1. How does the frequency of a beam of light change when it goes from air to glass?

2. For light going from air to water, $_a n_w = 4/3$. Then $_w n_a$ has value

3. Why sky appears black from spacecrafts?

4. The refractive index of Ruby is 1.76. What is the meaning of this statement in relation to speed of light?

5. Define magnification for mirror?

6. What are the values of: (i) the angle of incidence and (ii) the angle of reflection for normal incidence on a plane mirror surface?

7. Which type of mirrors is used to give an erect and enlarged image of an object?

8. What do we understand by the terms 'near point' and 'far point' of the eye?

9. Define power of a lens. What is its S.I.unit?

2 MARKS QUESTIONS

10. What happens to the size of the image formed by a convex mirror, when an object is gradually moved towards the mirror? Indicate it in a ray diagram.

11. Explain why ray of light bends towards the normal as it passes from a rarer medium to a denser medium?

12. An object placed 0.5m from a lens produces a virtual image 10cm from it. Find its possible focal length(s) and nature of the lens

12. State Law of refraction of light and define refractive index?

13. Name the mirror / lens used in the following cases / devices: A search light (b) a magnifying glass (c) Rear-view mirror of a car   (d) correcting a short sighted eye.

14. Give reasons for the following: (i) Red colour is used as the signal for danger or warning purpose.

(ii) A person having an astigmatic eye is provided with cylindrical lenses.

15. An object is placed at a distance of 12cm in front of a concave mirror. It   forms a real image four times larger than the object. Calculate the distance of the image from the mirror?

16. A concave lens of focal length 15cm forms an image 10cm from the lens. How far the object is placed from the lens and finds the magnification and nature of the image?

17. What is dispersion? Which colour deviate the most in a prism? Why does it take place?

3 MARKS

18. Draw a ray diagram to show the image of an object placed between f and 2f of a thin concave lens. Deduce the relation between the object and image distance and focal length.

19. Describe an activity to determine the focal length of a concave mirror?

20. How does the colour of scattered light depends on the size of colloidal particles?

21. A person can see clearly up to 3metre only. Describe a lens for him so that he can see clearly up to 12metre?

22. (a)A compound lens is made of two lenses in contact having powers +12.5D and -2.5D. Find the focal length and power of the combination

23. The magnification produced by a mirror is +1. What does this mean?

24. Draw a ray diagram to show passage of two rays of light through a rectangular slab of glass, when the angle of incidence is zero in one case and a little less than 90° in the other case.

25. Explain in brief, the cause of twinkling of stars. Will an astronaut, standing on the moon, be able to observe twinkling of stars?

26. Draw ray diagram showing the formation of image by a hypermetric eye for a nearby object. Discuss how this detect can be corrected by using a lens.

27. A student finds the writing on the blackboard as blurred and unclear when sitting on the last desk in the classroom, he however, sees it clearly when sitting on the front desk at an approximate distance of 2m from the blackboard. Draw ray diagrams to illustrate the formation of image of the blackboard writing by his eye – lens when he is seated at the (i) last desk (ii) front desk.

28. An object 5cm high is held 25cm away from a converging lens of focal length 10cm. Draw the ray diagram and find the position, size and the nature of the image formed.

5 MARKS

29. A girl in the mirror laughing house finds her face appearing highly magnified, lower portion of her body of the same size but laterally inverted and middle portion of the body highly diminished in size. Can you guess the design of the mirror?

30. A 4.5cm needle is placed 12cm away from a convex mirror of a focal length 15cm.Give the location of the image and magnification. Describe what happens as the needle is moved farther from the mirror?

31. What is long sightedness? List two causes for development of long sightedness? Describe with the ray diagram, how this detect may be corrected by using spectacles?

32. Explain with reason: (i). Why stars appear to twinkle why not planet?(ii) Why does the sun appear reddish early in the morning ? (ii) Why does the sky appear blue?

33. Explain the following: 1.Total internal reflection 2.Power of accommodation 3.Spectrum 4.Scattering of light 5.Tynadall effect

34. (a) With the help of a diagram, Explain the rainbow formation. (b) Explain an activity to study the effect of transmitted and scattered light from the same particles of the media?

35. Draw the ray diagram in each case to show the position and nature of the image formed when the object is placed: (i) At the centre of curvature of a concave mirror. (ii) Between the pole P and focus F of a concave mirror. (ii) In front of a convex mirror. (iv)At 2F of a convex mirror.(v)In front of a concave mirror

36. (a) What is 1) myopia. 2)cataract. 3) preshyopia . Give the causes and remedy for them.

37. The near point of a hypermetropic person is 75cm, if the person uses eye glasses having power +1.0 D, Calculate the distance of distinct vision for him?

38. (a) An object is placed: At the focus (F) of a concave mirror (b)Between the centre of curvature C and Focus (F) of a concave mirror

Draw ray diagrams for these two object positions to show the position and nature of image formed.

39. Find the position, nature and size of the image of an object 7cm high placed at a distance 9cm from a concave mirror of focal length 18cm.

40. A beam of white light is made to fall on the three set-ups shown here.
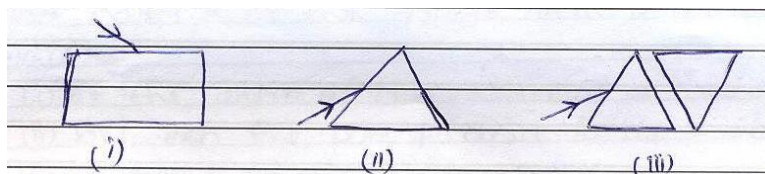
What are we likely to observe in each of these three cases? How can we understand the similarity in the observation of cases (i) and (iii)? Name the seven colours linked with the observation in case (ii) for sunlight?