OPD Instruments

Visual acuity instruments

1. Vision drums: To check vision. Snellen chart is most common in use. C-chart & E-chart is used for those who can not read, Picture test is for children
2. Refraction box: Contains concave and convex lenses and other lenses
3. Trial frame: Used for house lenses during refraction
4. Retinoscope: Used to do refraction particularly in children
5. Autorefraactometer (AutoRef): Used for approximate refraction

Visual acuity instruments

6. Ophthalmoscope: Used for examining fundus and anterior segment
7. Slit lamp: Most commonly used anterior and posterior segment
8. Indirect ophthalmoscope: Used mostly for children and during operation
9. Lenses:90D, 78D used to see fundus with slit lamp, 20D lens is used indirect ophthalmoscope. Gonio lens is used for examining anterior chamber angle while 3-mirrror lens is used both for fundus and anterior chamber angle examination.

Intraocular pressure instruments

10. Goldman tonometer
11. Perkins tonometer
12. Schiotz tonometer
13. Tonopen tonometer
14. Air puff tonometer

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1- Visual acuity charts

Visual acuity: charts
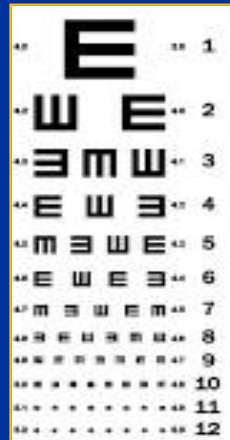
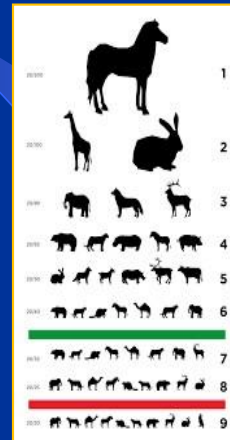|			
Snellen chart	**E chart**	**C chart**	**Picture chart**
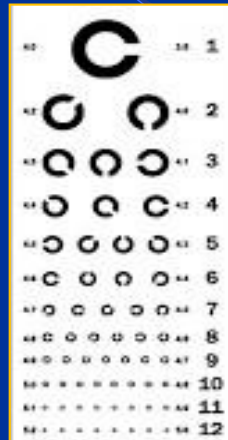
2- Refraction box

Visual acuity: Refraction box

- Red are concave or minus lenses
- Black are convex or plus lenses
- Two lenses with handle are cross cylinder
- Prisms
- Miscellaneous lenses like
  - Blank
  - Pinhole
  - Red and green
  - Fogging lens

3- Trial frame

Trial frame

- Trial frame is used to check visual acuity and to refract one eye at the time

4 & 5- Retinoscope & Autorefractometer

Visual acuity: Equipment

Retinoscope

Examiner finds out approximate number of glasses

Autorefractomter

Machine finds out approximate number of glasses

6- Ophthalmoscope

Direct ophthalmoscope: Parts

Viewing window

Apertures

Filters

Lenses dial

On off button

Handle

Vv

- Advantages:
    - Easy to carry / Portable
    - Can be used in wards, OTs
    - Less expensive
    - Can see anterior & posterior segments
- Disadvantages:
    - Monocular view / No depth perception

7- Slit lamp

- Advantages:
    - Binocular view / depth of perception
    - Anterior & posterior segment examination
    - Has slit which penetrates through anterior segment structures so various level can be seen
- Disadvantages:
    - Only for patients who can sit on chair (portable slit lam also available)

cc

Slit lamp: Parts A , B, C, D, E

A. Table with on/off and height control
B. Chin & head rest with up/down control
C. Microscope
    A. Eye pieces
    B. Magnification control
D. Illuminator with slit control and filters
    A. Slit height control
    B. Slit width control
    C. Filters
E. Additional gadgets like 78D/90D lenses and tonometer

Cc

Slit lamp: Parts A , B, C, D, E

A. Table with on/off switch and height control. Table has various designs including sliding tables
B. Chin & head rest with up/down control
C. Microscope
    A. Eye pieces to see patients eyes
    B. Magnification control to control magnification
D. Illuminator with slit control and filters
    A. Slit width control: coverts circular light in to slit   hence the name slit lamp
    B. Slit height control: changes slit height from 1mm to 14mm
    C. Filters like Cobalt blue filter, Green filter
E. Additional gadgets like 78d/90D lenses for examining fundus and tonometer for measuring IOP

8- Indirect ophthalmoscope

Indirect ophthalmoscope

- **Advantages:**
  - Binocular view / depth of perception
  - Posterior segment examination anywhere
  - Can be used for examining children
  - Can be used for operating
- **Disadvantages:**
  - Difficult to mater

9- Lenses

Lenses

78 D lens
For use with slit lamp
To see fundus

90 D lens
For use with slit lamp
To see fundus

20 D lens
For use with indirect
To see fundus

3 mirro r lens
For use with slit lamp
To see fundus &
anterior chamber angle

Gonio lens
For use with slit lamp
To see
anterior chamber angle

Purpose: To check intraocular pressure (IOP)

Types:

- Goldman tonometer: This is gold standard method and routinely used
    - Install topical anesthetic and fluorescein dye
    - Touch patient cornea with tonometer prism head
    - Move dial to align two half circles
    - Check dial for IOP
- Digital tonometry: This is very crude method but can detect hard eye because of very high IOP
- Perkins tonometer: This can be used for people not able to sit on slit lamp
- Shiotz tonometer: This is old method in which weights are used to measure IOP
- Tonopen tonometer: This can be used for patient not able to sit for slit lamp, children and on operating table
- Air puff tonometer: This is not accurate method and widely used for screening purpose

Tonometer types

See video 0000

Goldman tonometer

Digital tonometery

Perkins tonometer

Shiotz tonometer

Tonopen tonometer

Air puff tonometer