

TEST BANK ANSWERS/01

PART 1: LIGHTING FUNDAMENTALS

Chapter 1: Basic Principles

- 1 (p. 13 and p. 169) the border between the area of an object that is in light and the area that is in shade
- 2 (p. 13) **b.** photons
- 3 (pp. 13–14) red
- 4 (p. 13) False, white light from the sun is composed of a continuous spectrum of colours
- 5 (p. 15) it either bounces or is absorbed by the surface, depending on the colour of the surface
- 6 (p. 15 and p. 169) the effect produced by light bouncing when it hits a surface that is any colour other than black; the colour of the radiance will depend on the colour of the surface
- 7 (p. 16)
 - high-key image – has a predominance of white or very light tones and tends to look light and airy
 - low-key image – has very little light in it
- 8 (p. 16)
 - high-key lighting – found in fog and snow
 - low-key lighting – night-time, during storms
- 9 (p. 18)
 - consists of a bright main light coming from one side, dim fill light coming from the opposite side and a back light behind the subject, which is used to pick out edges and highlight form
 - problem with setup – artificial and doesn't reflect reality

Chapter 2: Light Direction

- (p. 21) where the light source is directly behind the observer's point of view
- 1 (p. 21)
 - soft front lighting advantages – can be flattering to some subjects i.e. help conceal wrinkles and blemishes
 - hard front lighting disadvantages – areas of the image can be lost in shadow and can reveal imperfections
- (p. 22)
- 3 —very good for showing form and texture and lends a three-dimensional quality to objects
 - to throw dramatic shadows onto a surface to create atmosphere
- (p. 23)
- 4 —looking into the light source
 - objects will have their lit sides facing away from the viewer, so that they are either silhouetted or darkly lit by the full light

- 5 (p. 24)
 - soft top lighting – effective way of showing form
 - hard top lighting – can lend an air of mystery by casting dramatic shadows that conceal most of the forms beneath them
- 6 (p. 24) because what is usually seen in light and shade is reversed

Chapter 3: Natural Light

- 1 (p. 27)
 - scattering and cloud cover
 - scattering – causes sunlight to have a very different character at different times of the day
 - cloud cover – softens sunlight, turning a small hard light source (the sun) into a large and soft one (the whole sky)
- 2 (p. 28)
 - midday
 - bleaches out colours and they appear less saturated than at other times of the day
- 3 (p. 29) False, light becomes progressively warmer
- 4 (p. 30) contrast is very low, shadows are very long and texture is very apparent
- 5 (p. 31) soft, with little shadow and contrast, an extremely delicate colours
- 6 (p. 31) pink area in the eastern sky after sunset
- 7 In open shade the sky becomes the main source of illumination, and as a result the light has a strong **blue** cast. (p. 32)
- 8 (p. 33)
 - soft and diffuse, with soft shadows, contrast is low and colour saturation is usually quite high
 - colour and texture
- 9 (p. 34) thinner cloud cover means that the sky can have a lot of texture, whereas on days with heavy cloud cover it tends to look a solid white or grey, colours in the sky can vary enormously when cloud is thinner and the sky can often be very striking when cloud is thin or broken
- 10 (p. 35)
 - mixture of light and shade
 - under trees in sunshine
- 11 (p. 36) that the sky will always be lighter than the land unless there is artificial lighting on the landscape
- 12 (p. 36) reflected sunlight
- 13 (p. 37) time of day and cloud cover, thickness of clouds and space between them
- 14 (p. 38) because the light reflecting from them has been diffused by haze

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Chapter 4: Indoor & Artificial Light

- 1 (p. 43) the weather, the surfaces in the room from which it is reflected, and the wall, floor and furniture colours
- 2 (p. 43) as the sun is always in the south (in the northern hemisphere) this ensured a fairly constant and consistent light throughout the day and provided a soft light with no strong direction or shadows
- 3 (p. 44)
 - strong yellow/orange
 - easy to manufacture light bulbs that emit this colour and because our brains have the capacity to filter out the orange colour we perceive it as white
- 4 (p. 44)
 - a lampshade
 - to soften the light and the shadows it produces
- 5 (p. 47)
 - in situations where cost is a factor
 - in offices, stations, public buildings and anywhere that needs to be lit economically
- 6 (p. 50) because its colour temperature is so low that the brain can't compensate for it and we actually perceive it as being orange or red

Chapter 5: Shadows

- 1 (p. 54)
 - form – the shaded area on a surface where a light source cannot reach
 - cast – the shadows projected by an object onto a surface (such as the ground) when the object comes between the light source and the surface
- 2 (p. 55) False, cast shadows will usually be darker
- 3 (p. 55) depth, the form of an object, texture
- 4 (p. 56 and p. 166) an optical illusion that adds depth to an image by shading around the areas where surfaces meet in order to simulate the effect produced by a large diffuse light source
- 5 (p. 56 and p. 166) a shadow placed at the base of an object that sits on a surface, making the object look more naturally placed
- 6 (p. 58)
 - small/distant – produce hard-edged shadows
 - large/adjacent – produce soft-edged shadows
 - reasons for difference – rays of light cast by a small/distant light will be more or less parallel giving the shadow a crisply defined hard edge, but in case of large/adjacent light there will be considerable overlap of the light rays resulting in a shadow with a much softer edge

- 7 (p. 60)
 - all shadows will be very soft
 - because the sky is acting as one enormous light source
- 8 (p. 62)
 - the shadow-casting object may be transparent or translucent and will cast a coloured shadow as a result
 - if the surface in shadow is translucent, light from within the surface can then emerge and affect the colour of the shadow

Chapter 6: How we Perceive Surfaces

- 1 (p. 67) depth and dimension
- 2 (p. 67) **d.** direct reflection
- 3 (p. 68) diffuse reflection, direct reflection, transparency/translucency and incandescence
- 4 (p. 68) the boundaries between surfaces and between objects
- 5 (p. 69) True
- 6 (p. 69) otherwise there might be no sense of emphasis and the image might be confusing to look at
- 7 (p. 70) manipulate the contrast of hard edges in the image

Chapter 7: Diffuse Reflection

- 1 (p. 74) when the light being reflected is heavily scattered (diffused) by the reflecting surface
- 2 (p. 76) as light sources have a finite reach as the light spreads further away it becomes more thinly spread and therefore dimmer
- 3 (p. 77) planes reacting to light, form and cast shadows, secondary reflections from fill light, conveying of form
- 4 (p. 77) local colour, surface texture, material type
- 5 (p. 78 and p. 170)
 - the point at which an object moves from shadow into light or vice versa, transitions help to define the shape and composition of an object
 - the volume of an object

Chapter 8: Direct Reflection

- 1 (p. 82) **c.** specular reflection
- 2 (p. 83) False, most natural surfaces are not reflective (liquid is the exception)
- 3 (p. 85) because the reflection is broken up into lots of individual reflections
- 4 (p. 86 and p. 166) a reflection that is distorted heavily

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in one particular direction by irregularities or grooves on the reflective surface

- 5 (p. 87 and p. 168) more or less reflection will be seen on a surface depending on the angle from which it is viewed
- 6 (p. 88) flat reflective surface – only able to reflect a narrow part of its environment
- curved reflective surface – produces a distorted reflection
- 7 (p. 89) False, shadows only exist in diffuse reflection

Chapter 9: Translucency & Transparency

- 1 (p. 93 and p. 169)
—the slowing down and bending of a light ray as it passes from one medium to another
—in diffusion the light is scattered
- 2 A surface is transparent when light is not **scattered**. (p. 92)
- 3 A surface is translucent where **diffusion** occurs to the light as it passes through the material. (p. 92)
- 4 (p. 94)
—transparent – water and crystals
—translucent – foliage, wax, skin, stones
- 5 (p. 96) on its edges
- 6 (p. 98 and p. 166)
—when light is reflected or refracted by a curved or distorted surface
—patterns of light
- 7 (p. 99) because a translucent object is likely to have a strong diffuse component whereas a transparent one does not

Chapter 10: Colour

- 1 (p. 103) False, colour spectrum is continuous with a gradual increase in wavelength that slowly morphs one colour into another
- 2 (p. 104)
 - hue – the colour, the actual value on the colour wheel
 - saturation and intensity – the intensity of the colour or how pure it is
 - lightness – the value, how light or dark the colour is
- 3 (p. 104) True
- 4 (p. 104) red, green and blue
- 5 The colours of the spectrum when blended together make white light. (p. 104)
- 6 (p. 106) the object's own hue (local colour), the hue of the light source or sources
- 7 (p. 108) because strong pure colours are not often found in

nature – reflecting surfaces act as a filter, removing both colour and intensity from the light as it reflects it

- 8 (p. 108) because they are directly emitting light
- 9 (p. 109) the light source
- 10 (p. 110) **b.** value
- 11 (pp. 111–112)
—scientific – describes the radiation given out by a black object when it is heated up; red is the cooler end of the scale
—artistic – uses emotional or cultural references to colour and temperature; red and orange are seen as warm
- 12 (p. 113)
 - hue variation – the natural variation of the local colour of objects, caused by a number of factors from natural hue variance to wear or exposure to the elements
 - luminosity variation – seen as gradations across surfaces, caused by any kind of variation in the strength of the light

PART 2: PEOPLE & ENVIRONMENTS

Chapter 11: Light & People

- 1 (p. 121)
—translucency
—affects the colour of the skin, softens the shadows and transitions
- 2 (p. 125) because it contains less pigment than darker skin and so the blood below the surface exerts a much greater influence on the colour of the skin.
- 3 (p. 125)
—direct light suits male faces because it emphasizes the strong planes of the jaw and cheekbones
—diffused light is better at revealing the softer planes of the female face and is more flattering

Chapter 12: Light in the Environment

- 1 (p. 128) direct from the sun, some kind of diffused skylight (either cast from an overcast sky, or from skylight in the shade or after sunset)
- 2 (p. 130) because the blue is being scattered by the intervening atmosphere
- 3 (p. 131) sky, ground, trees and foliage
- 4 (p. 132)
—urban environments are far more organized and ordered with a profusion of straight lines, which in nature are very rare

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—have many more flat planes (on roads, pavements, sides of buildings, etc)
—more reflective surfaces and more regularity, symmetry and smoothness in their surfaces and structures
—whereas nature is dominated by earth and plant matter, urban areas are built of stone, metal and glass

PART 3: CREATIVE LIGHTING

Chapter 13: Composition & Staging

- 1 (p. 144) because the eye is naturally drawn to contrasts
- 2 (p. 148) when want to draw the eye strongly towards a subject or when want to isolate a subject against a bright background

Chapter 14: Mood & Symbolism

- 1 (p. 151) how bright or dark the overall scheme is, the colour of the light, its direction, its quality and its relative familiarity
- 2 (p. 152) characters, locations and the narrative arc
- 3 (p. 152) to create a monstrous effect
- 4 (p. 152)
 - cool blue – coldness, night and death
 - warm red light – anger or danger
- 5 (p. 156)
 - to suggest an emotional shift in the narrative
 - to illustrate the feelings of the protagonists
 - to direct the emotions of the audience

Chapter 15: Time & Place

- 1 (p. 159) period settings can be more convincing if the lighting is a realistic reflection of the technology available at the time in which the story is set, the materials used, and how they react to light, are also important and need to reflect the technology of the period as well as specific circumstances relating to the story elements
- 2 (p. 162) different aspects of the story can have different lighting schemes in order to create difference in environment or period