G10 Advanced Physics Chapter 1 - Revision Problems

Multiple Choice Questions.

Q1.	An object, such as the sun, that emits it's own light is known as a(n) _____ source.
a.	luminous
b.	illuminated
c.	mon-luminous
d.	light

Q2.	Which of the following waves cannot be polarized?
a.	Sound waves
b.	Light waves
c.	Seismic "S" waves
d.	Radio waves

Q3.	The illuminance, E, produced by a point source is _____ to the square of the distance, r^2, between the object and the light source.
a.	directly proportional
b.	inversely proportional
c.	not proportional
d.	equal

Q4.	Mediums that transmit and reflect light but do not allow objects to be seen clearly through them are called _____.
a.	luminous
b.	opaque
c.	translucent
d.	transparent

Q5.	The bending of light as it passes the edge of a barrier is known as which of the following?
a.	diffraction
b.	Huygen's principle
c.	polarization
d.	refraction

Q6.	What is the illuminance on an object that is 1.50 m away from a light source with a luminous flux of 665 lm?
a.	1.87 lx
b.	3.53 lx
c.	23.5 lx
d.	425 lx

Q7.	A light bulb with a point source illuminance flux of 2250 lm is placed 80 cm in front of a screen. Determine the resulting illuminance on the screen.
a.	2.79×10^{-2} lx
b.	2.79×10^{2} lx
c.	1.8×10^{4} lx
d.	1.8×10^{8} lx

Q8.	The production of light with a specific pattern of oscillation is known as which of the following?
a.	diffraction
b.	Huygen's principle
c.	polarization
d.	refraction

Q9.	A shooting star in a galaxy, moving with a speed of 5.87×10^{5} m/s away from Earth, emits light with a frequency of 5.49×10^{12} Hz. What frequency of light would be observed from that shooting star by an astronomer on Earth?
a.	5.48×10^{12} Hz
b.	5.50×10^{12} Hz
c.	2.81×10^{15} Hz
d.	2.82×10^{15} Hz

Q10.	What is the formula to find speed of light?
a.	$c = \lambda/f$
b.	$c = \lambda^2/f$
c.	$c = f/\lambda$
d.	$c = \lambda f$

Q11.	Which of the following describes the combination of two primary colors of light to produce a secondary color of light?
a.	Blue light and magenta light combine to produce white light.
b.	Cyan light and magenta light combine to produce blue light.
c.	Red light and blue light combine to produce magenta light.
d.	Yellow light and blue light combine to produce green light.

Q12.	When the primary colors of light - red, green, and blue - are added together, this color is produced.
a.	yellow
b.	magenta
c.	cyan
d.	white

Q13.	Wavelengths can be determined by measuring ……..
a.	the height of a crest
b.	the depth of a trough
c.	the distance between two crests
d.	the difference in height between a crest and a trough

Q14.	When light passes through a small opening, the waves spread out. How far they spread out depends on _____.
a.	the amplitude
b.	the frequency
c.	the wavelength
d.	one complete trough

Q15.	The frequency of different colors of light waves is often given in scientific notation. The frequency of orange light is 500,000,000,000,000 Hz. This is can be represented, using scientific notation, as ...
a.	5.0×10^{14}
b.	5.0×10^{13}
c.	500.0×10^{12}
d.	5000.0×10^{11}

Constructed Response Questions.

Q1

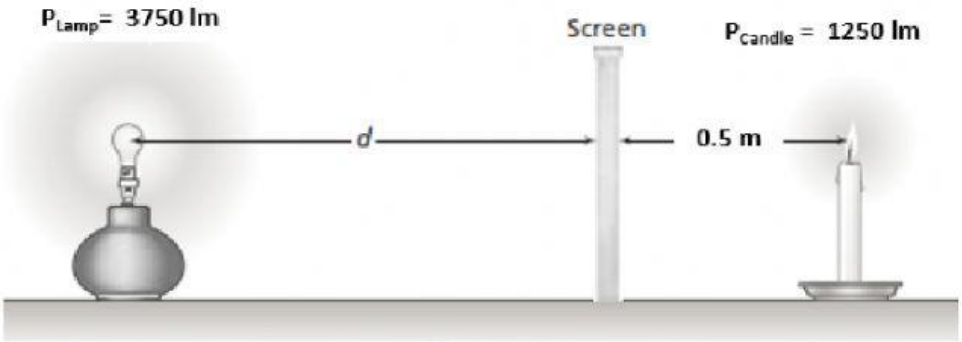

Figure 1.

a. A screen is placed between a lamp and a candle so that they illuminate the screen equally, as shown in Figure 1. The candle emits a luminous flux of 1250 lm and is 0.5 m from the screen. What is the distance of the lamp from the screen if the luminous flux is 3750 lm?

b. A new lamp is placed 1.1 m from the screen. Determine the luminous flux of the new lamp if its illuminance is equal to that of the candles.