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Q1.
(a) White
(b) Blue
Q2.
Light of shorter wavelengths
Q3.
(a) False
(b) True
Q4.
Dark or black
Q5.
Tyndall effect
Q6.
Two effects produced by the scattering of light by the atmosphere are:

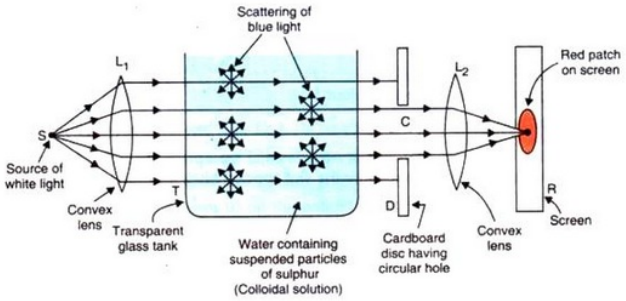
- Sky appears blue.
- Sun appears red at sunrise and sunset.

Q7.
The scattering of light by particles in its path is called Tyndall effect. Ex. When a beam of sunlight enters a dusty room through a window, then its path becomes visible to us due to the scattering of the light by the dust particles present in the air.
Q8.
When a beam of sunlight enters a dusty room through a window, then its path become visible to us. The tiny dust particles present in the air of room scatter the beam of light all around the room.
Q9.
The sky appears blue on a clear day because of the scattering of blue component of white sunlight by air molecules presents in the atmosphere. When sunlight passes through the atmosphere, most of the longer wavelength lights do not get scattered much and hence pass straight through the atmosphere. The shorter wavelength blue light is, however, scattered all around the sky and whichever direction we look, some of this scattered blue light enters our eyes.
Q10.
To an astronaut, the sky looks dark and black instead of blue because there is no atmosphere containing air in the outer space to scatter sunlight. So, there is no scattered light to reach our eyes in outer space, therefore the sky looks dark and black there.
Q11.
The sun and the surrounding sky appear red at sunrise because at that time most of the blue color present in sunlight has been scattered out and away from our line of sight, leaving behind mainly red color in the direct sunlight beam that reaches our eyes.
Q12.
The sun and the surrounding sky appear red at sunset because at that time most of the blue color present in sunlight has been scattered out and away from our line of sight, leaving behind mainly red color in the direct sunlight beam that reaches our eyes.
Q13.
'Danger' signls are red in colour because the red coloured light

having longer wavelength is the least scattered by fog or smoke particles. Due to this the red light can be seen in the same colour even from a distance.

Q14.

(a)



An arrangement for observing the scattering of light in a colloidal solution to show how the sky appears blue, and the sun appears red at sunrise and sunset.

(b) Blue light scatters more easily due to its smaller wavelength.

(c) Shortest wavelength component i.e. blue light scatters away when the sun appears red at sunrise or sunset.

(d) Gas moleccules present in the air.

Q20.

(a) Red colour is observed from the front of the glass tank. This colour corresponds to the colour of sky around the sun at sunset.

(b) Blue colour is observed from the sides of the glass tank. This colour corresponds to the colour of sky on a clear day.

Q21.

When the sun is overhead, then the light coming from the sun has to travel a relativity shorter distance through the atmosphere to reach us. During the shorter journey of sunlight, only a little of the blue color of the white light is scattered. Since light coming from the overhead sun has almost all its component colors in the right proportion, therefore the sun in the sky overhead appears white to us.

But when the same sun is near the horizon at sunset, the sunlight has to travel the greatest distance through the atmophere to reach us. During this long journey of sunlight, most of the shorter wavelength blue colour present in it is scattered out and away from our line of sight. So, the light reaching us directly from the setting sun consists mainly of longer wavelength red colour due to which the sun appears red.

Q22.

greater; longer; red; red

********** END **********