

**G10 Science: Class 10 Homework**

1. Write these electromagnetic waves in order from lowest energy to highest energy: infrared light, X-rays, red light, gamma rays and microwaves. **[5 marks]**

2. Match each electromagnetic wave with the term that is most closely related: **[7 marks]**

	X-rays	a) Vitamin D
	Ultraviolet Light	b) Telecommunications
	Radio Waves	c) Cancer Treatment
	Infrared Light	d) Radar
	Microwaves	e) Theatre/concert effects
	Gamma Rays	f) Baggage Screening
	Visible Light	h) DVD player remote control

3. Why is an incandescent bulb a very inefficient light source? **[2 marks]**
4. Explain why laser light would not be a useful tool to illuminate a dark room. **[2 marks]**
5. A laser with green light is shone at a triangular prism. What will be the colour of the light leaving the prism? Explain. **[2 marks]**

6. Compare and contrast the following:

a. Phosphorescence and Fluorescence **[3 marks]**

b. Luminous and Non-luminous **[3 marks]**

c. Specular Reflection and Diffuse Reflection **[3 marks]**

7. Why is chemiluminescence also called “cold light”? Explain why a light stick would be a good light source in a potentially explosive environment. **[3 marks]**

8. Complete the following table: **[9 marks]**

Description	Angle of Incidence	Angle of Reflection
Angle between the incident ray and the normal is $38^\circ$		
	$12^\circ$	
Angle between the reflected ray and the flat mirror surface is $43^\circ$		
Angle between the reflected ray and the normal is $23^\circ$		
	$0^\circ$	$0^\circ$

9. Draw a diagram based on the following descriptions.

- a. An incident ray hits a plane mirror at an angle of incidence of  $60^\circ$  to the normal.

**[4 marks]**

- b. A reflected ray is reflected from a plane mirror at an angle of reflection of  $30^\circ$ .

**[4 marks]**

10. You stand 1.8m in front of a plane mirror as you are brushing your teeth. Use SALT to describe the characteristics of the image. **[4 marks]**

S	
A	
L	
T	

11. Ambulances and other emergency vehicles use lateral inversion when painting words and pictures on the hoods. Why do you think this is so? **[2 marks]**

12. Draw the virtual image of the object below showing all the object-image lines and lines of equal length that are perpendicular to the mirror. Use SALT to describe the image. **[5 marks]**



13. You have a new mirror in your bedroom. The mirror is only half your height and you do not think that you will be able to see an image of your entire body. However, you notice that the mirror does allow you to see your entire body. Use light rays for the diagram below to show that you really can see your feet in the mirror the way that it is set up. **[3 marks]**



14. Six people are located in front of a plane mirror. Who can see whom? List all the possible combinations. **[6 marks]**

