

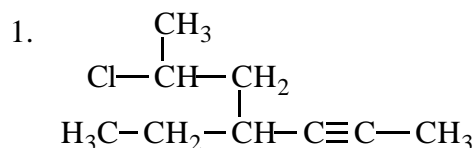
Chemistry 2321

Test No. 3

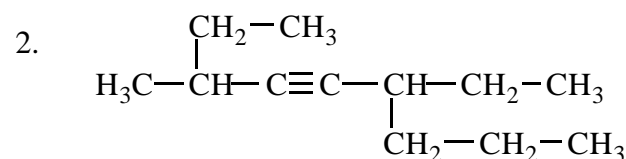
Professor M. Pomerantz

OLD TEST QUESTIONS

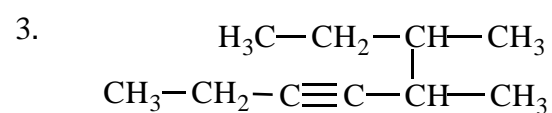
Select the best name for the compounds shown.



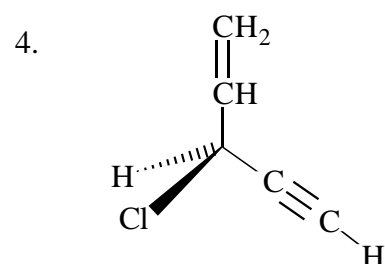
- a) 2-chloro-4-ethyl-5-heptyne d) 6-chloro-4-ethyl-2-heptyne
b) 4-(2-chloropropyl)-2-hexyne e) 2-chloro-4-(1-propynyl)-2-hexane
c) 6-chloro-4-ethyl-2-heptene



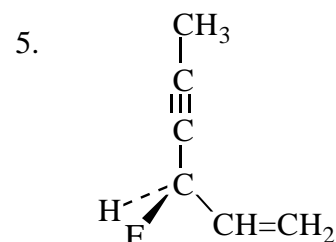
- a) 2-ethyl-5-propyl-3-heptyne d) 4-ethyl-7-methyl-5-nonyne
b) 2-ethyl-5-propyl-3-heptene e) 6-propyl-3-methyl-4-octyne
c) 6-ethyl-3-methyl-4-nonyne



- a) 5,6-dimethyl-3-octyne
b) 3,4-dimethyl-5-octyne
c) 2-*sec*-butyl-3-hexyne
d) 5-*sec*-butyl-3-hexyne
e) 2-(1-methylpropyl)-3-hexyne

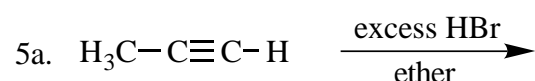


- a) (S)-3-chloro-3-vinyl-1-propyne
b) (R)-3-chloro-1-pentyn-4-ene
c) (S)-3-chloro-1-pentyn-4-ene
d) (R)-3-chloro-1-penten-4-yne
e) (S)-3-chloro-1-penten-4-yne

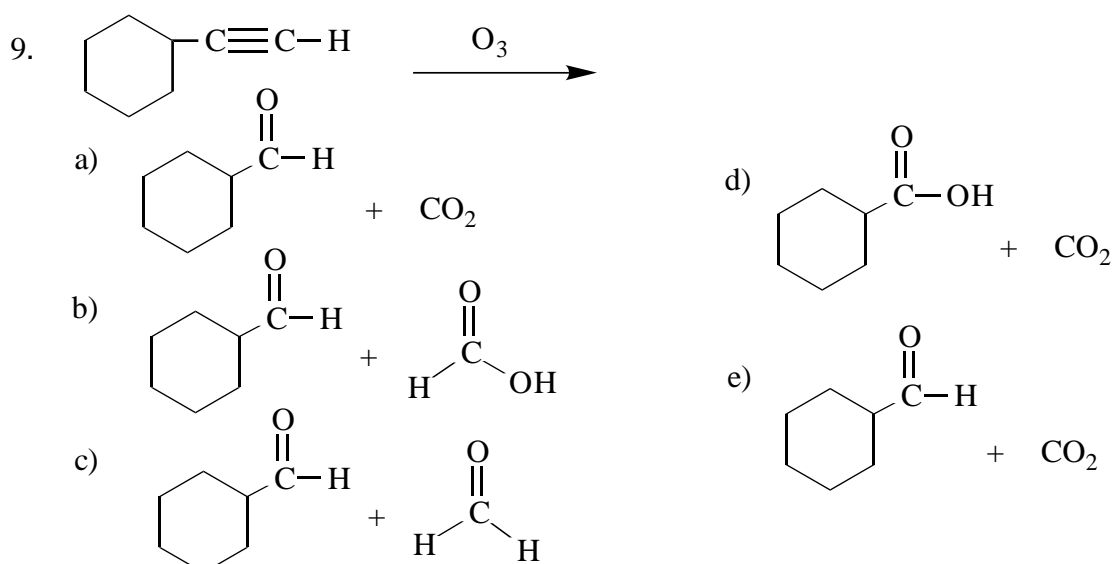
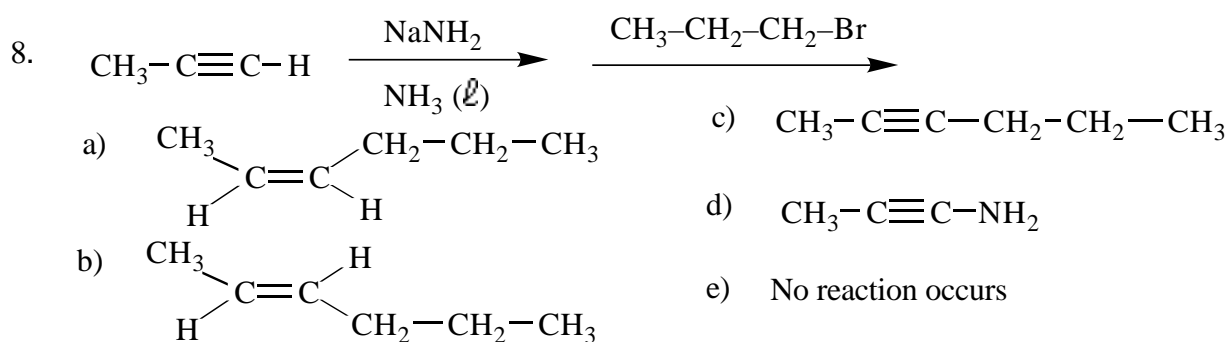
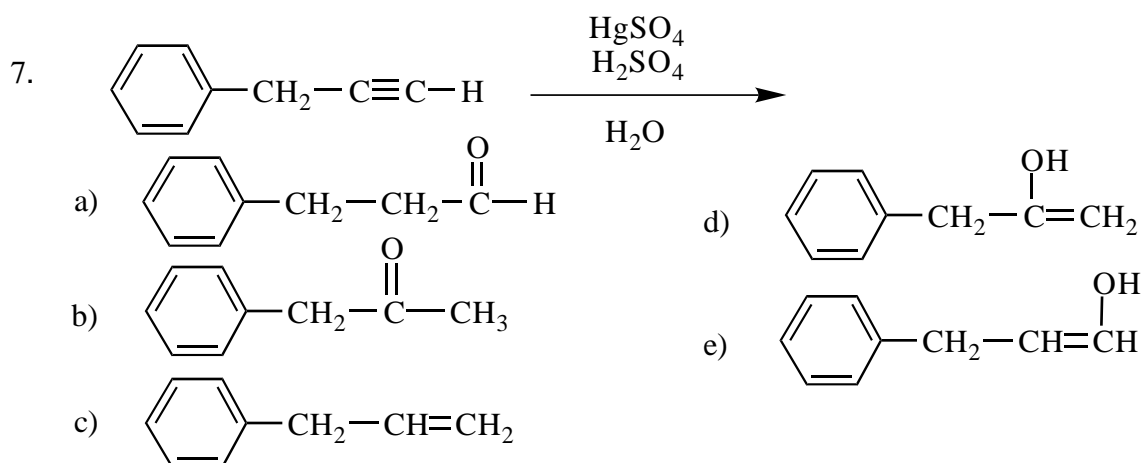
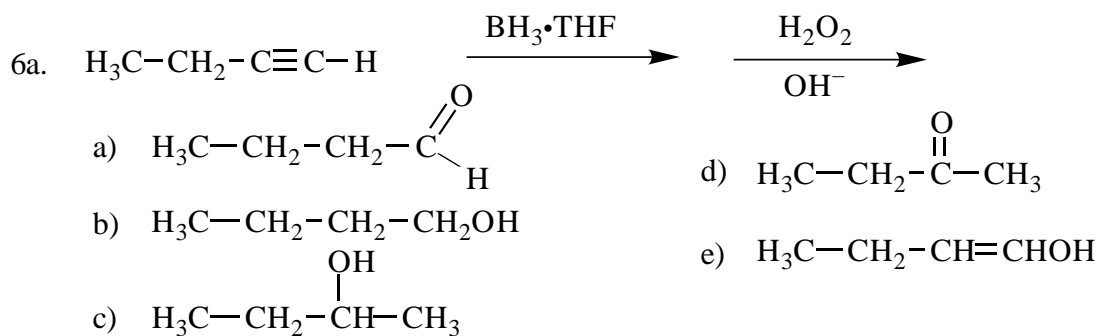
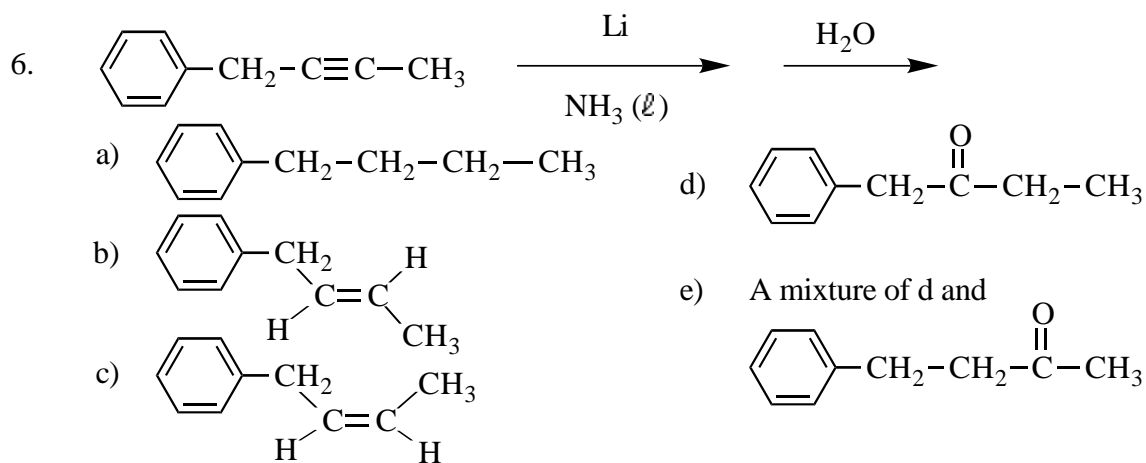


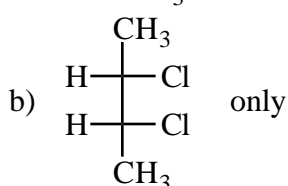
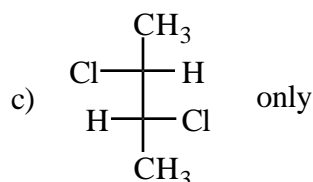
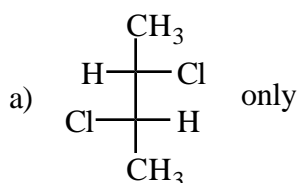
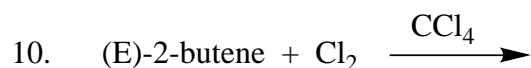
- a) (E)-3-flouro-1-hexen-4-yne d) (R)-3-flouro-1-hexen-4-yne
b) (Z)-3-flouro-1-hexen-4-yne e) *cis*-3-flouro-1-hexen-4-yne
c) (S)-3-flouro-1-hexen-4-yne

What is the major organic product from the following reactions?



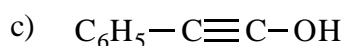
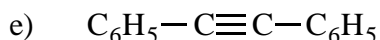
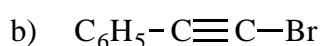
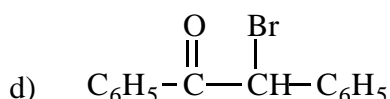
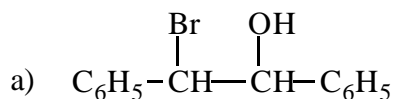
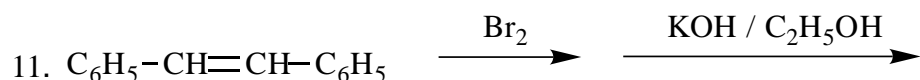
- a) $\text{H}_3\text{C}-\text{CH}_2-\text{CHBr}_2$ d) $\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2\text{Br}$
b) $\text{H}_3\text{C}-\overset{\text{Br}}{\text{CH}}-\text{CH}_2\text{Br}$ e) $\text{H}_3\text{C}-\overset{\text{Br}}{\text{CH}}-\text{CH}_3$
c) $\text{H}_3\text{C}-\overset{\text{Br}}{\underset{\text{Br}}{\text{C}}}-\text{CH}_3$



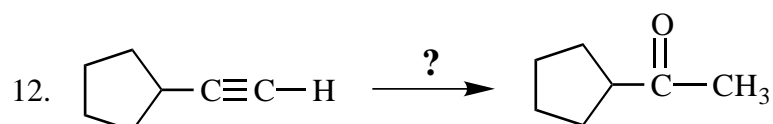


d) an equal mixture of a and b

e) an equal mixture of a and c



What reagent(s) can be used to carry out the conversions shown?



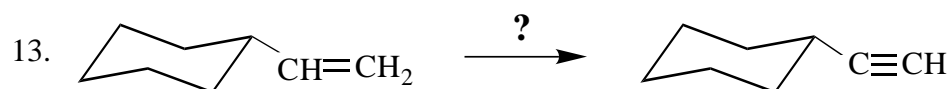
a) O₃

d) 1) BH₃·THF; 2) H₂O₂ / OH⁻

b) 1) OsO₄; 2) NaHSO₃

e) HgSO₄, H₂SO₄, H₂O

c) H₂O / Lindlar's catalyst



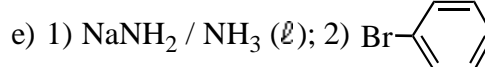
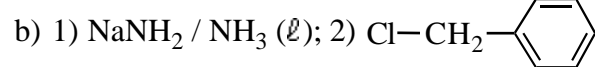
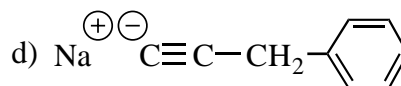
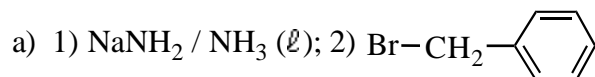
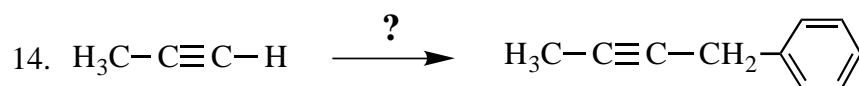
a) Li / NH₃ (ℓ)

d) 1) BH₃·THF; 2) H₂O₂ / OH⁻

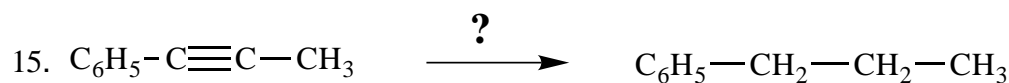
b) H₂ / Lindlar's catalyst

e) 1) H₂ / Pt; 2) 1) Br₂ / CCl₄; 3) KOH / C₂H₅OH

c) 1) Br₂ / CCl₄; 2) NaNH₂ / NH₃ (ℓ)



c) Either a or b



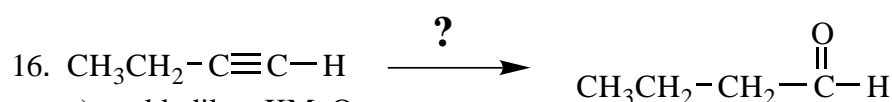
a) Li / NH₃ (ℓ)

d) 1) BH₃-THF; 2) H₂O₂ / OH⁻ / H₂O

b) H₂ / Lindlar's catalyst

e) Both a and b are correct

c) H₂ - Pd / C



a) cold, dilute KMnO₄

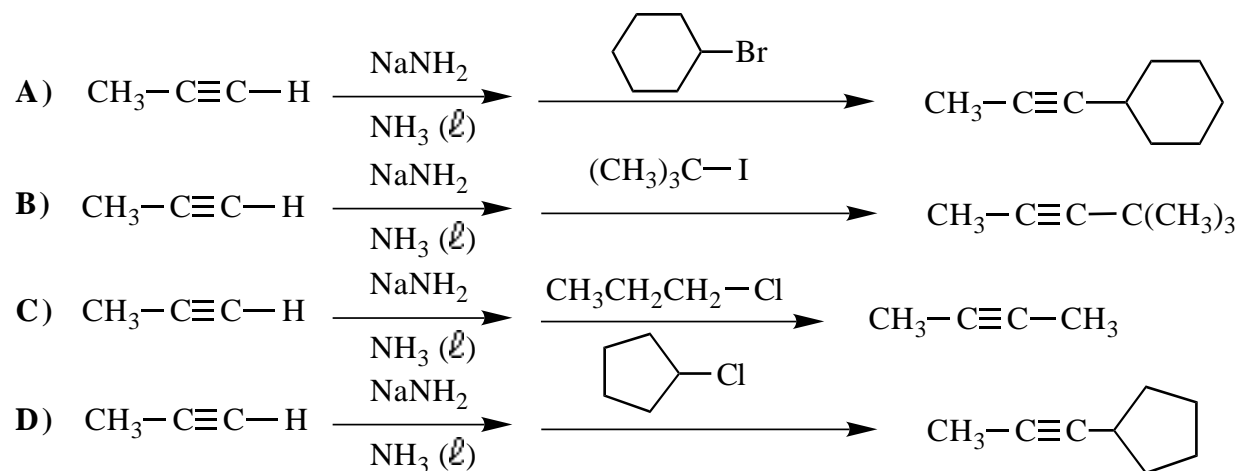
d) 1) BH₃-THF; 2) H₂O₂ / OH⁻ / H₂O

b) 1) OsO₄; 2) NaHSO₃

e) HgSO₄ / H₂SO₄ / H₂O

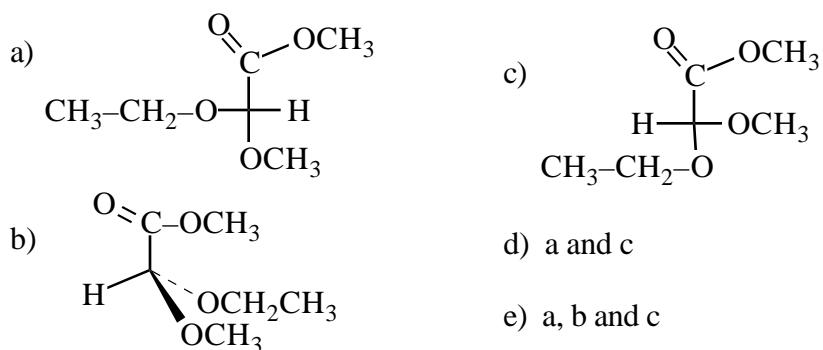
c) H₂O / Lindlar's catalyst

17. Which of the following reactions **will not** occur?

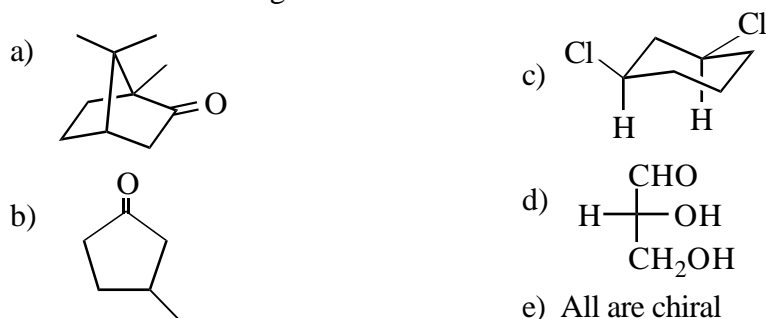


- a) A only
 b) B only
 c) D only
 d) A, B and D
 e) None of them will occur

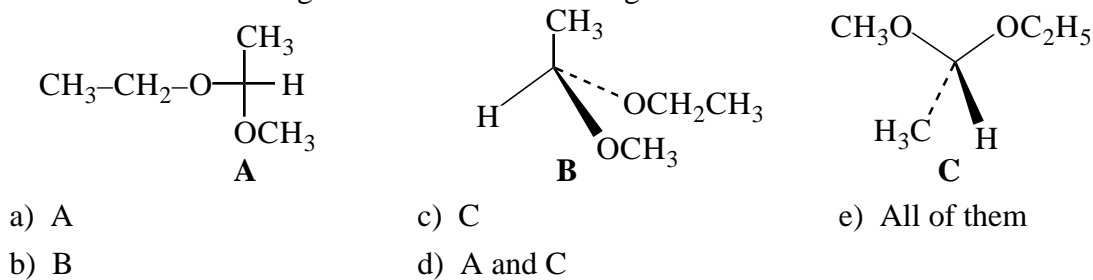
18. Which of the following has the **R** absolute configuration?



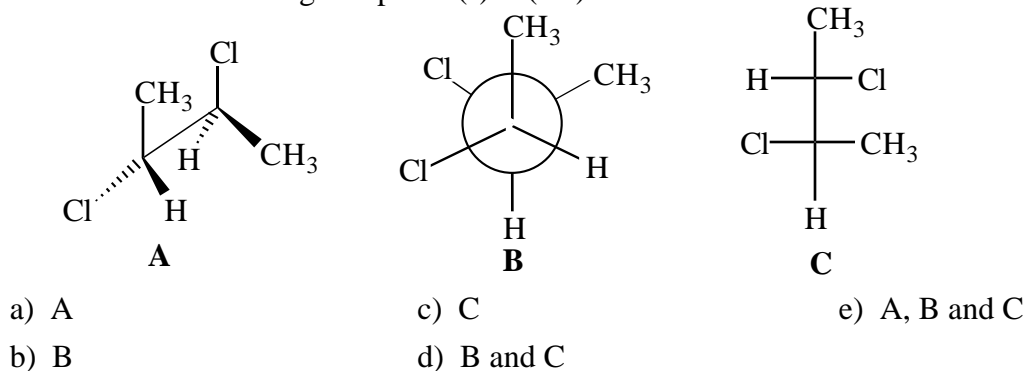
19. Which of the following molecules is **not** chiral?



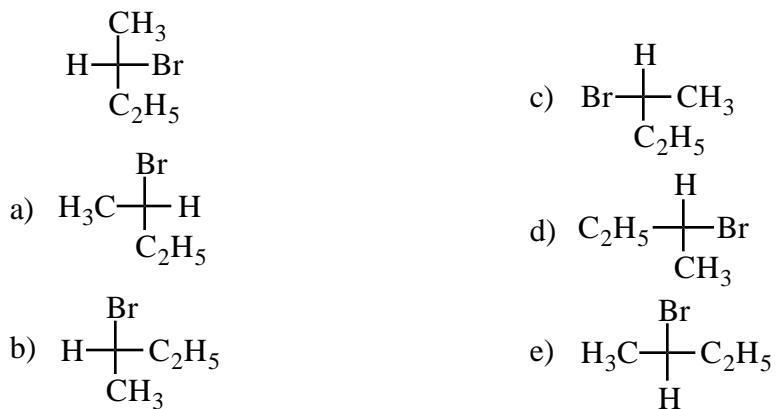
20. Which of the following has the **R** absolute configuration?



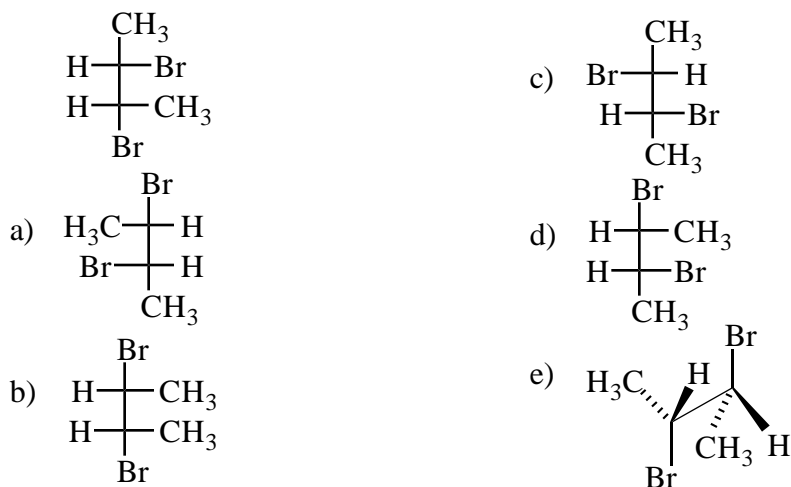
21. Which of the following compound(s) is (are) **meso**?



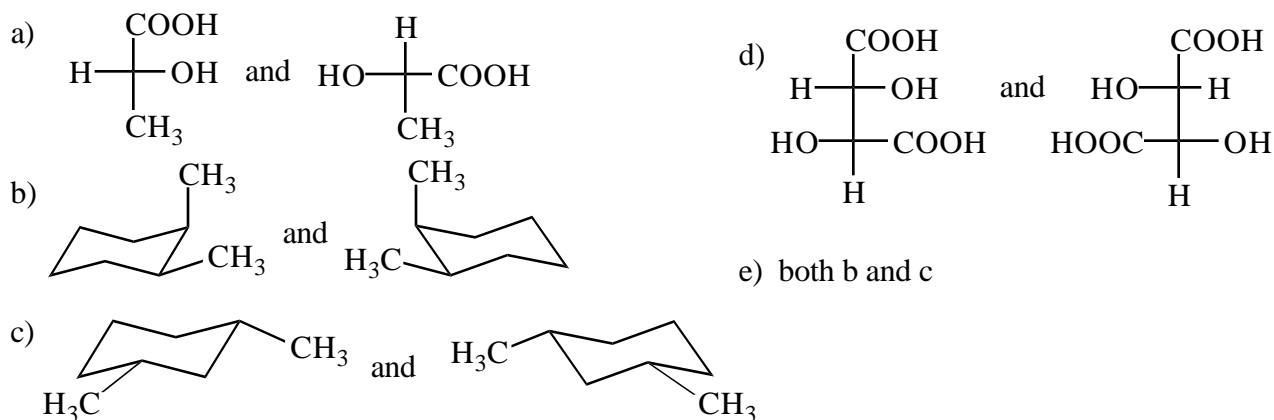
22. Which of the following is the enantiomer of the structure below?



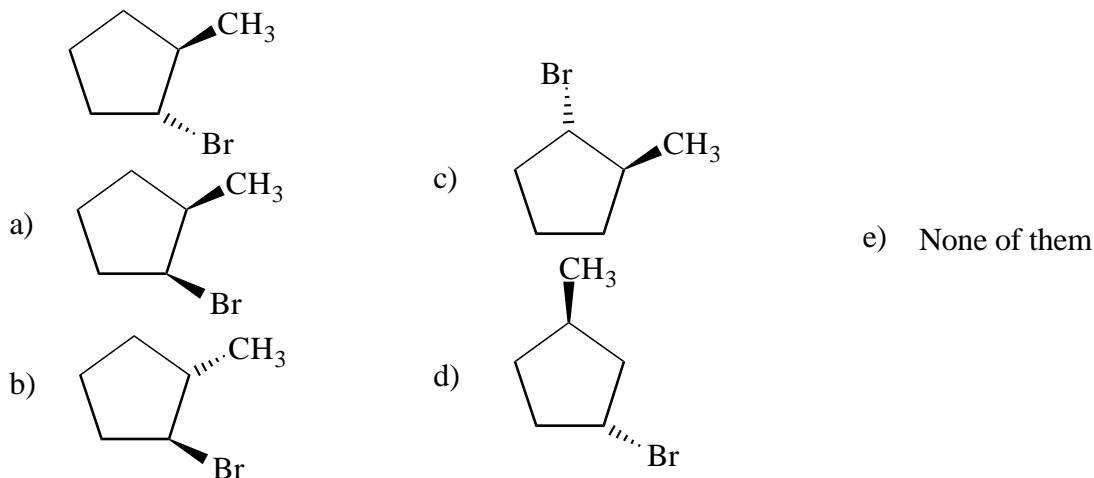
23. Which of the following is a diastereomer of the structure below?



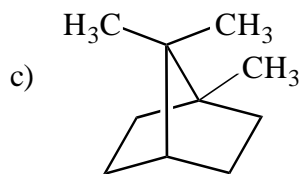
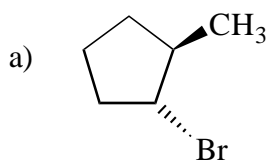
24. Which of the following shows a pair of enantiomers?



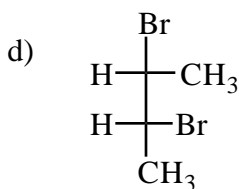
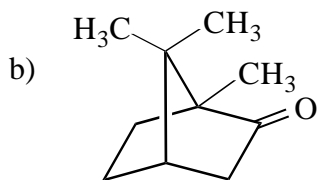
25. Which of the following compounds is a **diastereomer** of the structure shown below?



26. Which of the following compounds is **not** a chiral molecule?



e) all are chiral



Show **step-by-step** (include reagents and solvents/conditions where crucial) how you would convert the **compound given** to the product shown. You can use **any stable organic molecules containing ONE or TWO carbon atoms** in addition to the starting compound, any inorganic reagents and any solvents. **Write clearly and THINK!!!**

