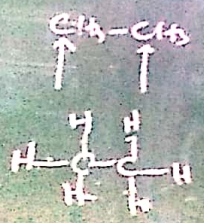
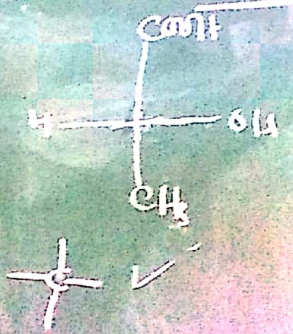


Date
R/S/D

Newman Projection formula



Fischer Projection



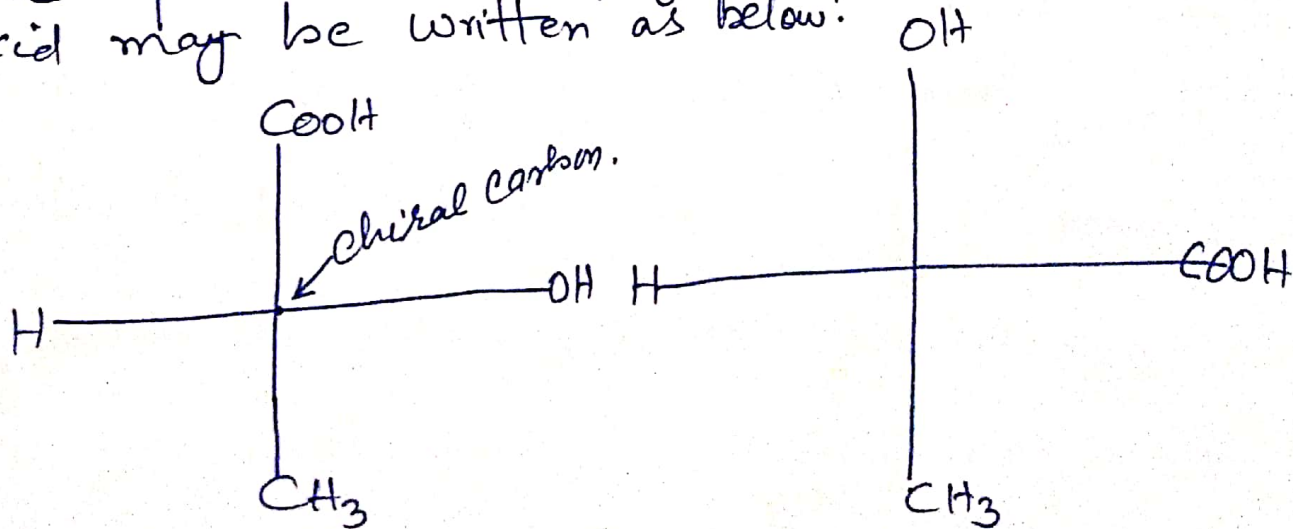
Fischer Projection formula

; Emil Fischer

1891 suggested a simple method for representing 3D molecules in one plane. It is known as Fischer Projection formula which is based on the following rules.

i) Two mutual perpendicular lines are drawn and a symmetric carbon atom is present at the crossing of horizontal and vertical lines.

(ii) The carbon chain of molecule is arranged vertically such that carbon number 1 lies at the top. ex. Fischer projection formula for D-Lactic acid may be written as below:



D-Lactic acid (Correct)

D-Lactic acid (Wrong)

Newman Projection formula: In this formula

the molecule is viewed along Carbon-Carbon bond axis. The Carbon nearer to observer is represented by a dot and three atoms or groups attached to it are shown by three lines at 120° to one another. The Carbon atom away from observer is represented by a circle and three bonds are shown by three small straight lines at 120° angle joined to the circumference.

For example, ethane has the following three conformations:

(A) Eclipsed Conformation: The conformation in which the H-atom of ~~the~~ back carbon atom are just behind those of the front carbon atom is known as eclipsed conformation as shown in the figure 1.

(B) Staggered Conformation: The conformation in which the H-atoms of two carbon atoms are as far as apart. Fig (1)

© Skew Conformation: The other conformations in the staggered form.

between eclipsed and staggered conformation are known as skew conformation as shown in Fig. 3.4(c).

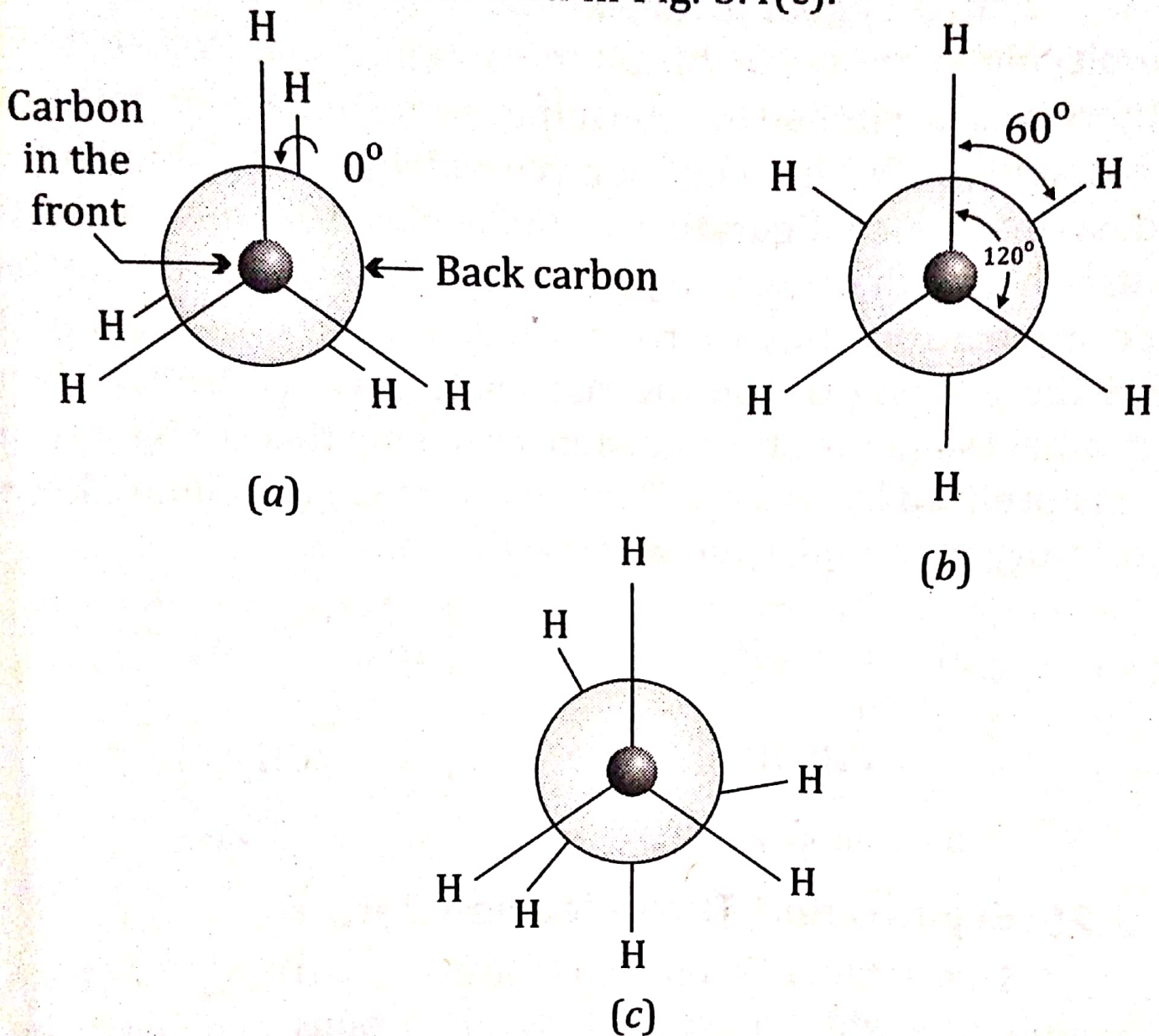


Fig. 1. Newman projection formula for conformation of ethane.