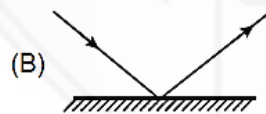
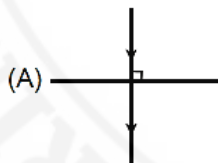


**Light**

**DPP – 1**

1. Choose wrong statement:
  - (A) Light is invisible energy
  - (B) light causes in us sensation of sight
  - (C) Light may be obtained from heat energy
  - (D) We can see light
2. Transparent medium is one:
  - (A) Which partially allows light to pass through
  - (B) Which absorbs most of the light
  - (C) Which allows most of the light to pass through
  - (D) None of these
3. Speed of light is maximum in:
  - (A) Air
  - (B) Water
  - (C) Glass
  - (D) Vacuum
4. Which of the following is not a natural source of light:
  - (A) Sun
  - (B) Oil-lamps
  - (C) Moon
  - (D) Stars
5. Light is:
  - (A) Transverse wave
  - (B) Longitudinal wave
  - (C) Mechanical wave
  - (D) Both (B) and (C) are correct
6. Example of transparent medium is:
  - (A) Air
  - (B) Distil water
  - (C) Glass
  - (D) All are correct
7. Straight line path along which light travels in a given direction is :
  - (A) Ray
  - (B) Line segment
  - (C) Beam
  - (D) None of these
8. Thick layer of water is :
  - (A) Transparent
  - (B) Translucent
  - (C) Opaque
  - (D) None of these
9. Which of the following figure obeys rectilinear propagation of light :



(D) All of these

10. In a plane mirror, which layer acts as the reflecting layer :
  - (A) Glass sheet
  - (B) Silver layer
  - (C) Orange red paint layer
  - (D) Both (A) and (B) are correct
11. Give some examples of point source of light.
12. Give any three characteristics of light.
13. What do you understand by term light?
14. What do you mean by heterogeneous medium?
15. Describe an experiment to prove rectilinear propagation of light.

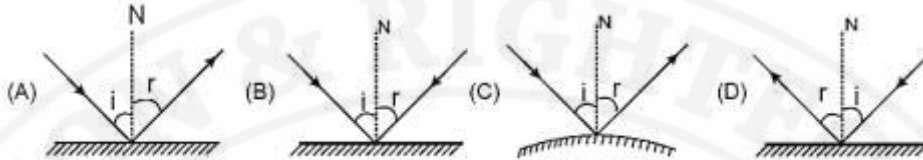
**Light**

**DPP – 2**

1. Normal always lies between the incident ray and the reflected ray when the ray is incident obliquely on a surface. State true or false:

- (A) True (C) Cannot be determined  
 (B) False (D) None of these

2. Choose the wrong option:



3. A thin plane mirror:

- (A) Reflects light (C) Transmits light  
 (B) Refracts light (D) None of these

4. A real image is formed when two or more :

- (A) Reflected rays meet (C) Reflected rays appear to meet  
 (B) Refracted rays meet (D) Both A and B are correct

5. State true or false:-

- (i) Laws of reflection are valid only for plane surfaces  
 (ii) A ray of light retraces its path after reflection in case of normal incidence  
 (iii) Glance angle of incidence is always equal to angle of reflection.

- (A) TTT (B) FTF (C) FTT (D) FFT

6. We can see the things around us due to:

- (A) Regular reflection (C) Specular reflection  
 (B) Irregular reflection (D) Mixed reflection

7. The focal length of a spherical mirror whose radius of curvature is 20 cm is :

- (A) 40 cm (B) 30 cm (C) 20 cm (D) 10 cm

8. The focal length of a plane mirror is :

- (A) zero (B) 10 cm (C) 20 m (D) infinity

9. Inner side of a spoon is an example of:

- (A) Concave lens (C) Convex mirror  
 (B) Concave mirror (D) Convex lens

10. A ray of light is incident on a plane mirror at an angle of incidence  $i$ . Then the ray after reflection is deviated by an angle  $q$  equal to:

- (A)  $i$  (B)  $\pi - i$  (C)  $2i$  (D)  $\pi - 2i$

11. Explain the term reflection with the help of diagram & also explain:

- (i) Diffused reflection (ii) Regular reflection

12. Define the following terms.

- (i) Mirror (ii) Incident ray (iii) Reflected ray (iv) Point of incidence

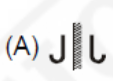
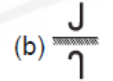

13. True and False:

- (i) Laws of reflection are valid only for regular reflection.  
 (ii) A virtual image is formed when two or more rays appear to meet at a point behind mirror.  
 (iii) Real images are always inverted.

14. Why you cannot see your image in newspaper?

**Light**

**DPP – 3**

- Plane mirror is used in :
  - (A) Galvanometer Scale
  - (B) Microscope
  - (C) Telescope
  - (D) None of these
- Which of the following statement is wrong for plane mirrors?
  - (A) They form virtual images
  - (B) They always form inverted images
  - (C) Object size = Image size
  - (D) None of these
- Identify the wrong image formation :
  - (A) 
  - (b) 
  - (c) 
  - (D) None of these
- A ray of light coming along radius of curvature after reflection from concave mirror :
  - (A) passes through focus
  - (B) passes through centre of curvature
  - (C) passes through F/2
  - (D) can go in any direction
- When image and object are on same side of a concave mirror then nature of image will be :
  - (A) real
  - (B) virtual
  - (C) may be real may be virtual
  - (D) nothing can be said
- Which mirror cannot form a magnified image?
  - (A) Convex mirror
  - (B) Plane mirror
  - (C) Both convex and concave mirrors
  - (D) Both (A) and (B) are correct
- The angle of incidence of a ray passing through centre of curvature of a spherical mirror is :
  - (A)  $0^\circ$
  - (B)  $90^\circ$
  - (C)  $45^\circ$
  - (D)  $180^\circ$
- The mirror used by a dental surgeon is:
  - (A) Plane
  - (B) Convex
  - (C) Concave
  - (D) Any one of the above
- When an object is moved from C to F of a concave mirror then its image will move from :
  - (A) C to F
  - (B) C to infinity
  - (C) F to C
  - (D) C to 2C
- As per New Cartesian Sign Convention:
  - (A) Focal length of concave mirror is positive and that of convex mirror is negative
  - (B) Focal length of both, convex and concave mirror is positive
  - (C) Focal length of both, convex and concave mirror is negative
  - (D) Focal length of concave mirror is negative and that of convex mirror is positive

11. Define principal focus for a concave mirror.

12. Draw the image of object AB shown in the figure below:



13. Draw reflected rays and find the point of intersection of reflected rays.

14. Explain the cause behind lateral inversion.

15. Define real image and virtual images.

- The image is always erect in:  
(A) Plane mirror  
(B) Concave mirror  
(C) Convex mirror  
(D) Both (A) and (C) are correct
- Light waves are similar in nature to:  
(A) Gamma rays  
(B) x-rays  
(C) Cathode rays  
(D) Both (A) & (B)
- An object of size 2.0 cm is placed perpendicular to the principal axis of a concave mirror. The distance of the object from the mirror equals the radius of curvature. The size of the image will be :  
(A) 0.5 cm  
(B) 1.0 cm  
(C) 1.5 cm  
(D) 2.0 cm
- An object is placed 20 cm from a convex mirror. Its image is formed 12 cm from the mirror. Find the focal length of the mirror:  
(A) 25 cm  
(B) 30 cm  
(C) 15 cm  
(D) 60 cm
- A dentist uses a small mirror that gives a magnification of 4 when it is held 0.60 cm from a tooth. The radius of curvature of the mirror is:  
(A) 1.60 cm (convex)  
(B) 0.8 cm (concave)  
(C) 1.60 cm (concave)  
(D) 0.8 cm (convex)
- A 2.0 cm high object is placed perpendicular to the principal axis of a concave mirror. The distance of the object from the mirror is 30 cm and its image is formed 60 cm from the mirror, on the same side of the mirror as the object. Find the height of the image formed:  
(A) 4 cm  
(B) 2 cm  
(C) 3 cm  
(D) 5 cm
- When light travels from one medium to the other of which the refractive index is different, then the quantities which will change:  
(A) Frequency, wavelength and velocity  
(B) Frequency and wavelength  
(C) Frequency and velocity  
(D) Wavelength and velocity
- Ray nature is confirmed by the phenomenon of:  
(A) reflection  
(B) refraction  
(C) both A and B  
(D) none of these
- Electromagnetic wave theory was proposed by :  
(A) Maxwell  
(B) Hertz  
(C) Huygens  
(D) Newton
- Direction of path of light changes at the interface of the two media. This phenomenon is known as :  
(A) reflection  
(B) absorption  
(C) refraction  
(D) all of these

11. Name the mirror which can be used to obtain virtual and diminished image.
12. Draw a ray diagram for image formation in case of concave mirror when object is at  $\infty$  and rays are not coming parallel to principal axis.
13. Name the mirror which can never form virtual and magnified image of an object.
14. True or false:
  - i. A real image of a point object can be formed by a concave mirror.
  - ii. The focal length of a spherical mirror has a smaller magnitude than that of its radius of curvature.
15. The image of an object placed 16 cm from a concave mirror is formed at a distance of 24 cm from the mirror. Calculate the possible focal lengths of the concave mirror from this information.



**Light**

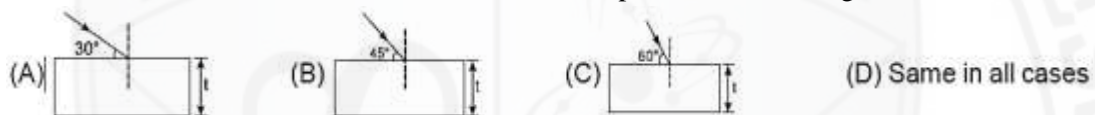
**DPP – 5**

- Lateral shift varies inversely to :
  - (A) wavelength
  - (B) refractive index
  - (C) incident angle
  - (D) none of these
- The velocity of light in air and glass is  $3 \times 10^8$  m/s and  $2 \times 10^8$  m/s respectively. What is the R.I. of glass w.r.t. air:
  - (A) 1.3
  - (B) 1.4
  - (C) 1.5
  - (D) 6
- Four students showed the following traces of the path of a ray light passing through a rectangular glass slab :



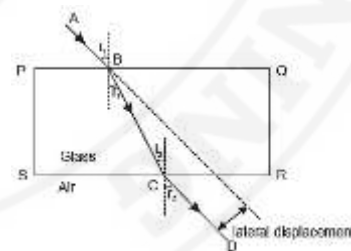
The trace most likely to be correct is that of student

- (A) a
  - (B) b
  - (C) c
  - (D) d
- In which figure lateral displacement will be larger if a ray of light of same wavelength is incident on a plane glass slab:



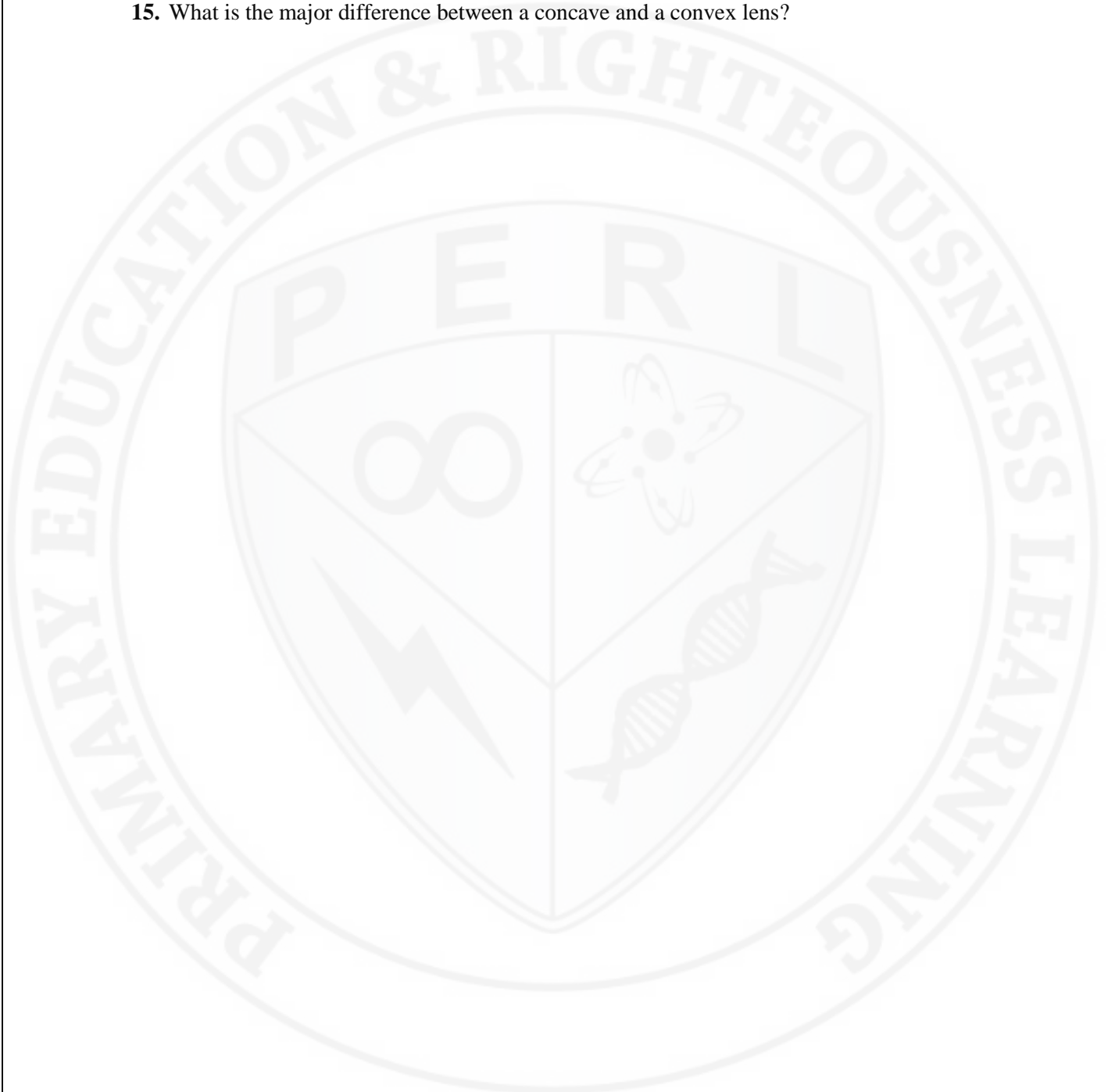
- The height through which an object appears to be raised in a denser medium is called:
  - (A) normal shift
  - (B) lateral shift
  - (C) red shift
  - (D) blue shift
- R.I. of air is :
  - (A) 2
  - (B) 1
  - (C) 1.13
  - (D) 1.5
- The perpendicular distance between the incident and emergent rays, when light is incident obliquely on a refracting slab with parallel faces is called:
  - (A) normal shift
  - (B) lateral shift
  - (C) red shift
  - (D) blue shift

- For the figure given below which of the following statements is correct:
  - (A)  $\angle i_1 = \angle r_2$
  - (B)  $\angle i_1 \neq \angle r_2$
  - (C) Incident and emergent rays are parallel
  - (D) Both A and C are correct



- According to the principle of reversibility of light.
  - (A)  ${}_1\mu_2 = 2\mu_1$
  - (B)  ${}_1\mu_2 = 1/2\mu_1$
  - (C) both A & B
  - (D) none of these
- Scattering is also a type of:
  - (A) Regular reflection
  - (B) Refraction
  - (C) Diffused reflection
  - (D) Interference

11. What do you mean by lateral displacement?
12. State the principle of reversibility of light.
13. Find the refractive index of a material if angle of incidence of ray of light is  $45^\circ$  and angle of refraction in the material is  $30^\circ$ .
14. With respect to air the refractive indices of water and benzene are 1.33 and 1.50 respectively. Calculate the refractive index of benzene with respect to water.
15. What is the major difference between a concave and a convex lens?

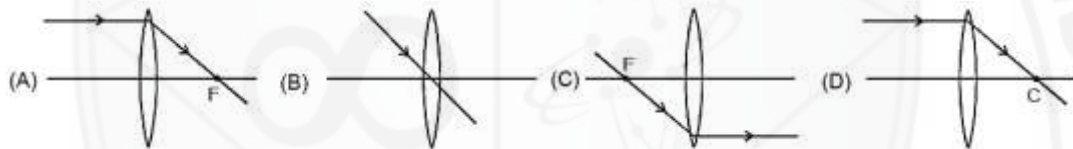


1. A ray of light passing through optical centre suffers:  
(A) reflection (C) total internal reflection  
(B) refraction (D) none of these
2. A lens is thin in the middle and thick at the edges. The lens is:  
(A) concave (C) plane  
(B) convex (D) prism
3. A lens converges light rays. The lens is:  
(A) plane (C) concave  
(B) prism (D) convex
4. Aperture is the diameter of:  
(A) Entire lens  
(B) Only that part of lens through which refraction is taking place  
(C) Case of lens  
(D) None of these
5. Which of the following terms is not related to spherical mirrors :  
(A) Principal axis (C) Aperture  
(B) Optical centre (D) None of these
6. The sign of power of convex lens is:  
(A) positive (C) zero  
(B) negative (D) infinite
7. If the magnification of a lens has negative value, the image is :  
(A) virtual and erect (C) A or B any  
(B) real and inverted (D) neither A nor B
8. The \_\_\_\_\_ colour is at the top and \_\_\_\_\_ colour is at the bottom of the spectrum.  
(A) red, violet (C) violet, red  
(B) red, blue (D) none of these
9. A lens of power 6 D is put in contact with a lens of power  $-4$  D. The combination will behave like a:  
(A) divergent lens of focal length 25 cm  
(B) convergent lens of focal length 50 cm  
(C) divergent lens of focal length 20 cm  
(D) convergent lens of focal length 100 cm
10. If an object of size 5 cm is placed 20 cm from a lens and its image of same size is formed 20 cm from lens on other side, lens is:  
(A) convex (C) glass slab  
(B) concave (D) prism
11. Is it necessary that a dense (thick) material will also be optically dense?
12. Draw shapes of different types of concave lens.
13. Is it necessary that optical centre always lie on principal axis?
14. What do you mean by aperture of a spherical lens?
15. With the help of a neat diagram explain different terms related to spherical lenses.



- A virtual image is smaller than the object can be formed by :  
 (A) convex lens (C) concave mirror  
 (B) concave lens (D) plane mirror
- We put glass piece on a printed page, image of prints on the page has same size when viewed from glass piece. The piece is:  
 (A) convex lens (C) concave lens  
 (B) glass slab (D) prism
- In above question if the print image is enlarged then the piece is a :  
 (A) glass slab (C) concave lens  
 (B) convex lens (D) prism
- If parallel rays are incident on a convex lens, after refraction these rays will meet at :  
 (A) focus (C) focal plane  
 (B) centre of curvature (D) none of these
- If image formed by a lens is always diminished and between F and O then the lens is :  
 (A) concave (C) both A and B  
 (B) convex (D) none of these

6. Identify the wrong figure:



- If optical density of a medium is high then the speed of light in that medium is :  
 (A) high (C) unchanged  
 (B) low (D) none of these
- In convex lens, if the object is at infinity then position of image is at :  
 (A) Infinity (C) At the Focus  
 (B) Between F and 2F (D) None of these
- A light is said to be convergent when:  
 (A) All the rays spread around from a point source of light  
 (B) It travels in an irregular pattern  
 (C) All the rays travel parallel to each other  
 (D) all the rays converge together to a single point
- When the ray of light falls obliquely on the interface of two media and goes to the another medium. It is called:  
 (A) Reflection of light (C) Dispersion of light  
 (B) Refraction of light (D) Both (A) and (B)
- What is meant by a reading lens? How is image formed by it?
- What are the main characteristics of a virtual image formed by a convex lens?
- Draw a table stating the position, size and nature for different positions of an object placed in front of a convex lens.
- Explain with the help of a diagram, why a concave lens is called as diverging lens.
- We wish to obtain a real, inverted image of the same size as that of the object by a thin convex lens of focal length 20 cm. Where the object should be placed? Draw a ray diagram for the formation of the image in this case.

**Light****DPP – 8**

- Convex lens is used in case of :
 

|                   |                 |
|-------------------|-----------------|
| (A) myopia        | (C) presbyopia  |
| (B) hypermetropia | (D) astigmatism |
- Short sightedness is also called as:
 

|                   |                 |
|-------------------|-----------------|
| (A) myopia        | (C) presbyopia  |
| (B) hypermetropia | (D) astigmatism |
- Cylindrical lens is used in case of:
 

|                   |                 |
|-------------------|-----------------|
| (A) myopia        | (C) presbyopia  |
| (B) hypermetropia | (D) astigmatism |
- Even in absolutely clear water, a diver cannot see very clearly :
 

|   |
|---|
| (A) Because rays of light get diffused  |
| (B) Because velocity of light is reduced in water   |
| (C) Because a ray of light passing through the water makes it turbid  |
| (D) Because the focal length of the eye lens in water gets changed and the image is no longer focused sharply on the retina |
- The persistence of vision of the eye is:
 

|                 |                  |
|-----------------|------------------|
| (A) 1/16 second | (C) 1/26 second  |
| (B) 1/5second   | (D) 1/100 second |
- In eye, the focusing is done by:
 

|   |
|---|
| (A) to and fro movement of the eye lens         |
| (B) to and fro movement of retina               |
| (C) change in the convexity of the lens         |
| (D) change in refractive index of the eye fluid |
- While looking at nearby objects, the muscle \_\_\_\_\_ so as to \_\_\_\_\_ the focal length of eye lens.
 

|                         |                         |
|-------------------------|-------------------------|
| (A) Contracts, increase | (C) Contracts, decrease |
| (B) Relax, increase     | (D) Relax, decrease     |
- Which of the following factors is responsible for the refraction:
 

|                        |                        |
|------------------------|------------------------|
| (A) Optical density    | (C) Angle of incidence |
| (B) Frequency of light | (D) Mass density       |
- Refractive index of a medium does not depends on:
 

|                                  |                        |
|----------------------------------|------------------------|
| (A) Nature of the medium         | (C) Temperature        |
| (B) Wavelength of the light used | (D) Angle of incidence |
- A far sighted person cannot focus distinctly objects closer than 120 cm. The lens that will permit him to read from a distance of 40 cm will have a focal length :
 

|             |             |
|-------------|-------------|
| (A) + 30 cm | (C) + 60 cm |
| (B) – 30 cm | (D) – 60 cm |
- A person with a myopic eye cannot see objects beyond 1.2 m distinctly. What should be the nature of the corrective lens used to restore proper vision?
- The near point of a hypermetropic person is 50 cm. What will be the focal length of a convex lens used in his spectacles?
- The far point of a myopic person is 150 cm in front of the eye. Calculate the focal length and the power of a lens required to enable him to see distant objects clearly.
- What is power of accommodation of eye?