Revised & Updated

Digital Photography Final
Study Guide & Sample Questions
Stratton Winter 2014

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Notes During Final:

- Students allowed to use **only one side** of a sheet of 8.5 by 11 inch paper for notes during the test.
- Notes must have students **name clearly labeled** on it.
- **Students can only use the notes they create themselves.**
- Notes may not be photocopied nor may two students use or share the same notes.
- Notes may be typed, but font size must be 12 points or larger.
- Notes will be turned in for **five points credit**.

Topics:

- Camera Basics
- Camera Modes
  - Basic Zone Modes
  - Creative Zone Modes
- Exposure
  - Stop of light
    - As move from one setting (ISO, f/stop. shutter speed) the amount of light will half or double
    - Increase one stop +1 = 2x (twice) the amount of light
    - Decrease one stop -1 = ½ (half) he amount of light
    - +3 stops = 8x the amount of light
    - -3 stops = 1/8 the amount of light
  - Light Meter
  - Overexposed, photos look light (plus stops)
  - Underexposed, photos look dark (minus stops)
  - Bracketing Exposures • exposures are different, changes result in + or 0 stops of light
  - Reciprocal Exposures • same or equal exposures, changes balance to zero stops
  - Sunny 16 Rule • 1/ISO @ f/16
- Exposure Triangle
  - ISO
  - Shutter Speeds
  - Apertures & f/Stops

- Shutter Speeds
  - Typical Camera Speeds: 1/4,000 to 1s
  - Tripod required when SS is < 1/60
  - Stop Action
  - Stop most human action 1/250
  - Showing Motion
  - Panning
- Apertures & f/Stops
  - Typical Lens f/Stops: f/4 to f/22, but f/2.8 and f/32 are also common
  - Depth-of-field
  - Deep over f/11
  - Shallow f5.6 and under
  - Selective Focus
- Composition
  - Rule of Thirds Leading Lines Golden Mean Simplicity
  - Reverse S Framing Balance Symmetry
- File Formats
  - JPG, RAW, GIF, PSD, TIFF
- Programs
  - Bridge
  - PhotoShop
    - Selection Tools
    - Masks
    - Layer Adjustments
    - Text
    - Contact Sheets
  - PhotoShop Camera RAW Interface

Exposure Chart
Know these ISOs, f/stops & shutter speeds
Understand the difference between actual normal settings and theroical settings

Digital Standard Lens/Camera Settings	Possible Settings (The Chart)
*Most: f/22 to f/4 Some: f/32 to f/2	f/64 to f/1.4
*Most: 4000 to 1s, B(ulb) Some: 1/8000 to 30s, B(ulb)	1/8000 to 30s, B(ulb)
50 to 3200	50 to 25600

*Most includes cameras the class uses

64	44	32	22	16	11	8	5.6	4	2.8	2	1.4
4000	2000	1000	500	250	125	60	30	15	8	4	2	1s
	50	100	200	400	800	1600	3200	6400	12800	25600

Sample Exposure Problems

These are sample questions. You should know how to work problems for a variety of scenarios including: changes to depth-of-field, action/motion, selective focus, artificial light and Sunny 16 Rule.

Hints; Try following these steps:

Start ⟶	If ⟶	Choose ⟶	Action to Take (How to Do)
1. Determine why you're taking photo. 2. What does the question ask you to accomplished?	If you are to get a deeper or shallower depth-of-field	Then you will need to prioritize aperture and change the ƒ/stop	Deeper ƒ/stops are ≥ ƒ/11 Shallower ƒ/stops are ≤ ƒ/5.6
	If you are to stop action or show motion	Then you will need to prioritize shutter speed	Fast shutter speeds stop action Slow shutter speeds show motion
	If you are to use panning	Then you will need to prioritize shutter speed	Think about speed of object moving. Remember background is to be blurred. Faster (speeding car) $\frac{1}{125}$ at most Slower (person jogging) $\frac{1}{15}$
	If you are to use selective focus	Then you will need to prioritize aperture and change the ƒ/stop	Shallower ƒ/stops are ≤ ƒ/5.6
	If there is artificial light	Then you will need to adjust the white balance	Adjust White Balance Setting appropriately
	If light meter is not working and you are outside	Then apply Sunny 16 Rule	Ask yourself if it is a clear sunny day and midday. Now determine ISO and set aperture to ƒ/16 and shutter speed to $\frac{1}{ISO}$

Question Set 1
Initial light meter reading: ISO 800 $\frac{1}{125}$ @ ƒ/5.6

1. You are inside a brightly lit classroom with no windows taking photos of a large group of people. What do you need to adjust to account for being inside without windows besides the elements of the exposure triangle?

2. How must you adjust exposure to include every row of people in focus front to back? You have a standard camera and do not have a tripod.

Exposure Based on Rule

Reasoning:

ISO	
ƒ/	
SS	

Refined Exposure (if needed)

ISO	
ƒ/	
SS	

You should be able to create this chart to help yourself in determining exposure reciprocity and bracketing problems

64	44	32	22	16	11	8	5.6	4	2.8	2	1.4

4000	2000	1000	500	250	125	60	30	15	8	4	2	1s

50	100	200	400	800	1600	3200	6400	12800	25600

Question Set 2

It is 10:30 a.m. on a sunny clear day. You light meter is not working correctly, but you know the other electronics are working properly. You have a standard camera and do not have a tripod.

1. If you set the ISO to 800 what would your exposure be following basic photographic rules? What kinds of adjustments might you have to do & why?

Exposure Based on Rule

Reasoning:

Refined Exposure (if needed)

ISO	
f/	
SS	

ISO	
f/	
SS	

2. You see several bicyclists coming your way and want to capture them showing how fast they are going. What technique do you use to show their motion in relation to their surroundings?

3. How would the exposure be effected by this technique? Remember explain and show any needed exposure changes.

New Exposure (if needed)

Reasoning:

Refined Exposure (if needed)

ISO	
f/	
SS	

ISO	
f/	
SS	

Question Set 3

You are out hiking in the Columbia River Gorge on a spring day. Along with your camera bag you're carrying a tripod. You come upon a beautiful shady scene under the canopy of trees along a creek at the base of towering basalt cliffs.

1. You want to show the creek's water moving though the otherwise still scene. You take a light meter reading of **ISO 400, ½₂₅₀ @ ƒ/4.**

a) Will this setting show the water's **movement**? ☐ Yes   ☐ No (choose one)

Exposure (if needed)

Show your reasoning:

Refined Exposure (if needed)

ISO	
f/	
SS	

ISO	
f/	
SS	

b) How do you need to change your exposure to ensure movement will be shown?

Exposure (if needed)

Show your reasoning:

Refined Exposure (if needed)

ISO	
f/	
SS	

ISO	
f/	
SS	

Scantron Style Questions

1. Which of the following is **not** a function shutter speed?
   a. Affects amount of light reaching sensor
   b. Affects motion
   c. Controls light
   d. Controls exposure quality
   e. Controls film speed

2. Which of the following is **not** true?
   a. Shutter speed is directly related to aperture
   b. Shutter speed helps you capture action
   c. Shutter speed influences depth of field
   d. Shutter speed is measured in fractions of seconds

3. What is ISO?
   a. Measurement of the sensitivity to light
   b. Length of the exposure time
   c. Distance of the depth of field
   d. Size of the f-stop opening

4. A lower ISO number will be...
   a. Incredibly sensitive to light
   b. Average
   c. Not very sensitive to light
   d. Good for a balanced exposure

5. Which three settings needs to work together to create a good exposure?
   a. ISO, Film Speed, f/Stop
   b. ISO, Shutter Speed, f/Stop
   c. ISO, Aperture, f/Stop
   d. f/Stop, Focal Length, Depth-of-field

6. What is the recommended ISO setting for basic use indoors and outdoors?
   a. ISO 200
   b. ISO 3200
   c. ISO 700
   d. ISO 400

7. What is one of the challenges that comes with using a slow shutter speed?
   a. The numbers get confusing
   b. You must use a tripod to avoid blurriness
   c. You must use a flash to get a good exposure
   d. Your f/stop changes, too.

8. What is the technique called when a moving object is in focus but the background is blurry, as if it is in motion?
   a. Panning
   b. Focusing
   c. Depth-of-Field
   d. Scanning

9. Which setting on the camera lets you control just the shutter speed?
   a. AV
   b. Manual
   c. P
   d. TV

10. Which setting on the camera lets you control just the aperture?
    a. AV
    b. Manual
    c. P
    d. TV

11. What is the lowest recommended shutter speed for use without a tripod?
    a. $\frac{1}{30}$
    b. $\frac{1}{15}$
    c. $\frac{1}{500}$
    d. $\frac{1}{125}$
    e. $\frac{1}{60}$

12. What is the standard shutter speed for stopping human action?
    a. $\frac{1}{1400}$
    b. $\frac{1}{250}$
    c. $\frac{1}{800}$
    d. $\frac{1}{500}$
    e. $\frac{1}{60}$

13. What is the recommended shutter speed for creating a panning effect?
    a. $\frac{1}{30}$
    b. $\frac{1}{250}$
    c. $\frac{1}{300}$
    d. $\frac{1}{600}$

14. What type of shutter speed would you need to shoot sports in the gym?
    a. Lower than $\frac{1}{250}$
    b. Higher than $\frac{1}{500}$
    c. $\frac{1}{1000}$
    d. $\frac{1}{125}$
    e. $\frac{1}{250}$

15. Where on the camera can you change your focus?
    a. Under menu
    b. On the dial
    c. On the lens
    d. You cannot adjust the focus

16. How do you change your white balance?
    a. Under menu
    b. Turn the dial
    c. Adjust the lens
    d. Push the "WB" button

17. How can you eliminate distracting backgrounds from your shots?
    a. Shoot from a different angle
    b. Lower your f-stop
    c. Change your shutter speed
    d. A and B
    e. None of the above

18. What is depth-of-field?
    a. How diverse the people in your picture are.
    b. How deep the focus is behind the picture.
    c. How much of the picture is in focus front to back.
    d. How strong the focus is in the subject's eyes.

19. What setting is the most important in depth-of-field shots?
    a. The Flash
    b. The Aperture
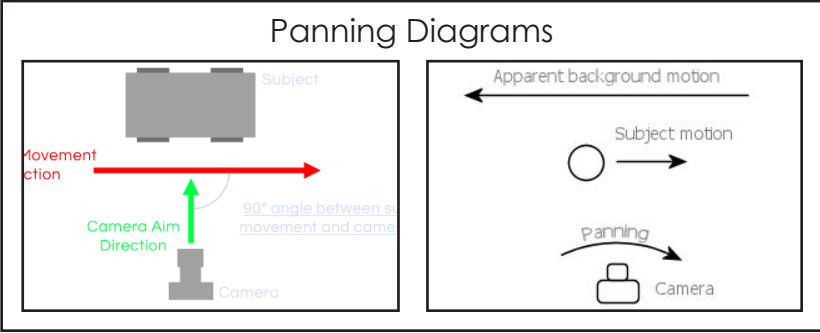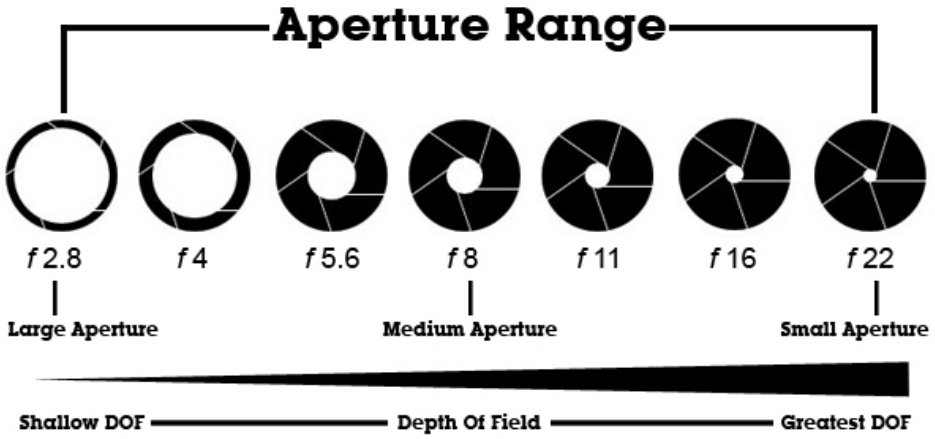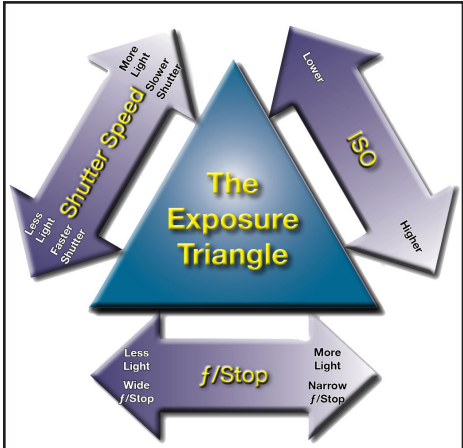   c. The Shutter Speed
    d. The ISO

Scantron Style Questions

20. What should you always focus on when shooting people?
    a. Their eyes.
    b. Not getting caught by the cops.
    c. The background.
    d. Their nose.

21. If your f-stop is set to f/1.8, what does this mean?
    a. The flash will be $^{1.8}$ times as bright.
    b. The exposure will be $^{1.8}$ seconds long.
    c. The frame will have ^{18} times light sensitivity.
    d. The aperture is as wide open as it will go.

22. A high f/stop number will:
    a. Limit the light in a picture.
    b. Blow out all the details.
    c. Require a slower shutter speed.
    d. Allow too much light in a picture.

23. How are f/stops and apertures related?
    a. One is the size of the opening, one is the speed.
    b. One is the film speed, one is the length of the exposure.
    c. They are the same thing.
    d. f/stops and apertures are not related.

24. How are f-stops and shutter speed related?
    a. They both determine the amount of light in an exposure.
    b. They both determine the length of time a picture is exposed for.
    c. They both determine how much movement is in the picture.
    d. They are not related.

25. What are the three components forming an Exposure Triangle?
    a. f/Stop, Aperture, Shutter Speed
    b. f/Stop, Shutter Speed, WB
    c. Aperture, Shutter Speed, Macro
    d. Aperture, Shutter Speed, ISO

26. What does the ISO measure?
    a. The amount of action in a picture.
    b. The sensor's sensitivity to light.
    c. The color of light in the image.
    d. The length of the exposure.

27. What causes noise in a picture?
    a. Bold, bright patterns.
    b. Dust, pixels, reflections in the frame.
    c. A higher ISO setting.
    d. Both B and C.
    e. None of the above.

28. If your aperture is set to f/22, what kind of depth-of-field will you have?
    a. Shallow, with many things blurry.
    b. Average, as your eye would see it.
    c. Deep or broad, with many details.
    d. Apertures do not influence depth of field.

29. Which of the following is not an advantage of depth-of-field?
    a. Stop action.
    b. Selective focus.
    c. Creative perspective.
    d. Interesting compositions.

30. If you have adjusted both your f/stop and shutter speed, but your exposure still is not balance, what should you adjust next?
    a. Macro Settings
    b. Infinity Settings
    c. White Balance
    d. ISO

31. What type of depth-of-field does this picture possess?
    a. Neutral or Medium
    b. Shallow
    c. Deep
    d. No depth-of-field present

32. If you are out taking photos on a bright clear cloudless day around noon, what is your f/stop?
    a. f/ 5.6
    b. f/ 8
    c. f/11
    d. f/16
    e. f/22

33. Based on Question 32, what other components must you have to figure out your exposure?
    a. Depth-of-Field
    b. Aperture
    c. Shuttter Speed
    d. ISO

34. If your light meter reads ±0 with an exposure of ISO 400, 1/250 @ f/8 which of the following exposures would be a +2 exposure?
    a. ISO ^{400}, $^1/_{125}$ @ $f/_8$
    b. ISO ^{400}, $^1/_{60}$ @ $f/_8$
    c. ISO ^{400}, $^1/_{500}$ @ $f/_8$
    d. ISO ^{200}, $^1/_{500}$ @ $f/_8$
    e. ISO ^{800}, $^1/_{250}$ @ $f/_{11}$

35. If your light meter reads ±0 with an exposure of ISO 400, 1/250 @ f/8 which of the following exposures would be a reciprocal exposure?
    a. ISO ^{400}, $^1/_{125}$ @ $f/_8$
    b. ISO ^{400}, $^1/_{60}$ @ $f/_8$
    c. ISO ^{400}, $^1/_{500}$ @ $f/_8$
    d. ISO ^{200}, $^1/_{500}$ @ $f/_8$
    e. ISO ^{800}, $^1/_{250}$ @ $f/_{11}$

36. If a photographer wants to do bracketing, what must they do?
    a. Take five photos with the equivalent exposure.
    b. Make sure all photos are reciprocal.
    c. Change only one of the exposure triangle elements so each image has a different value.
    d. Change exposure on at least two of the three parts of the exposure triangle.
    e. Nothing, just take the photo.

37. If you change your shutter speed or your f/stop or your ISO by one whole setting what have you done to the amount of light apparent in the photo?
    a. Increased the light by ^{2}x
    b. Decreased the light by ½
    c. Either double or halved the light dependent on the direction the stop was changed.
    d. Nothing changed.

Scantron Style Questions

38. The most typical compositional rule/guidelines for photography is...   Mark only one.
    a· Rule of Thirds
    b· Golden Mean
    c· Leading Lines
    d· Balance/Symmetry
    e· Simplicity
    f· Selective Focus

39. Your initial exposure is ISO 400, 1/250 @ ƒ/8. What do you change your settings to allow for a greater depth-of-field?
    a· Change the shutter speed
    b· Change the ƒ/stop
    c· Change ISO
    d· Change focus

40. Your initial exposure is ISO 400, 1/250 @ ƒ/8. How do you change your settings to allow for a greater depth-of-field? Mark all that apply, but remember it might be only one.
    a· Increase the ƒ/stop to ƒ/11 or greater
    b· Increase the shutter speed to compensate for changes to ƒ/stop
    c· Decrease the ƒ/stop to ƒ/5.6 or less
    d· Decrease the shutter speed to compensate for changes to ƒ/stop
    e· Do nothing as these settings are good as they are·

41. Your initial exposure is ISO 800, 1/250 @ ƒ/5.6. Which of these exposures would be best for stopping action?
    a· ¹⁄₁₂₅ @ ƒ/8
    b· ¹⁄₅₀₀ @ ƒ/5.6
    c· ¹⁄₁,₀₀₀ @ ƒ/5.6
    d· ¹⁄₅₀₀ @ ƒ/4
    e· ¹⁄₁,₀₀₀ @ ƒ/2.8

Given diagrams of apertures be able to choose with the appropriate ƒ/stop measurement for the aperture opening shown.
    a· ƒ/2
    b· ƒ/2.8
    c· ƒ/4
    d· ƒ/16

The Exposure Triangle

Aperture Range

ƒ2.8   ƒ4   ƒ5.6   ƒ8   ƒ11   ƒ16   ƒ22

Large Aperture   Medium Aperture   Small Aperture

Shallow DOF ———————————— Depth Of Field ———————————— Greatest DOF

Panning Diagrams

Subject

Movement ction

Camera Aim Direction

90° angle between s movement and came

Camera

Apparent background motion

Subject motion

Panning

Camera

ƒ/number (stop) Formula

$$N = \frac{f}{D}$$

Scantron Style Questions

42. You are taking a photo on a clear day at 2 p.m.. Your ISO is set to 400. What is the best exposure settings using whole stops?
    a. ¹⁄₄₀₀ @ f/16
    b. ¹⁄₅₀₀@ f/16
    c. ¹⁄₅₀₀@ f/8
    d. ¹⁄₁₂₅@ f/16
    e. ¹⁄₅₀₀ @ f/11

43. Your initial exposure is ISO 800, 1/250 @ f/5.6. Which of these exposures would be best for showing motion?
    a. ¹⁄₃₀ @ f/8
    b. ¹⁄₃₀@ f/16
    c. ¹⁄₆₀@ f/11
    d. ¹⁄₁₂₅@ f/8

44. Match the shutter speed to the photo at the right.
    a. 4s
    b. ¹⁄₃₀
    c. ¹⁄₆₀
    d. ½₅
    e. ¹⁄₅₀₀

45. This photo has which of the following compositional rule/guidelines? Mark all that apply, but remember it might be only one.
    a. Rule of Thirds
    b. Leading Lines
    c. Balance/Symmetry
    d. Simplicity
    e. Selective Focus

46. This photo has which of the following compositional rule/guidelines? Mark all that apply, but remember it might be only one.
    a. Rule of Thirds
    b. Leading Lines
    c. Balance/Symmetry
    d. Simplicity
    e. Selective Focus'

47. This photo has which of the following compositional rule/guidelines? Mark all that apply, but remember it might be only one.
    a. Rule of Thirds
    b. Leading Lines
    c. Balance/Symmetry
    d. Simplicity
    e. Golden Mean
    f. ¹⁄₅₀₀ @ f/4

48. Match the shutter speed to the photo on this page
    a. ½
    b. ¹⁄₃₀
    c. ¹⁄₆₀
    d. ½₅
    e. ¹⁄₁₀₀₀

Scantron Style Questions

49. What is the purpose of a mask in PhotoShop?
    a. It is used to make a selection.
    b. It is used to lighten or darken a specific area.
    c. It blurs a region of an image.
    d. It is the covering of an area which allows for just a specific area for an image to be seen or adjusted .
    e. None of these.

50. RAW images...
    a. Allow greater flexibility in editing because they contain more unaltered data from the sensor.
    b. Reduce flexibility in editing because they contain more unaltered data from the sensor.
    c. Should always be avoided because the files are too big.

51. File types other than RAW, like JPG files, can be opened with Adobe's Camera RAW interface and edited similar to a RAW file.
    a. True
    b. False

52. Layer fills and adjustments are permanent and cannot be altered after editing.
    a. True
    b. False

53. The **method used in class** to make a color photo **into B&W** using PhotoShop was a function of ...
    a. Using a selection tool
    b. Using a layer adjustment
    c. Using the text tool
    d. Changing the image mode

54. "Marching Ants" around an area of an image indicates...
    a. The area is over exposed
    b. The area is under exposed
    c. Highlights are "blown out"
    d. The area is selected
    e. None of these

55. For Image 1 on right, This is a form of an...
    a. Layer adjustment
    b. RAW interface
    c. Channel adjustment

56. In Image 2, the mask is...
    a. Red Circle a
    b. Red Circle b
    c. Red Circle c

57. In Image 2, the layer adjustment is...
    a. Red Circle a
    b. Red Circle b
    c. Red Circle c

58. In Image 2, the original image is...
    a. Red Circle a
    b. Red Circle b
    c. Red Circle c

59. Image 3 is of....
    a· A layer adjustment panel
    b· A camera RAW dialog panel
    c· A mask adjustment panel

60. At the top of Image 3 the graph is called a
    a· Levels chart
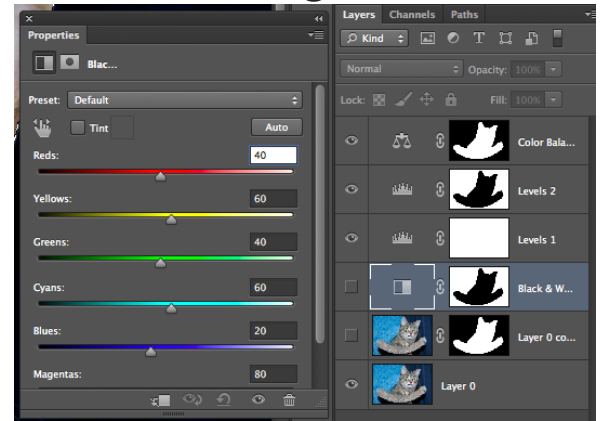   b· Color separator
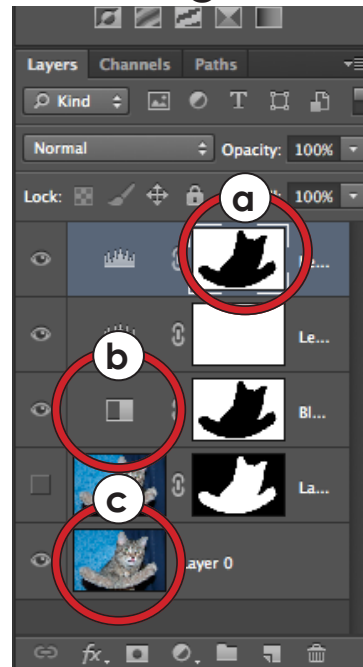   c· Histogram
    d· Spectrogram

Image 1

Image 2

Image 3