

Electromagnetic waves 1

Properties

Name & Set

1 Name, and explain what is meant by, *three* properties common to all electromagnetic waves.

(i) _____
_____ [2]

(ii) _____
_____ [2]

(iii) _____
_____ [2]

2 Which of the following types of radiation has (i) the greatest frequency and (ii) the least frequency?

ultra violet	radio waves	visible light	X rays	Infra red	Gamma rays
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(i) greatest frequency _____ [1]

(ii) least frequency _____ [1]

3 Name **one** type of electromagnetic radiation that

(a)	causes suntan	[1]
(b)	is used for satellite communication	[1]
(c)	passes through a thin sheet of lead	[1]
(d)	is used to take photographs in haze	[1]
(e)	causes fluorescence	[1]
(f)	is emitted by a warm object	[1]
(g)	can be detected by the eye	[1]
(h)	can be used to kill bacteria	[1]

5 (a) About *half* of all electromagnetic energy that reaches the Earth from the Sun is in the form of visible light. Visible light is the only kind of electromagnetic wave visible to human beings.

(i) What other kinds of electromagnetic waves reach us from the Sun?
_____ [2]

(ii) How, if at all are humans able to detect these invisible electromagnetic waves.

_____ [2]

- (b) Describe what you would 'see' within a room in which there is a radiator, lamp, table and another person if
 (i) the lamp was *on*

- (ii) the lamp was *off*, and you could see infrared. Assume that the radiator is hot. [2]

_____ [2]

- 4 Make a table, using the headings given below, of **3** different types of electromagnetic energy that are found in your home. In each case describe the source of the radiation and explain the use to which the radiation is put. The origin of the radiation may be outside your home, but for the purposes of this exercise the radiation must be present within your home. **Use full sentences.**
 To get you started: *what kind of e.m. energy is used to make toast?*

Type of radiation	Source	Uses
1	A light bulb	
2 <i>infra red</i>		
3	Radio transmitter	
5 <i>ultra violet</i>		