Top of FormChapter 9 - Cinematography: Sight & Sound -

1. Describe the basic duties of a DP. Explain the difference between a director of photography and a cinematographer.

The DP’s (Director of Photography) main purpose is to ensure that the visual image is captured at the highest quality possible, the DP is also in charge of hiring/selecting his crew which will be discussed in the next question.

Cinematography has evolved considerably since the beginning of the motion picture, cinematography started as a duty of the director through the advancement of the industry and the technology as cameras and lights became more complex and modernizing rapidly it became necessary to create a department to be responsible for both cameras and lights.  
When the evolution occurred the cinematographer joined his department with Electrics and worked alongside the gaffer (who is in charge of setting up the lights)

The difference between the DP and the cinematographer (although they sounds the same to me) is that the DP does not operate the camera where as the cinematographer does.

1. What jobs comprise the director of photography’s crew? What are the duties of each member of his team?

The DP work with a crew that consists of a camera operator, First assistant camera operator (focus, puller) and the Second camera assistant (clapper, loader)   
1-The operator: sometimes it is the DP himself or the director in some shots but mainly the operator is the man behind the camera (who actually operates the camera)

2- The 1st Camera assistant: Is responsible for keeping the camera in focus, which gave rise to the name focus puller, they are also in charge of maintenance, care, test and moving the camera from one spot to another for different scenes (they should not look through a lens they must be focus by paying attention to the distance between the subject (actors) and the camera.

3- The 2nd Camera assistant: works directly with the 1st camera assistant, the 2nd camera assistant operates the clapperboard at the beginning of each take, they also load film stock which they note when received, used and sent to development, they also oversees the transportation of the cameras and camera equipment from one location to another.

1. Why is depth perception important when lighting an actor?

Depth is important because since films are Two-dimensional medium, it is essential to use any lighting techniques that enhance the illusion of depth, which is achieved using the Backlight in addition we as humans have stereovision we use two eyeballs/cameras to view things/objects which will be viewed with more depth but in filmmaking there is only one eye, one camera so it doesn’t have the benefits of stereo imagining, last but not least there is no natural depth of perception.   
Backlight is typically placed behind the subject/actors that casts a highlight on shoulders and hair that helps separate the subject/actor from the background and give the audience/viewers a sense of depth.

1. What are the three main lights used in cinematography? How are they used together to create "the visual image"?  
   The Three main light types are: Key-light, fill-light and Back-light.  
   1- Key-light: is a light that is shined directly at the subject face (which will wash all the shadows from the face and makes it look more flat).   
   2- Fill-light: is a light that sits on the side of the subject and causes shadows (also fill light is used to restore the flat face from the key-light).  
   3- Back-light: as discussed above back light is placed behind the subject/ that casts a highlight on shoulders and hair that helps separate the subject/actor from the background and give the audience/viewers a sense of depth.  
   The approach to determine the sequence of placing the lights is to begin at the furthest point from the camera and then move towards the camera, this would start with the back-light.   
   The Two basic aspects of visual image are camera and lighting and as discussed before we as humans have a stereovision.
2. What is the difference between tungsten incandescents and HMIs? What is the purpose of each?  
   The Tungsten is a warm yellow color (used/equivalent to light bulbs in home) usually used indoors.  
   The HMIs produces a blue light (used/equivalent to daylight) usually used outdoors.  
   They both have great effect to establish the mood and the theme of the film
3. What are some of the other tools a director of photography will use to create lighting effects?

There are several tools that could be used in-front of the light to create different effects for example “Gels” they are simply colored sheets of cellophane, also there are “Scrims” which are anything you put in-front of the light to diffuse it they are usually made of fabric, they can also be used to pattern the lights.  
Last but not least: “Patterns” they are called cucolorises they are usually sheets of wood, plastic or fabric that will pattern the light to look like blinds, branches or whatever you design out of the pattern.  
  
A Bounce is used to bounce light from one source to another direction (these are usually large pieces of reflective foam, shiny piece of plastic or even mirrors, they are usually used outdoors to reflect the sun or they can be used indoors to reflect one of the indoors light.

There are also equipment’s placed in-front of the light such as scrims, gobos and/or butterflies which changes the intensity, shape, patterns and shadows of light, usually these equipment is handled by the Key Grip.

1. What are the different parts of a camera?  
   Any camera mainly consists of 5 main components which are:   
   1- Light-box (the body), 2- Lens, 3- Shutter, 4-Iris and 5- The focal plane (to secure light sensitive media)  
   1-The body (the light box): Its primary purpose is to keep any unwanted light away from the sensitive surface/area, it also has places on it to mount a lens, a view finder and number of other accessories that will ease the photographer’s tasks and work in making a good pictures.   
     
   2- The Lens: is a collection of glass elements of different shapes mounted in a barrel made of metal or plastic, a basic lens has a focusing ring that allows the photographer to select and focus on any object, the primary purpose of the lens is to for a sharp image of an object into the focal plane where the film/digital media is located.  
     
   3- The Iris: or diaphragm the “f-stop” it regulates the intensity of light that travels to the film, this allows the image to be brightened or darkened much as a dimmer would do to an electric light.  
   Usually the iris is a series of thin metal leaves which very precisely overlap each other and form a hole which is referred to as “f-stop” making the f-stop smaller decrease the amount of light passing to the film while enlarging it brightens this light.  
     
   4- The shutter: Controls the length of time of light that is exposed to the film, this time is measured in fractions of a second (1/60 or 1/1000 of a second)  
   shutters are usually made of metal and can be located in the lens or in the camera body, in digital cameras shutter is not a device rather than a software that controls the length and time of film exposed to light.  
     
   5- The Focal plane: a flat surface opposite to the lens to secure light-sensitive media, this flat surface is called the focal plane.
2. Why is "vetting" your DP so important? When vetting him, what characteristics are you looking for? What do you want to avoid?

When choosing my DP i should use the same percussion and care as I will when choosing the actors/cast,

WE need to make sure that the style of the DP is the same style of the film we are doing or at least similar.

The characteristics I will be looking in a DP: smart, creative, flexible, good listener and easy to work with   
I will want to avoid all of the opposite of the characteristics mentioned above.

At the end the DP is responsible for the quality of the image that the audience will watch and his main duty is to ensure that the visual image is captured at the highest possible quality.

9. What is the most important quality of a camera?

From its invention to today, a camera is nothing more than a box that prevents extraneous unwanted light from hitting a light sensitive area/surface, which can be a film or a digital sensor depends on the type of the camera.  
This area/surface is called the focal plane, the camera allows only light organized by a lens into an image, to expose the light-sensitive area/surface.  
Overtime many additions have been made so the camera is easier to use and prudces more high quality sharper images.

10. What is a lens and what is its primary purpose?

The Lens is a collection of glass elements of different shapes mounted in a barrel made of metal or plastic,  
The primary purpose of the Lens is to form a sharp image of an object onto the focal plane where the film is located, a basic lens has a focusing ring that allows the photographer to select and focus on any object in the camera’s field-of-view.

Lenses come in different sizes starting at 10mm (the 10mm is called “fish eye lens” and has a very wide angle, the 50mm lens approximates the human eye, lenses can grow to enormous sizes the biggest lens used was the 200mm lens.

11. What is focal length and what does it affect?  
The focal length of a lens controls the “field-of-view” which is the space the camera sees, field-of-view is the entire area that will be seen in the final shot.  
Also by decreasing the focal length you will have a wide angle shot and increasing the focal length moves the lens towards the telephoto designation.

12. What is controlled by the iris?

The light or the intensity of light is controlled by the iris,  
The Iris or Diaphragm regulates the intensity of light that travels to the film, this allows the image to be brightened or darkened, like what the dimmer does to electric light.

1. What does the shutter control?  
   The shutter controls the length of time that is exposed to the film, this time is measured in a fraction of a second, shutters can be located in the lens or the camera body, in digital cameras shutter is not a device but a software that controls the length of time the film is exposed to light.
2. In your own words, why is well executed sound important?  
   Audio is important as much as the picture, if the audio/sound is not well or poorly recorded/executed will ruin the audience experience in addition to all the efforts done by other departments will be far from wasted,  
   In addition it might cost a large amount of money tin post-production o re-do and re-work (edit) the poorly executed/recorded sound.
3. Who generally comprises a sound crew?

The sound crew is usually composed of a Mixer, Boom Operator and one or two assistants  
The Job of the mixer is to supervise the audio department, to provide the needed equipment and to determine microphone placement, during takes the mixer monitor the level of each microphone making adjustments as needed to keep the levels within proper range.  
The boom operator manipulates a shotgun microphone on the end of an extendable boom pole over the actor’s heads, the boom operator must know the framing of the shot in order to avoid and keep the boom out of the scene.

Sound assistants have number of tasks one of them is attaching the wireless microphones to the actors and retrieving those mics after the shoot, other tasks include wrapping cables and changing batteries in the wireless mic.s and other devices.

1. Why does the mixer need to make sure levels are kept within a proper range?

The mixer monitors the level of each microphone making adjustments to keep those levels within a proper range, sounds that are recorded too high or too low of level will be distorted and difficult to fix in post-production and will cost more money.

1. What are the tasks of a sound assistant?  
     
   Sound assistants have number of tasks one of them is attaching the wireless microphones to the actors and retrieving those mics after the shoot, other tasks include wrapping cables and changing batteries in the wireless mic.s and other devices.
2. What is time code used for?

The Sync signal has to be provided to the camera so that the picture track is encoded with sync reference information (this is the time code) the time code will enable the on-set digital imaging technician (the DIT) to show the director what previous takes look and sound like, this same reference is also used by the Editor in post production to sync picture and audio for editing.

Turn in Assignment for Chapter 9 - Cinematography: Sight & Sound

Assignment Description

1. Take an adjustable camera that is not a cell phone or any camera on which shutter speed and f-stops cannot be adjusted. Set it on a stable surface. Line up three objects in front of the lens. Stagger them left to right and be making certain that each is set back a few inches from the one in front of it. Tennis balls work well for this. Set the camera on manual and the ISO at 400.

The ambient light for this assignment should not be in bright sunlight or at night. Average light such as an overcast day would be ideal.

From the vantage point of front-to-rear, focus on the object in the middle which would be the second object from the lens. Set the shutter speed at a 90th of a second and an f-stop of 2.8. If your camera doesn’t have an iris opening as low as f-2.8, use the next highest one. This could be f-3.5, f-4 or f-4.5

Shoot one picture. Now go to the next highest f-stop. We’ll assume that’s f-4 or f-5.6. Make another picture and continue this process until you’ve made a picture at every f-stop until you reach f-22 which, on most cameras will be the highest f-stop.

Review these pictures and note the difference in the brightness from first to last.

2. With the same set-up, change the camera setting from manual to aperture-priority. Repeat the above assignment, changing the f-stop from lowest to highest.

In looking at your results, notice that the brightness of your images has not changed, but that the depth-of-field has increased, making the front and rear objects appear sharper.

**Remember to schedule an appointment with your Hollywood professional.**

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