Short Answer Questions

Q.1. Correct the following statements. [*NCERT Exemplar*]

Q. The colour of the shadow of an object depends on its colour.

Ans. The colour of the shadow of an object does not depend on its colour.

Q. Transparent objects allow light to pass through them partially.

Ans. Translucent objects allow light to pass through them partially or transparent objects allow most of the light to pass through them.

Q.2. Suggest a situation where we obtain more than one shadow of an object at a time. [*NCERT Exemplar*]

Ans. We can obtain more than one shadow of an object if light from more than one source falls on it. For example, during a match being played in a stadium, multiple shadows of players are seen.

Q.3. On a sunny day, does a bird or an aeroplane flying high in the sky cast its shadow on the ground? Under what circumstances can we see their shadow on the ground?
[*NCERT Exemplar*]

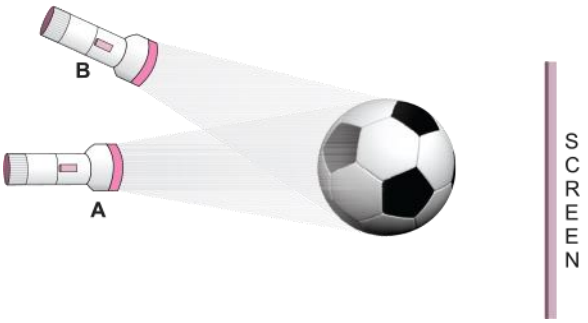
Ans. No. Shadow of the bird can only be seen when the bird is flying very low, close to the ground.

Q.4. You are given a transparent glass sheet. Suggest any two ways to make it translucent without breaking it. [*NCERT Exemplar*]

Ans.

i. By applying oil, grease, butter on it or pasting a butter paper on it.
ii. Grinding (rubbing) the surface of the glass by any abrasive material.

Q.5. A torch is placed at two different positions A and B, one by one, as shown in figure.



The shape of the shadow obtained in two positions is shown in figure given below.

Match the position of the torch and shape of the shadow of the ball. [*NCERT Exemplar*]

Ans. A → a, B → b

Q.6. A student covered a torch with red cellophane sheet to obtain red light. Using the red light she obtains a shadow of an opaque object. She repeats this activity with green and blue light. Will the colour of the light affect the shadow? Explain. [*NCERT Exemplar*]

Ans. The colour of light will not affect the shadow, because shadow is the dark patch formed when an object obstructs the path of light and hence no light reaches in the shadow region.

Q.7. Is air around us always transparent? Discuss. [*NCERT Exemplar*]

Ans. Air around us is transparent but when thick smoke, thick clouds, etc. are present in the air it does not remain transparent.

Q.8. Three identical towels of red, blue and green colour are hanging on a clothes line in the sun. What would be the colour of shadows of these towels? [*NCERT Exemplar*]

Ans. The colour of shadows of all three towels will be the same. This is because shadows are always black in colour.

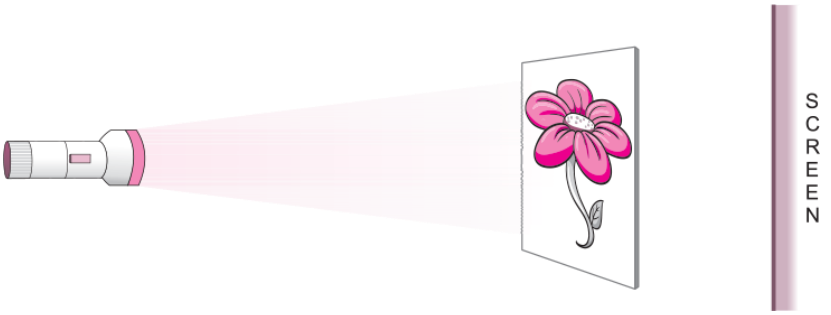
Q.9. Using a pin hole camera a student observes the image of two of his friends, standing in sunlight, wearing yellow and red shirt respectively. What will be the

colours of the shirts in the image?

[*NCERT Exemplar*]

Ans. The colours of the image of the shirts will be the same as the colour of the shirt. This is because a pin hole camera has only a small aperture through which light passes and forms the image.

Q.10. In the figure given below, a flower made of thick coloured paper has been pasted on the transparent glass sheet. What will be the shape and colour of shadow seen on the screen?



[*NCERT Exemplar*]

Ans. The shadow formed will be dark or black in colour and of the shape of the flower along with the stalk.

Q.11. How is a shadow formed?

Ans. When a beam of light shines on an opaque object, some light rays are stopped and some pass by the edges. The region without light formed behind the object is called shadow.