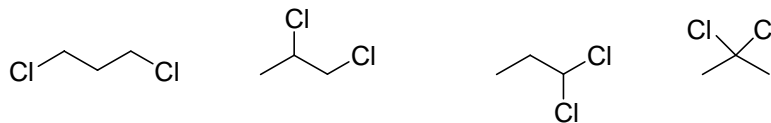
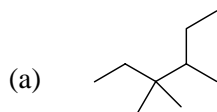


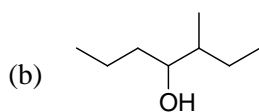
1. Draw bond-line formulas for all the structural isomers that correspond to the molecular formula  $C_3H_6Cl_2$ . [4]



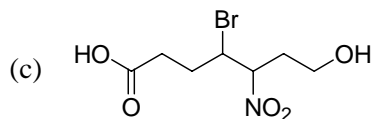
2. Provide the IUPAC names for the following organic structures. [8]



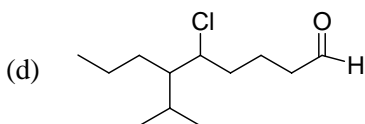
3,3,4-Trimethyl-hexane



3-Methyl-heptan-4-ol



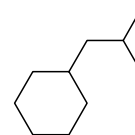
4-Bromo-7-hydroxy-5-nitro-heptanoic acid



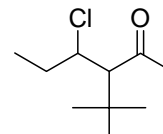
5-Chloro-6-isopropyl-nonanal

3. Draw a correct structure for each of the following IUPAC names. [8]

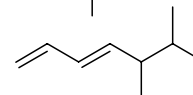
- (a) Isobutyl-cyclohexane



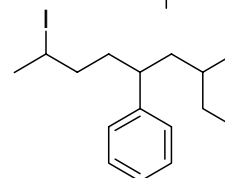
- (b) 3-*tert*-Butyl-4-chloro-hexan-2-one



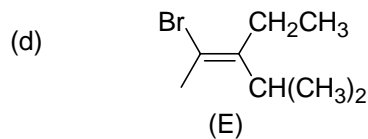
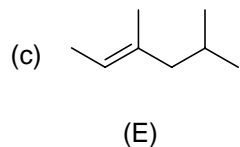
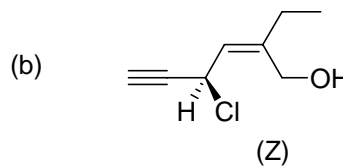
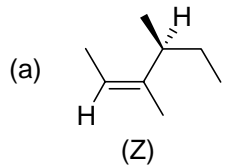
- (c) 5,6-Dimethyl-1,3-heptadiene



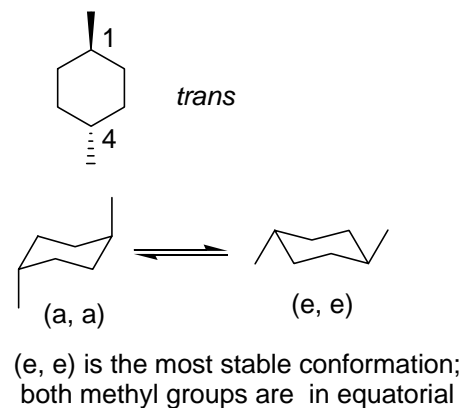
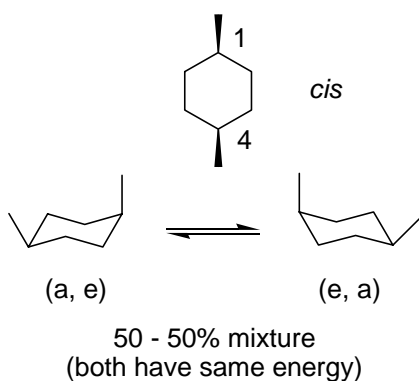
- (d) 2-Iodo-7-methyl-5-phenyl nonane



4. Identify each of the double bond in the following structures as (*E*) or (*Z*). [8]



5. Draw chair conformations for both *cis*- and *trans*-1,4-dimethylhexane and label the most stable ones. [10]



6. Assign each chiral carbon in the following organic structure as (*R*) and (*S*) configuration. [12]

