The Fischer projection of fructose is given below:

```
CH₂OH
|   |
C=O
|   |
HO—H
H—OH
H—OH
CH₂OH
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a) Write the molecular formula for fructose.
b) Classify based on functional group.
c) Classify based on the number of carbons.
d) Classify based on functional group and the number of carbons.

Answer

a) There are six carbon atoms, twelve hydrogen atoms and six oxygen atoms. The molecular formula is C₆H₁₂O₆.
b) The functional group is a ketone, therefore fructose is a ketose.
c) There are six carbon atoms, therefore fructose is a hexose.
d) Combining b and c, fructose is a keto-hexose.
Practice 10-2

State whether each of the following is the D or L isomer.

(a) Ribulose  
(b) Sorbose  
(c) Idose

Answer

a) d-Ribulose  
b) l-Sorbose  
c) d-Idose