



Question 1. Explain the functional limitations of sense organs.

Answer: Sense organs function with certain limitations. For example our eyes cannot see things which are very dim or very bright. Similarly our ears cannot hear very faint or very loud sounds. The same is true for other organs also. As human beings, we function within a limited range of stimulation. For being noticed by a sensory receptor a stimulus has to be of an optimal intensity or magnitude.

Question 2. What is meant by light and dark adaptation? How do they take place?

Answer: Bright adaptation refers to the process of adjusting to bright light after exposure to dim light. This process takes nearly a minute or two. Dark adaptation refers to the process of adjusting to a dimly illuminated environment after exposure to bright light. This may take half an hour or even longer depending on the previous level of exposure of the eye to light. The dark-adapted eye is about 100,000 times more sensitive to light than the light-adapted eye.

Question 3. What is colour vision and what are the dimensions of colour?

Answer:

- A person's ability to distinguish different shades of colour is termed colour vision.
- Person with normal colour vision can distinguish more than seven million different shades of colour.
- There are three basic dimensions of colour-hue, saturation, and brightness.
- Hue is property of chromatic colours. It refers to the name of the colour, e.g., red, blue, and green. Hue varies with wavelength, and each colour is identified with a specific wavelength. For example, blue has a wavelength of about 465 nm. and green of about 500 nm. achromatic colours like black, white or grey are not characterised by hues. .
- Saturation is a psychological attribute that refers to the relative amount of hue of a surface or object.
- The light of single wavelength (monochromatic) appears to be highly saturated.
- As we mix different wavelengths, the saturation decrease. The colour grey is completely unsaturated.
- Brightness is the perceived intensity of light. It varies across both chromatic and achromatic colours.
- White and black represent the top and bottom of the brightness dimension.
- White has the highest degree of brightness, whereas black has the lowest degree.

Question 4. How does auditory sensation take place?

Answer: Sound serves as stimulus for auditory sensation. Loudness, pitch, and timbre are the - properties of sound. Organ of corti located in the basilar membrane is the chief organ of hearing. Auditory sensation begins when sound enters our ear and stimulates the chief organs of hearing. Pinna collects the sound vibration and serve them to the tympanum through the auditory meat us. From the timpani cavity the vibrations are transferred to the three ossicles, which increase their strength and transmit them

to the inner ear. In the inner ear the cochlea receives the sound waves. Through vibrations the endolymph is set in motion, which also vibrates the organ of Corti. Finally the impulses are sent to the auditory nerve, which emerges at the base of the cochlea and reaches the auditory cortex where the impulse is interpreted.

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