***AL- Mustaqbal University***

**Optometry Department**

 **Lec.5**

Optical Instruments

assistant teacher

MCS

 **Ali Hadi Al-Husseini**

 *2023-2024*

***Test charts and trial case and frame***

***Snellen chart*** *is an eye chart that can be used to measure visual acuity. Snellen charts are named after the Dutch ophthalmologist Herman Snellen who developed the chart in 1862 as a measurement tool for the acuity formula developed by his professor Franciscus Cornelis Donders. Many ophthalmologists and vision scientists now use an improved chart known as the LogMAR chart.*

**



***History***

*Snellen developed charts using symbols based in a 5×5 unit grid. The experimental charts developed in 1861 used abstract symbols. Snellen's charts published in 1862 used alphanumeric capitals in the 5×5 grid. The original chart shows A, C, E, G, L, N, P, R, T, 5, V, Z, B, D, 4, F, H, K, O, S, 3, U, Y, A, C, E, G, L,*

***Description***

*The normal Snellen chart is printed with eleven lines of block letters. The first line consists of one very large letter, which may be one of several letters, for example E, H, or N. Subsequent rows have increasing numbers of letters that decrease in size. A person taking the test covers one eye from 6 metres or 20 feet away, and reads aloud the letters of each row, beginning at the top. The smallest row that can be read accurately indicates the visual acuity in that specific eye. The symbols on an acuity chart are formally known as "optotypes".*

*In the case of the traditional Snellen chart, the optotypes have the appearance of block letters, and are intended to be seen and read as letters. They are not, however, letters from any ordinary typographer's font. They have a particular, simple geometry in which:*

*the thickness of the lines equals the thickness of the white spaces between lines and the thickness of the gap in the letter "C"*

*the height and width of the optotype (letter) is five times the thickness of the line.*

*Only the nine letters C, D, E, F, L, O, P, T, Z are used in the common Snellen chart. The perception of five out of six letters (or similar ratio) is judged to be the Snellen fraction.[4] Wall-mounted Snellen charts are inexpensive and are sometimes used for approximate assessment of vision, e.g. in a primary-care physician's office. Whenever acuity must be assessed carefully (as in an eye doctor's examination), or where there is a possibility that the examinee might attempt to deceive the examiner equipment is used that can present the letters in a variety of randomized patterns.*

***Snellen fraction***

*Visual acuity is the distance at which test is made / distance at which the smallest optotype identified subtends an angle of five arcminutes and the critical distinguishing features of the optotype subtend an angle of one arcminute.*