

Assignment 1

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Disorders of Eye:-

- ① Near Sightedness
- ② Far Sightedness
- ③ Colorblindness
- ④ Night Blindness

Nearsightedness:-

Scientific Name :- Myopia

It is a condition in which nearby objects are seen more clearly than distant objects because light is focused in front of the retina, not on it.

Causes

It usually results from the eye being too long or oval-shaped rather than round. It may also result from the curve of the cornea being too steep. These changes result in light rays coming to point in front of the retina & crossing. The messages sent from

the retina to the brain are perceived as blurry.
(mayoclinic.org)

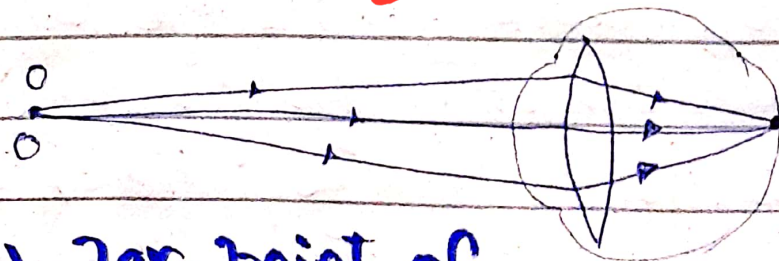
Symptoms:-

- * Distant objects are blurred
- * Headaches
- * Eye strain
- * Squinting
- * Eye fatigue when try to see objects more than a feet away

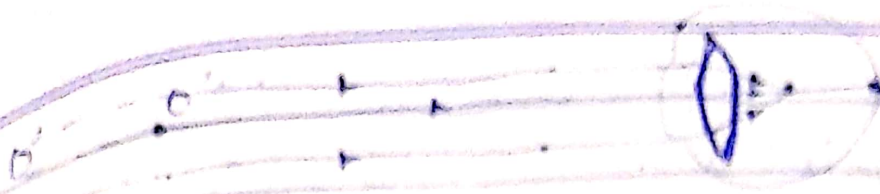
(webmd.com/eye-health/nearsighted)

Treatment :-

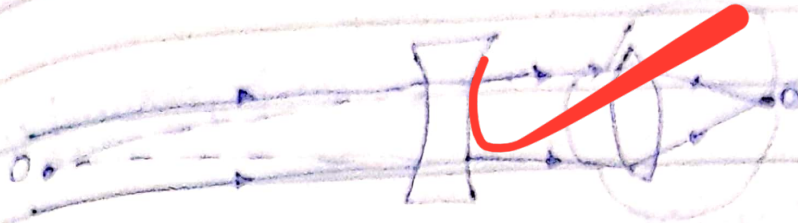
Myopia condition takes place when the shape of the eye leads the light rays to bend in a wrong way, focussing images in front of the retina rather than focussing on the retina. So, when a **concave lens** of suitable power is used, it assists in focussing **the onto the retina.**



(a) far point of myopic eye



b) myopic eye



c) correction for myopic eye

Far Sightedness or Hypermetropia

In this condition, a person can see objects at a distance but cannot see nearby objects clearly.

Causes:-

When light rays from a closeby objects are focussed at a point behind the retina.

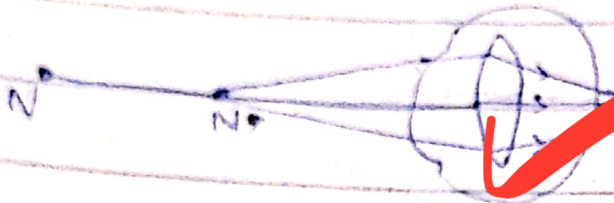
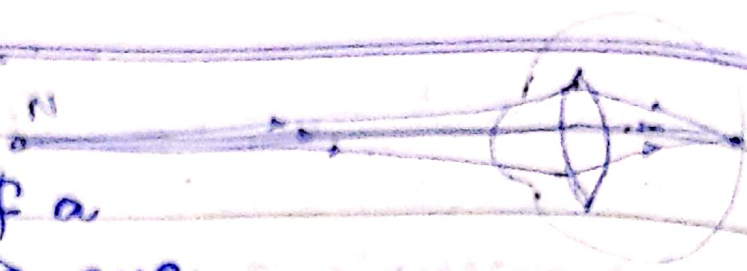
Symptoms:-

- * Blurry vision
- * Heachaches due to eyestrain
- * Squinting

Correction:-

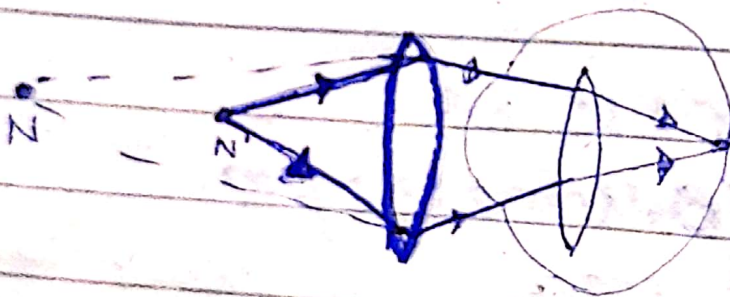
Using spectacles with a converging lens imparts additional focusing power & thus helps form the image on the retina.

(a) Near point of a hypermetropic eye



(b) hypermetropic eye

(c) correction for hypermetropic eye



(b) 4.2. com/defects of vision and their correctness).

Night blindness:-

Scientific name:- Nyctalopia

It is a condition in which eyes are unable to adapt to low-light conditions. It usually occurs when there are issues with the rod cells - a type of photoreceptor cell in the retina - which are responsible for facilitating the night vision.

Rod cells → facilitates night vision

Causes:-

- * Cataract
- * Vitamin A deficiency
- * Nearsightedness (myopia)
- * Diabetes
- * Usher Syndrome
- * Retinitis pigmentosa
- * Glaucoma and glaucoma medications

Solutions?

Color Blindness

color vision deficiency

poor color vision

Trouble in seeing or identifying colors like blue, green and red.

Healthy human eye retina contains two light sensitive cells - rod and cone cells. Rod cells for low light & cone cells for brighter and normal light and responsible for color vision. It is affected when these 2 light sensitive cells fail to perform their functions.

Causes

- ① Genetic Disorder
- ② Side effects of drugs
- ③ Use of tobacco & alcohol
- ④ Damaged caused in brain or eye or to the nerve cells

Treatment

- * Properly balanced diet can be followed to improve the symptoms of color blindness.
- * Photographic frames, sunglasses and eyeglasses with contact lenses can be used to certain extent to improve the dimensions between some colors.

Attempt each question on around 2 sides of a page.