Section 10.1 Review
Sources and Nature of Light

Multiple Choice

For each question below, select the best answer.

1. Light from hot objects is made up of several colours mixed together. What is this light called?
   a. coloured light
   b. reflected light
   c. refracted light
   d. white light
   e. transmitted light

2. What must happen for light to be emitted?
   a. Atoms must gain energy.
   b. Atoms must be excited.
   c. Atoms must lose energy.
   d. A and B
   e. A, B, and C

3. What is fusion energy?
   a. a form of nuclear energy
   b. a form of hydroeletric energy
   c. the source of the Sun's light
   d. electron energy
   e. A and C

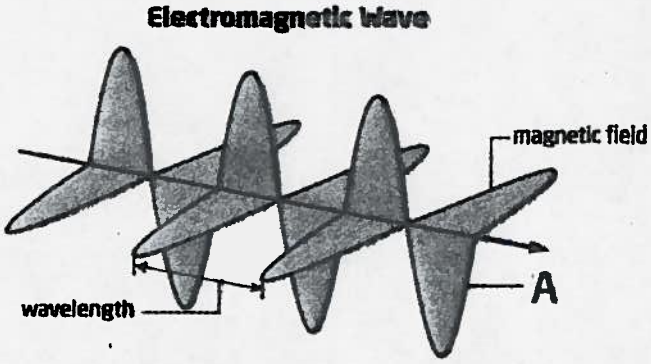
4. How efficient at producing light are incandescent bulbs?
   a. 95 percent efficient
   b. 5 percent efficient
   c. 90 percent efficient
   d. 10 percent efficient
   e. 85 percent efficient

5. Which element causes gas electric discharge tubes to appear yellow?
   a. mercury
   b. sodium
   c. hydrogen
   d. helium
   e. oxygen

6. Which gas or vapour does a fluorescent bulb contain?
   a. sodium
   b. oxygen
   c. hydrogen
   d. argon
   e. potassium

7. How efficient at producing light is a fluorescent bulb?
   a. 35 percent efficient
   b. 20 percent efficient
   c. 80 percent efficient
   d. 15 percent efficient
   e. 65 percent efficient

8. The following diagram shows an electromagnetic wave. What does the label A represent?



   a. microwave
   b. visible light wave
   c. electric field
   d. gamma wave
   e. X ray

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9. When atoms absorb energy, their electrons become excited and jump to a higher energy level (orbital). Energy (light) is released as the electrons fall back to their ground state.

10. An incandescent light bulb has a tiny tungsten wire that gets very hot and glows brightly when electric current runs through it. Thus electrical energy generates the heat that excites the atoms.

12. Discharge tubes emit light from a heated gas or vapour instead of a heated wire. As an electric current is passed through the vapour from the electrode, atoms become excited. When the excited atoms release their energy, they emit the light you see. Different gases will emit different light.

13. Luminescence is the emission of light by a material or object that has not been heated. Examples: fluorescence, phosphorescence, chemiluminescence and bioluminescence.

14. A wavelength is the distance from one crest or trough of a wave to the next.

15. Electromagnetic waves are how energy travels through empty space and some materials. They are invisible and can travel through a vacuum. They do not need particles to travel. They involve both electric and magnetic fields.

16. Fluorescence is the light that is emitted during the exposure of the source to ultraviolet light.

    Phosphorescence is the light that is emitted due to the exposure of the source to UV light and that continues to be emitted for some time in the absence of the UV light.