1) why when wave passes a log in water, a smooth area of water is created behind the log, but when the same wave passes a blade of grass there is no smooth area of water created?

a) length of water waves is short in comparison to the size of the grass

b) length of water waves is short in comparison to the size of the log

c) shadow area is created by the blade of grass but no shadow is created by the log

2) an interference pattern is produced when

a) a pattern of light and dark fringes is produced

b) both constructive and destructive interference occur

c) diffraction occurs

d) all above

3) as sunlight falls on a bubble, one wave of blue light is reflected from the inner surface of the soap film and another wave of blue light is reflected from the outer surface. As the waves superimpose they have one half wavelength phase difference. What will we see on that spot of film?

a) yellow

b) very deep blue

c) no color

d) red

Answer: 1) b) length of water waves is short in comparison to the size of the log

In the case of grass length of water waves is comparable with the size of the blade of grass, and the diffraction occurs, wave bends around of the small obstacle and no shadow area is created.

2) b) both constructive and destructive interference occur

Interference pattern is an image of interference between waves with a certain phase difference. It can be obtained only when both constructive and destructive interference occur and in different points of observed field we see increase and decrease of summary wave intensity.

3) c) no color

If two light waves of the same frequency and intensity and a one half wavelength phase difference superimpose, then total light intensity is equal to the difference in the individual intensities and it will be equal to zero – this is known as destructive interference.