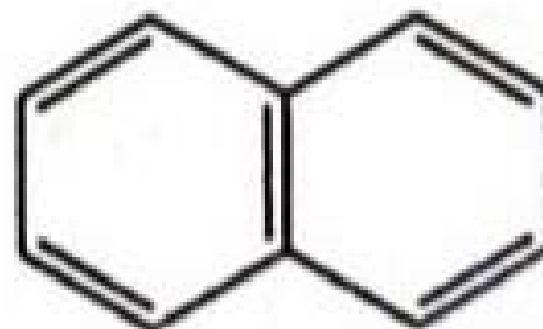
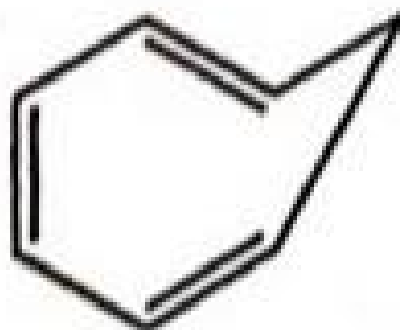
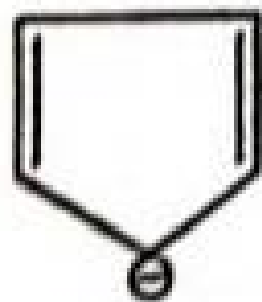


**(1)** A hydrocarbon of formula  $C_6H_{12}$  decolorizes bromine solution, dissolves in concentrated sulphuric acid, yields 2-methylpentane on the hydrogenation, and on ozonolysis gives formaldehyde and 3-methylbutanal. What is the structure of the hydrocarbon? Give all the reactions involved.

**(2)** Which of the following is/are aromatic? Explain.



**(3)** Identify an optically active compound  $C_{11}H_{16}$  which on oxidation with hot  $KMnO_4$  gives terephthalic acid (benzene-1,4-dicarboxylic acid), explain.