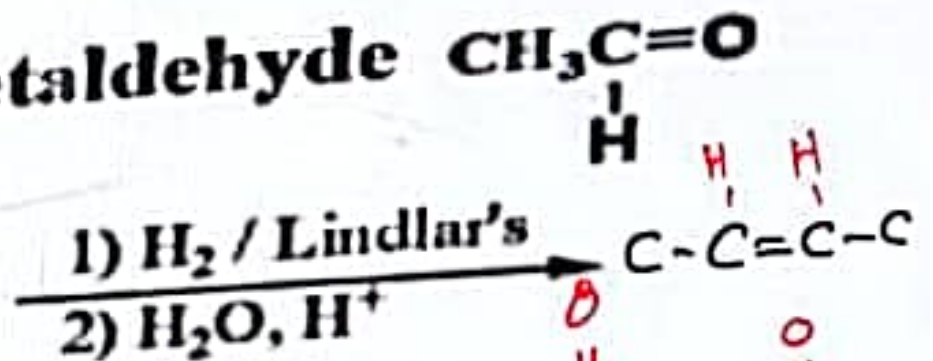
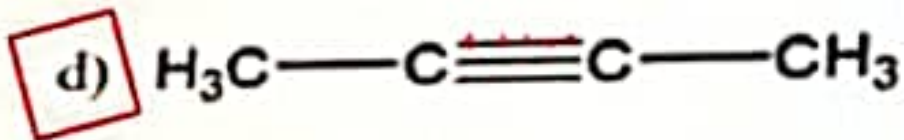
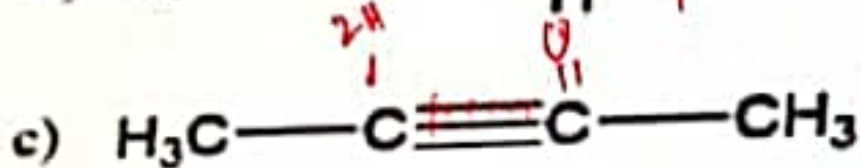
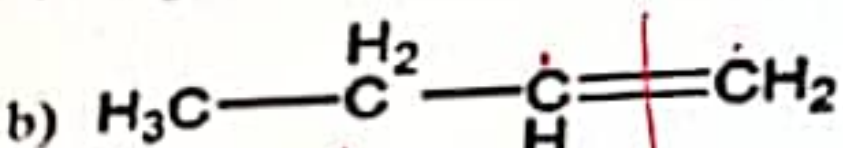
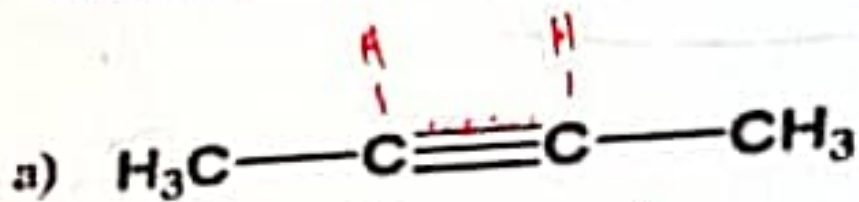


- a) C-1 : sp<sup>3</sup>, C-3 : sp, C-4 : sp<sup>2</sup>
- b) C-1 : sp<sup>2</sup>, C-3 : sp, C-4 : sp<sup>3</sup>
- c) C-1 : sp<sup>2</sup>, C-3 : sp<sup>3</sup>, C-4 : sp
- d) C-1 : sp, C-3 : sp<sup>3</sup>, C-4 : sp<sup>2</sup>
- e) C-1 : sp<sup>3</sup>, C-3 : sp<sup>2</sup>, C-4 : sp

Which alkene has Z-configuration?



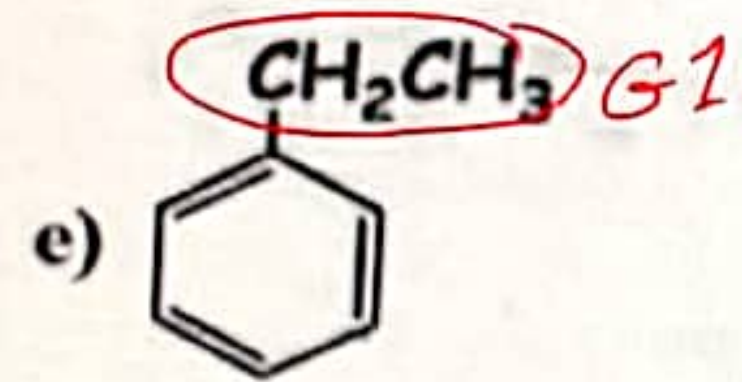
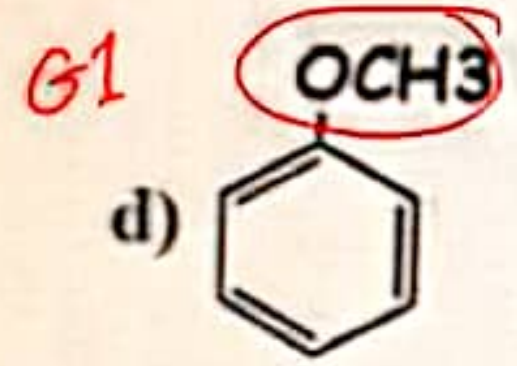
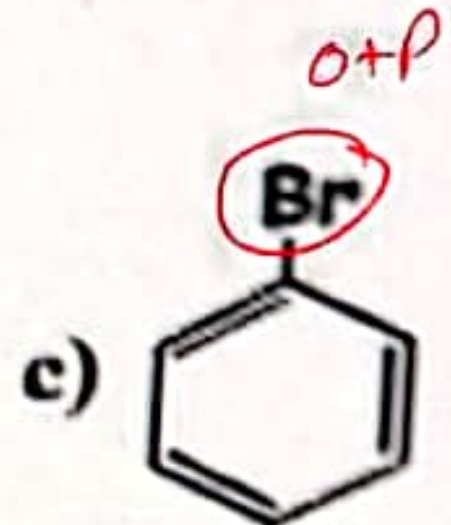
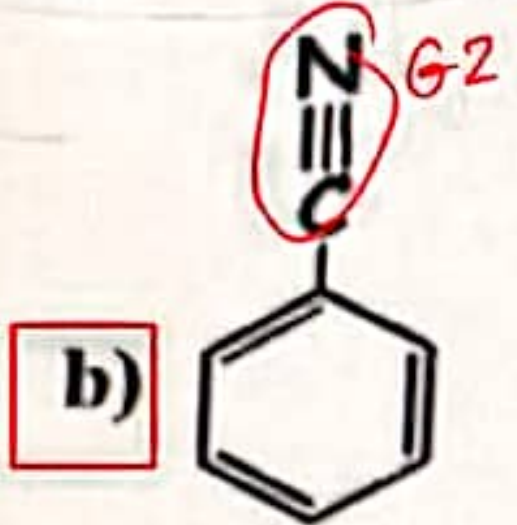
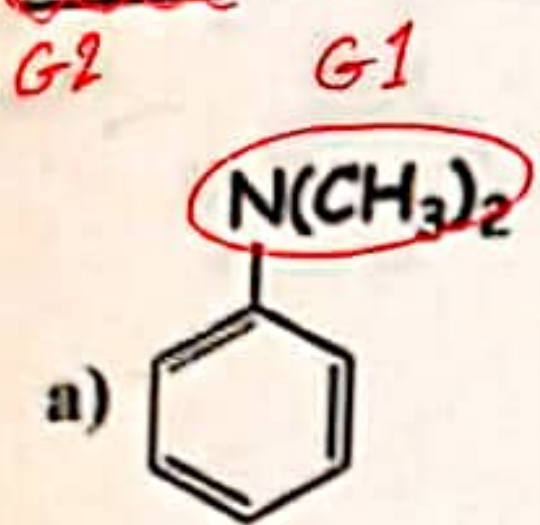
Which reaction gives acetaldehyde  $\text{CH}_3\text{C}(\text{H})=\text{O}$





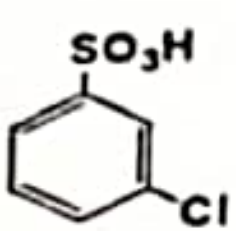
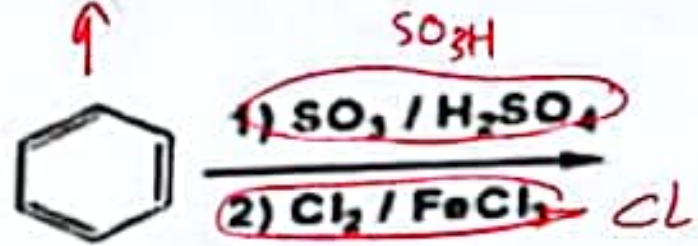


Which compound has a deactivating meta-directing group?

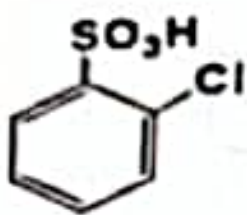




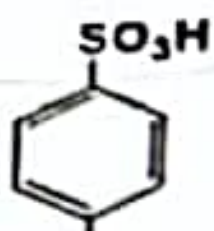
What is the major product of the following reaction :



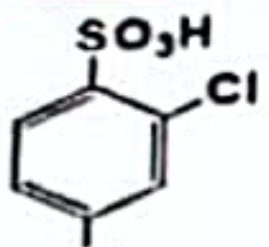
I



II



III



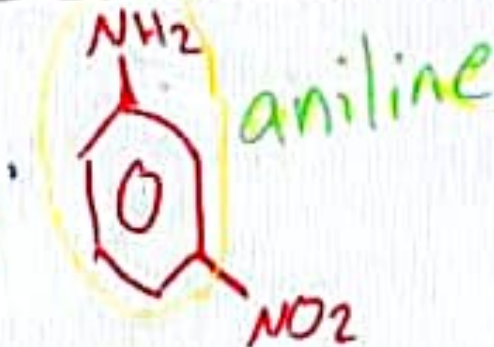
IV

- a) II only
- b) I only**
- c) III only
- d) IV only
- e) I and II

Which of the following names is correct?

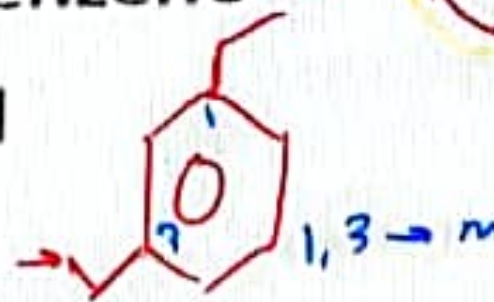


a) meta-aminonitrobenzene →

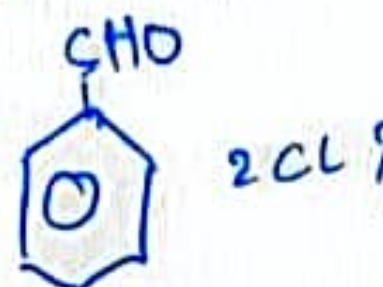


b) 4-nitrobenzoic acid

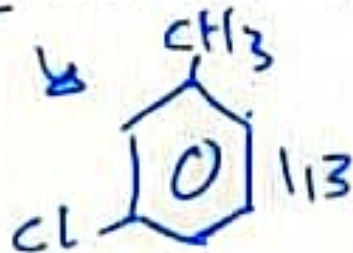
c) 1,5-diethylbenzene →



d) para-dichlorobenzaldehyde →

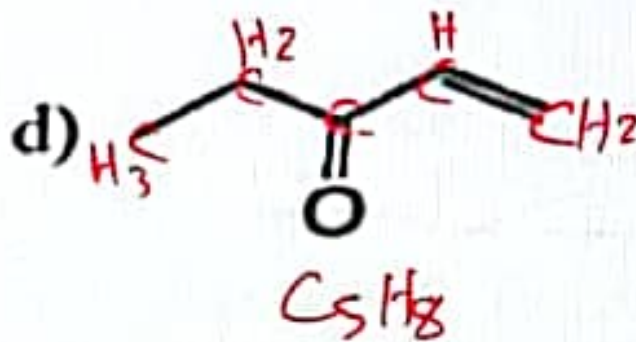
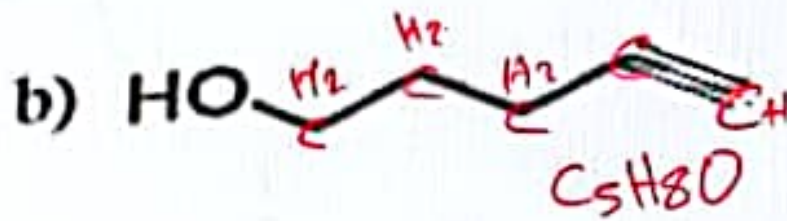
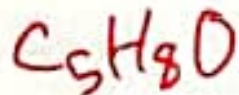
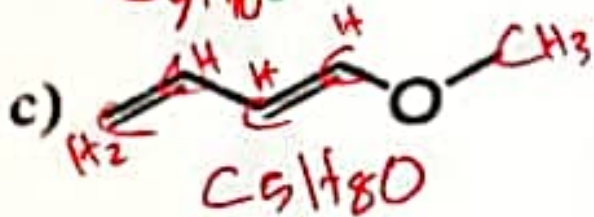
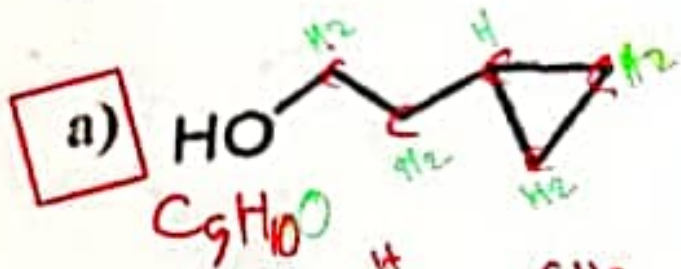


e) 5-chlorotoluene





Which structure is not constitutional (structural) isomer of  $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}-\text{CH}_2\text{OH}$ ?  $\text{C}_5\text{H}_8\text{O}$







$$\text{conc.} = 10 \text{ g/L} \rightarrow 0.01$$
$$\text{length} = 1 \text{ dm}$$
$$\alpha = +0.20$$

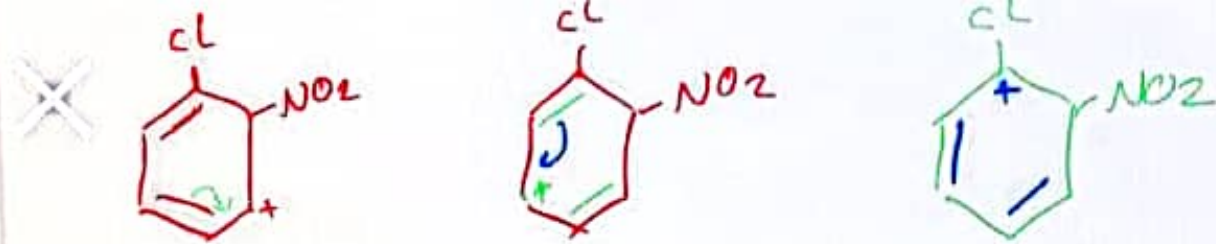
$$\text{conc.} = 20 \text{ g/L} \rightarrow 20 \text{ g} \times \frac{1 \text{ L}}{1000 \text{ mL}} = 0.02$$
$$\text{length} = 1 \text{ dm}$$

$$[\alpha] = \frac{0.20}{0.01 \times 1} \Rightarrow 20 \rightarrow [\alpha] = \frac{\alpha}{c \times l} \rightarrow 20 = \frac{\alpha}{0.02 \times 1} \rightarrow \alpha = 0.40$$

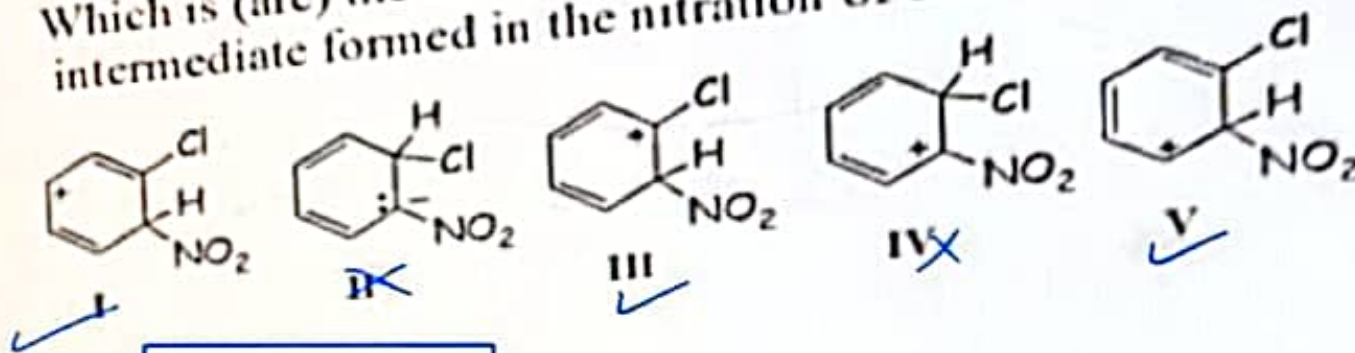
The measured rotation  $\alpha$  of 10 g/L glucose solution in a 1 dm tube is + 0.20 degrees.

What happens if a 20 g/L glucose solution is used? (Specific rotation glucose = + 52 degrees).

- a) Measured rotation becomes + 0.10 degrees
- b) Specific rotation  $[\alpha]$  becomes + 26 degrees
- c) Measured rotation becomes + 0.40 degrees
- d) Specific rotation  $[\alpha]$  becomes + 104 degrees
- e) Measured and specific rotations will not change



Which is (are) the correct resonance structure(s) of the intermediate formed in the nitration of chlorobenzene?



a) I, III and V

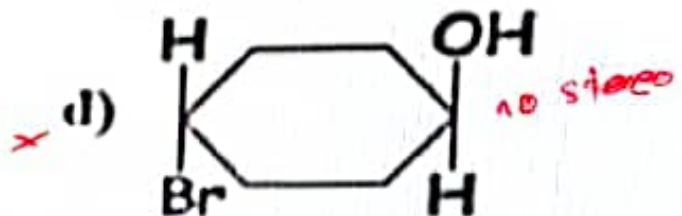
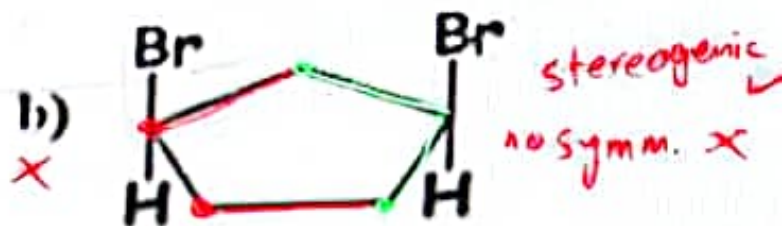
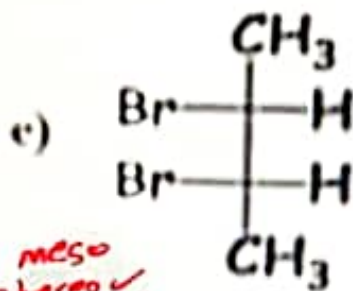
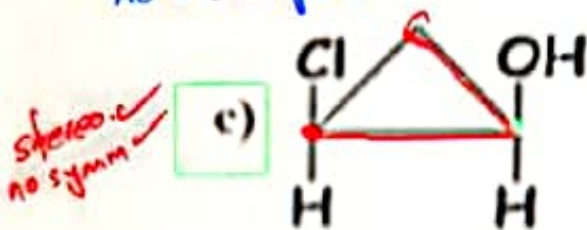
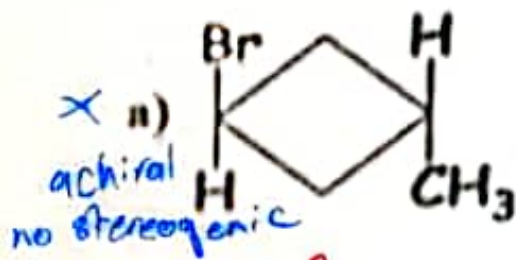
b) II only

c) I only

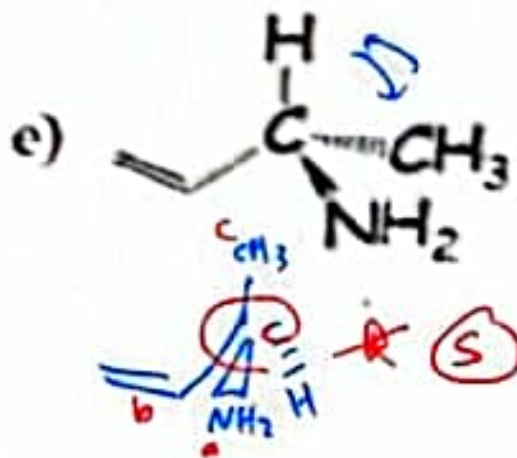
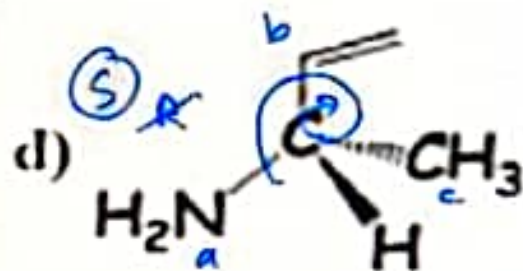
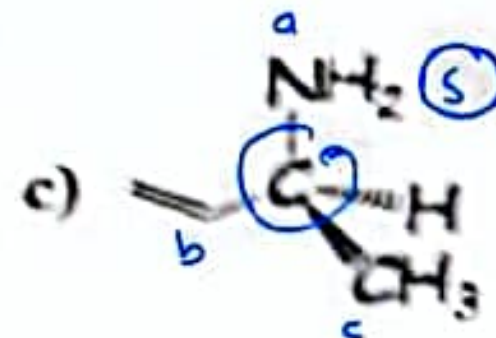
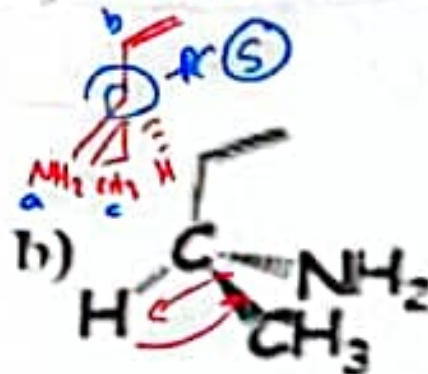
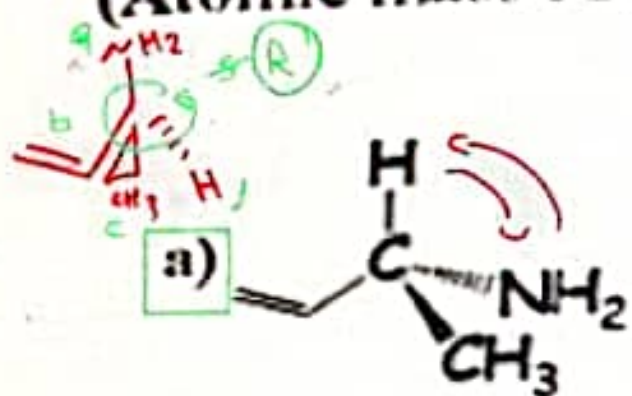
d) I, III, and IV

e) III, IV and V

Which of the following molecules is chiral?

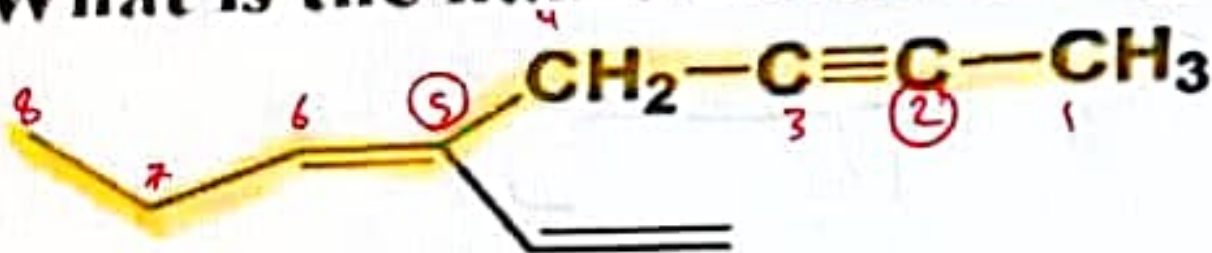


Which molecule has (R)-configuration?  
 (Atomic mass : H = 1; C = 12; N = 14)





What is the name of this compound ?



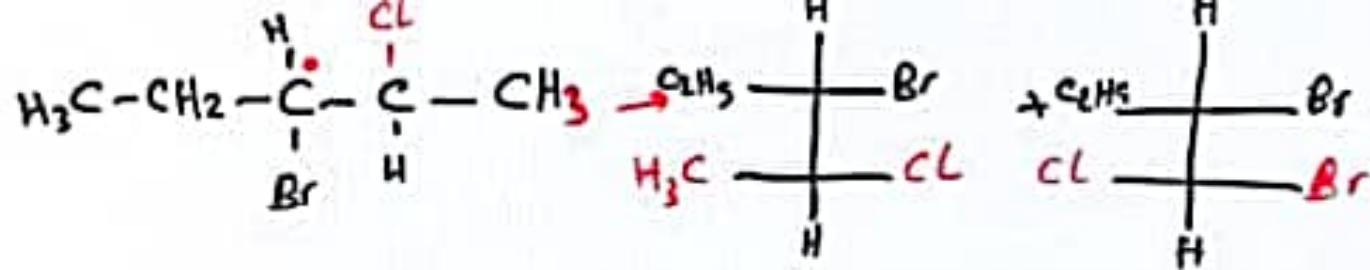
a) 3-butyl-1,3-hexadiene-5-yne

b) 4-allyl-3-octen-6-yne

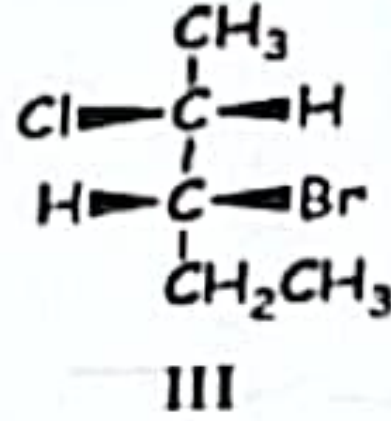
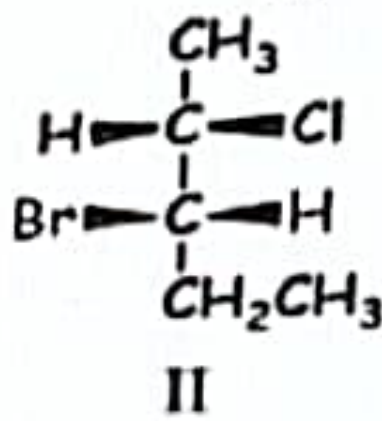
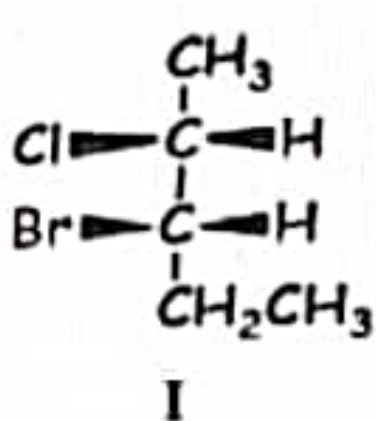
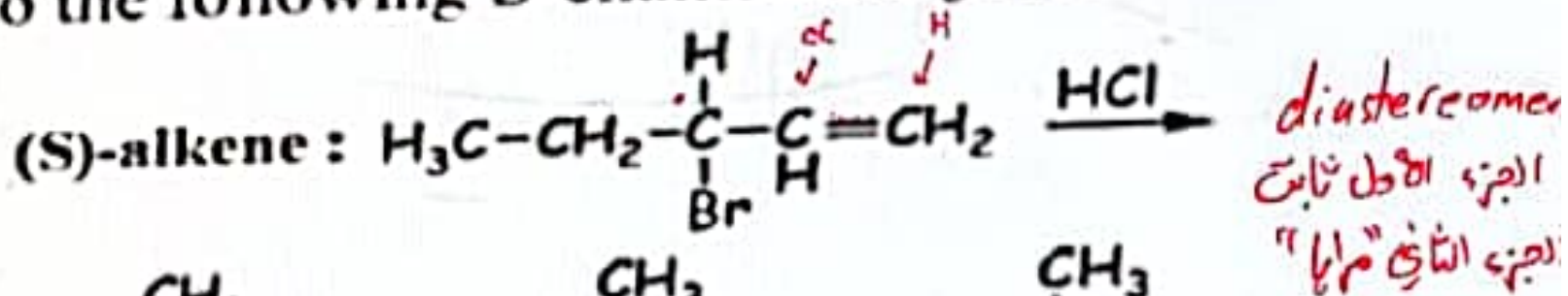
c) 4-butynyl-3,5-hexadiene

d) 5-vinyloct-5-en-2-yne

e) 3-butynyl-1,3-hexadiene



Which product(s) would addition of HCl to the following S-enantiomer yield?



a) I and III

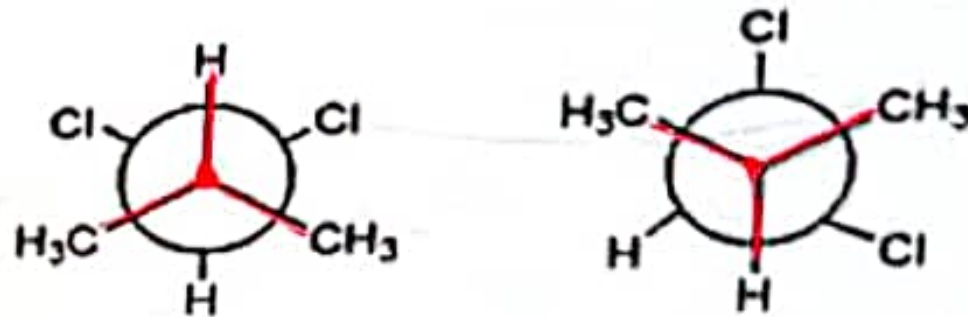
b) I and II

c) II and III

d) I only

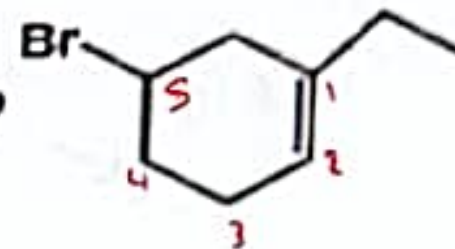
e) III only

What is the relationship between these molecules?



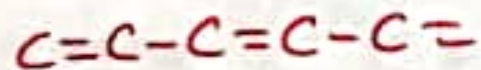
- A. Identical
- B. Configurational (geometric) stereoisomers
- C. Structural (constitutional) isomers
- D. Conformations (rotamers)
- E. unrelated

What is the correct name of this compound ?

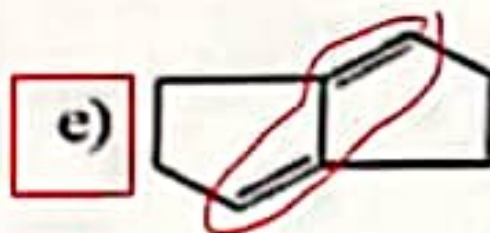
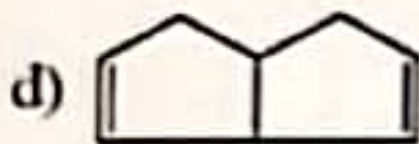
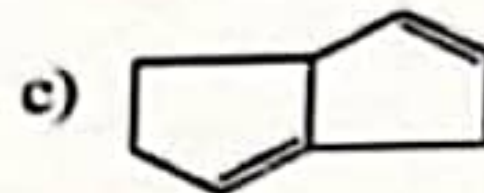
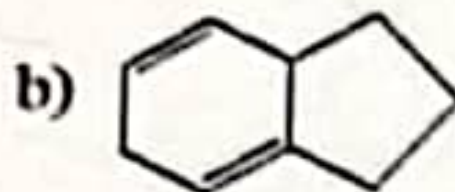
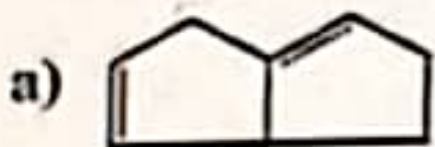


- a) 5-bromo-1-ethylcyclohexene
- b) 4-bromo-2-ethylcyclohexene
- c) 1-bromo-3-ethylcyclohex-3-ene
- d) 1-ethyl-5-bromocyclohexene
- e) 3-bromo-1-ethylcyclohexene

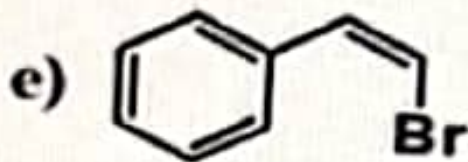
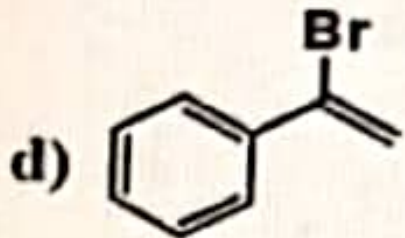
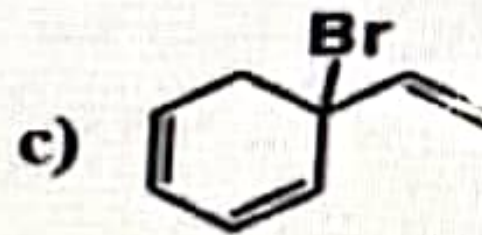
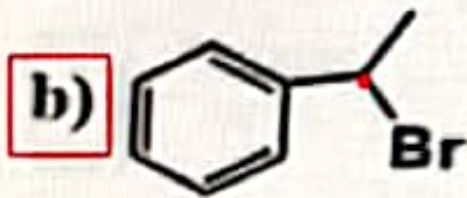
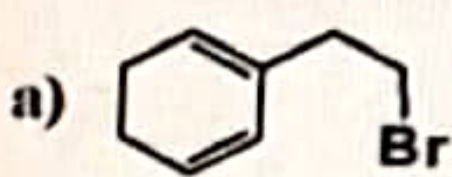
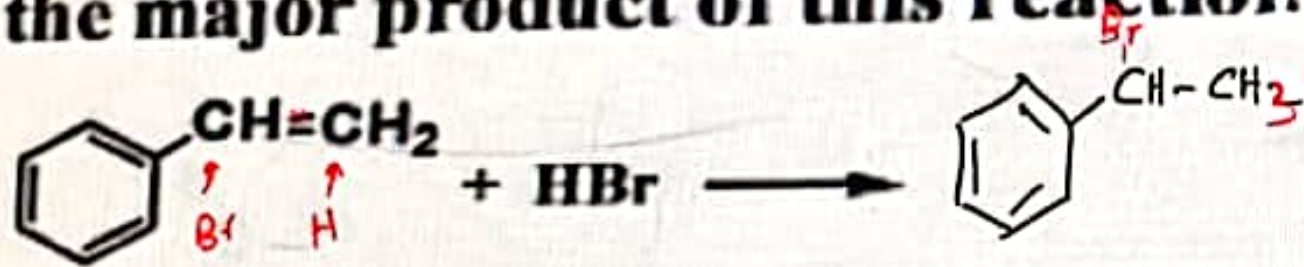




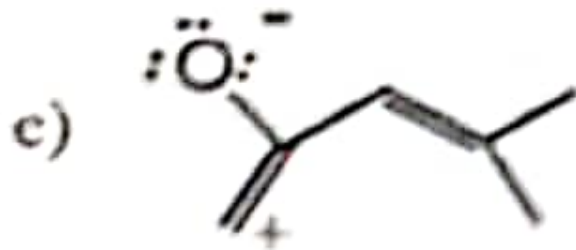
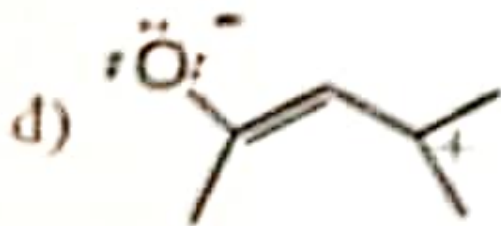
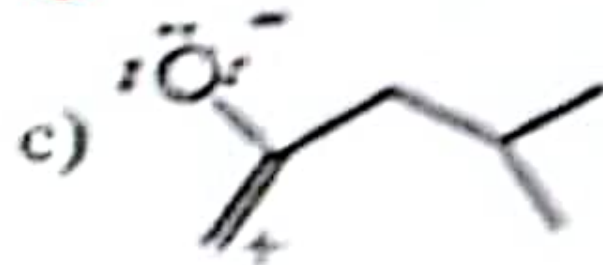
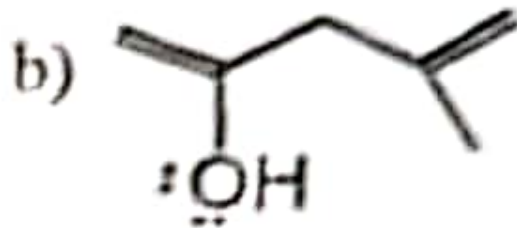
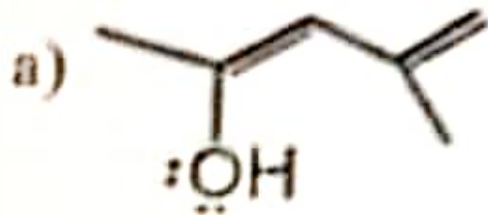
Which diene has conjugated double bonds?



Which is the major product of this reaction



Which is a contributing resonance structure of :





What is the IUPAC name of this compound ?



- A. 3-ethyl-2,7,8-trimethylnonane
- B. 2,6-diisopropyloctane
- C. 6-ethyl-2-isopropyl-7-methyloctane
- D. 7-ethyl-2,3,8-trimethylnonane
- E. 7-isopropyl-2,3-dimethylnonane



Which is a major product of this reaction?

