

- 3 The photograph shows infrared heating lamps being used to harden fresh paint on a car.



(Source: © Dmitry Kalinovsky / Shutterstock)

- (a) Give a harmful effect of infrared waves.

(1)

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- (b) The heating lamps produce visible light waves in addition to infrared waves.

- (i) Give two similar properties of visible light waves and infrared waves.

(2)

1

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2

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- (ii) Give two differences between the properties of visible light waves and infrared waves.

(2)

1

.....

2

.....



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- (c) The infrared heating lamps are placed 1.5 m from the car.

Calculate the time taken for infrared waves emitted from a lamp to reach the car.

[for infrared waves, speed = 3.0×10^8 m/s]

(3)

time taken = s

- (d) Paint takes less time to harden when it absorbs more energy from infrared radiation.

A technician observes that white paint takes more time to harden than black paint.

Explain this observation.

(2)

(Total for Question 3 = 10 marks)

