

1. What is the meaning of the photographic term Exposure? what are the different control and settings available in a digital still camera to control the exposure ?

(10 marks)

Ans—A photograph's exposure determines how light or dark an image will appear when it's been captured by camera. Exposure is the amount of light which reaches the camera sensor or film. There are three camera settings that affect exposure of an image: Shutter Speed, Aperture, and ISO.

Shutter speed – The shutter is just in front of the imaging sensor and shutter speed is the amount of time it stays open. Shutter speed determines the length of time the sensor will be exposed to the light. When you set the shutter speed – usually measured in a fraction of a second (e.g. 1/30, 1/1000). By setting the speed, you allow the camera to open and close the shutter. A faster speed (1/1000 second) will let in very little amount of light, while a slow shutter (1/2 second) will let in a lot of light. Shutter speed also controls motion. A fast shutter will freeze moving objects in their tracks, while a slow shutter will record the movement, allowing objects to blur.

Aperture – Aperture controls the lens diaphragm, which controls the amount of light traveling through the lens to the sensor. Aperture setting is indicated by f-number, where each f-number represents a "stop" of light. Changing the f-number means allowing more or less light into the camera. Smaller the f-number, the larger the opening means more light will come. Larger the f-number, smaller the opening means less light will come.

Aperture also determines Depth Of Field (DOF), which is the zone in which the image is acceptably sharp. An image with a large DOF will have sharp focus from foreground to background, while a shallow DOF has the focus concentrated on one particular focus plane. Smaller f-number to achieve shallow DOF and larger f-number to achieve great DOF.

Larger the number = smaller the opening = great DOF

Smaller the number = larger the opening = shallow DOF

ISO – ISO stands for International Standard Organisation. It's a rating carried over since film days. ISO determines sensor sensitivity towards the light. It controls how the sensor responds to the light it receives from the shutter and aperture. A high ISO makes it more sensitive, whereas a low ISO is less sensitive to light. Higher ISO increases image noise. Noise is a light signal that does not originate from the subject, and therefore creates random colors in an image. So ISO speed is usually only increased from its minimum value.

Explain how rainbow is formed? (5 marks)

Ans – Rainbow are formed when sunlight is scattered from raindrops .Rainbow appear in the form of multi-coloured bow . The color in a rainbow are those found in color spectrum of white light as it divides .there are are seven colors ,red ,orange, yellow green ,blue ,indigo ,purple .when the sunlight hit the water droplets ,the seven colors appear .sunlight hitting the raindrop in the atmosphere is refracted on the surface of the raindrop and enters the droplet, once refraction occurs the light breaks up into seven colors inside the raindrop than reflected to the other side of the raindrop .during reflection ,the angle of reflection is equal to the angle of incident ,this means that reflected light travel along a set path and maintain the difference of refraction angle .

Fill in the blanks (20 marks)

a) Focal length is the distance between the ----- of the lens and ----- of the camera

Ans – point of convergence, sensor

b) ----- and ----- are the two basic colour theory

Ans–Primary, secondary

c) ----- and ----- are the type of sensor used in DSLR cameras .

Ans –CCD, CMOS

d) Two opposite extremes of the light spectrum are ----- and -----

Ans –Red, violet

e) The light receptors in the human eye are in the shape of ----- and -----

Ans –Rods, Cones

f) ----- and ----- are the two types of shutter used in a digital video camera

Ans–Electronic , rolling

g) ----- x ----- is the resolution of 4k television .

Ans – 3840 ,2160

h) 16:9 is the ratio of ----- to -----of a high definition frame

Ans – width ,height

i) ----- stops ,and ----- stops are the two ways of making aperture on a camera ring .

Ans – f- stop ,T- stop

j) Green ----- and -----are the three primary colour in a television technology

Ans – Red ,Blue

Q - Define visual composition and state the elements which should be considered for creating a balancing composition. (5marks)

Ans – Composition is the arrangement of elements used .in photography ,it means paying attention to what will be photographed ,how it is placed in relation to other objects in the image , and how well the subject matter is expressed. The various visual elements, known as *elements of design*, *formal elements*, or *elements of art*, are the vocabulary with which the visual artist composes.

The *elements of design* are:

- Line - the visual path that enables the eye to move within the piece.
- Shape - areas defined by edges within the piece, whether geometric or organic.
- Color - hues with their various values and intensities.
- Texture - surface qualities which translate into tactile illusions.

Direction - visual routes which take vertical, horizontal, curved or diagonal paths

- Size - the relative dimensions and proportions of images or shapes to one another