Physics	Honors
2017-18	

## EM Waves with Light and Color

Name:	- 64
Period	

## Determine whether the statement is true or false

- 1. The distance light travels in one year is called a light-year.
- 2. Gamma rays have a lower frequency than radio waves.
- Two colors of light that add to form white light are called primary colors. 3.

## Multiple Choice – Select the best answer



Which of the following are NOT electromagnetic waves?

a) radio waves

c) visible light waves

b) sound waves

d) x-rays

- 5. Electromagnetic waves are:
  - a) either transverse and longitudinal, depending on the frequency.
  - b) longitudinal waves.
  - c) a combination of both transverse and longitudinal waves.
  - d) transverse waves.
- 6. In a vacuum, the fastest electromagnetic wave is
  - a) ultraviolet light.

c) visible light.

b) infrared light.

- d) all of the above.
- 7. What is the ultimate source of electromagnetic waves?
  - a) accelerating charges

c) TV antennas

b) accelerating atoms

- d) accelerating molecules
- 8. Which of the following waves has the highest energy?
  - a) ultraviolet waves

c) gamma waves

b) violet light waves

- d) microwaves
- When Strizz wears a blue shirt the shirt appears blue because ...
  - a) it absorbs blue light.

c) it reflects blue light -> We see what Lisht is Reflected

- d) only blue light can transmit through it
- 10. When red and green light shine on a white sheet, the resulting color is
  - a) blue.

b) cyan

- c) magenta
- d) yellow
- 11. If sunlight were green instead of white, the most comfortable color to wear on a hot day would be
  - a) yellow.
- b) blue.

c) red.

d) magenta.

12.	The three primary colors or light are		
	<ul><li>a) red, yellow, green</li><li>b) red, yellow, blue</li></ul>	c) yellow, green, blue d) red, green, blue	
An actor on TV is wearing a black shirt, which colors are being mixed to make the shirt black?			
uı	a) Red, Green, & Blue b) Cyan, Magenta, & Yellow	© None of the above is the abeence	
14. A ripe banana (yellow) would appear what color in magenta light?			
	a) blue b) red	c) black d) green	
15.	Black is		
	<ul><li>a) a very dark light.</li><li>b) all light combined.</li></ul>	c) the absence of light d) the sum of red, blue, and green light.	
16.	Which of the following waves have the longes	t wavelength?	
	a) ultraviolet waves	c) gamma rays	
_	b) radio waves	d) microwaves	
(17	Different colors of light correspond to different	light	
56	I) frequency $V = \lambda \cdot f$ II) energy $V = \lambda \cdot f$ III) intensity  IV) velocity $A \in F$	equency increases Energy d	
	V) wavelength	as wel	
	a) I and V b) II and IV	c) III	
18.	A transparent object light, while	an opaque object light.	
	<ul><li>a) blocks, transmits</li><li>b) transmits, blocks</li></ul>	c) blocks, blocks d) transmits, transmits	
19	19. What three colors do (colored) TVs use and the LCD projector in this room?		
	a) cyan, yellow, magenta b) red, blue, green	c) red, blue, yellow d) white, black, blue	
20	A sheet of red paper will look black when illun	ninated with	
	a) magenta light b) yellow light	c) red light d) cyan light	
21	Which colors are use when printing color? a) red, green, blue b) all colors of the spectrum (ROY G BIV)	c) red, yellow, blue d) magenta, cyan, yellow	

- 22.) Which of the following are fundamentally different from the others?
  - a) Gamma rays
  - b) Radio Waves.

Sound Waves. Mechanica

d) Light Waves.

Hand

Blue Light

Use the diagram to the right, answer questions 23-26:

Note: The screen is white

- 23.) The right shadow will appear which 75 color? BluE is Blocked
  - a) blue

ned red

- b) magenta
- e) yellow
- c) black
- 24.)The left shadow will appear which Red is Blocked color?
  - a) red

d) yellow

- b) magenta
- blue
- c) black
- 25.) If in white light the glove is cyan, what color will it appear in the diagram? (With red and blue light shining on it)
  - a) red

d) yellow

- b) magenta
- **@** blue
- c) black
- 26.)The background will appear which color?
  - a) red
  - b) blue
  - c) green
  - d) yellow

magenta enta

R+B=M

27.) The elements that the sun is made of can be determined by?

a) Looking at the sun from space

- b) Looking at the sun with polarized filters
- c) Comparing the sun's spectrum to known elements
- d) By analyzing particles released in solar flares

Red Light

- Please check your answers and mark the correct answer for each that you got wrong.
- Study the circled questions for your final exam.