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## 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, <br> $\mathrm{r}^{2}$, 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 <br> 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 <br> $665 \mathrm{~lm} ?$ |
| :--- | :--- |
| 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 <br> resulting illuminance on the screen. |
| :--- | :--- |
| a. | $2.79 \times 10^{-2} \mathrm{~lx}$ |
| b. | $2.79 \times 10^{2} \mathrm{~lx}$ |
| c. | $1.8 \times 10^{4} \mathrm{~lx}$ |
| d. | $1.8 \times 10^{8} \mathrm{~lx}$ |


| 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 $5.87 \times 10^{5} \mathrm{~m} / \mathrm{s}$ away from Earth, emits light with a <br> frequency of $5.49 \times 10^{12} \mathrm{~Hz}$. What frequency of light would be observed from that shooting star by an <br> astronomer on Earth? |
| :--- | :--- |
| a. | $5.48 \times 10^{12} \mathrm{~Hz}$ |
| b. | $5.50 \times 10^{12} \mathrm{~Hz}$ |
| c. | $2.81 \times 10^{15} \mathrm{~Hz}$ |
| d. | $2.82 \times 10^{15} \mathrm{~Hz}$ |


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


| Q11. | Which of the following describes the combination of two primary colors of light to produce a <br> 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 <br> orange light is $500,000,000,000,000 \mathrm{~Hz}$. This is can be represented, using scientific notation, as ... |
| :--- | :--- |
| a. | $5.0 \times 10^{14}$ |
| b. | $5.0 \times 10^{13}$ |
| c. | $500.0 \times 10^{12}$ |
| d. | $5000.0 \times 10^{11}$ |

## Constructed Response Questions.

Q1 | 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 Im and is 0.5 m from the screen. What is the |
| distance of the lamp from the screen if the luminous flux is 3750 Im ? |
| 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. |

