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**QUESTION**

Define Visual Perception and write on the three factors associated with visual perception.

**ANSWER**

Visual perception is the ability to interpret our surrounding environment using light in the visible spectrum reflected by the objects in the environment. The visual perception of colours, patterns and structures has been of particular interest in relation to graphical user interfaces because these are perceived exclusively through vision.

The three factors associated with visual perception are:-

1. Perceiving size and depth: Imagine you are standing on a hilltop. Beside you on the summit you can see rocks, sheep and a small tree. On the hillside is a farmhouse with outbuilding and farm vehicles. Someone is on the track, walking toward the summit. Below in the valley is a small market town.

Even in describing such a scene the notions of size and distance predominate. Our visual system is easily able to interpret the images, which it receives to take account of these things. We can identify similar objects regardless of the fact that they appear to us to be vastly different sizes. In fact, we can use this information to judge distance.

So how does the eye perceive size, depth and relative distances? To understand this we must consider how the image appears on the retina. Reflected light from the object forms an upside-down image on the retina. The size of that image is specified as visual angle.

If were to draw a line from the top of the object to a central point on the front of the eye and a second line from the bottom of the object to the same point, the visual angle of the object is the angle between these two lines. Visual angle is affected by both the size of the object and its distance from the eye. Therefore if two objects are at the same distance, the larger one will have the larger visual angle. Similarly, if two objects of the same size are placed at different distances from the eye, the furthest one will have the smaller visual angle.

1. Perceiving brightness: Brightness is in fact a subjective reaction to level of light. It is affected by luminance, which is the amount of light emitted by an object. The luminance of an object is dependent on the amount of light falling on the object’s surface and its reflective prosperities. Contrast is related to luminance: it is a function of the luminance of an object and the luminance of its background.

Although brightness is a subjective response, it can be described in terms of the amount of luminance that gives a just noticeable difference in brightness. However, the visual system itself also compensates for changes in brightness. In dim lighting, the rods predominate vision. Since there are fewer rods on the fovea, object in low lighting can be seen easily when fixated upon, and are more visible in peripheral vision. In normal lighting, the cones take over.

1. Perceiving colour:. Colour is usually regarded as being made up of three components:
2. Hue: Hue is determined by the spectral wavelength of the light. Blues have short wavelength, greens medium and reds long. Approximately 150 different hues can be discriminated by the average person.
3. Intensity: Intensity is the brightness of the colour.
4. Saturation: Saturation is the amount of whiteness in the colours. The eye perceives colour because the cones are sensitive to light of different wavelengths.