

Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Q1.

Light waves and sound waves are both used in the diagnosis and treatment of medical conditions

(i) A doctor uses an endoscope to look inside the body of a patient.

Explain how optical fibres are used in endoscopes.

You may draw a labelled diagram to help with your answer.

(3)

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(ii) Describe how ultrasound can be used as a medical treatment for illness or injury.

(2)

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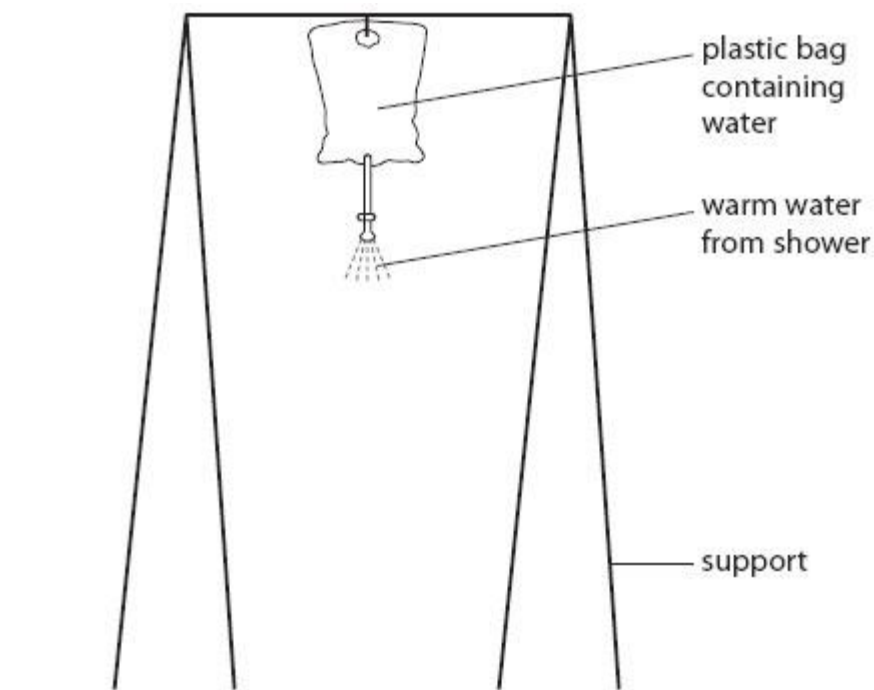
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Q2.

The following arrangement is used as a solar powered shower.



The bag is left out in the sunlight during the day.

(i) Explain what colour the bag should be to heat the water to the highest temperature.

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(ii) On a sunny day the bag is filled with cold water.

Explain why the temperature of the water increases and then stays constant.

(3)

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Q3.

When white light crosses the boundary between air and glass, it can split up into the colours of the spectrum. Explain, in terms of speed, why the light behaves like this.

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(Total for question = 3 marks)

Q4.

Figure 9 shows a ray of light from a ray box passing through a semi-circular glass block. A student uses the apparatus in Figure 9 to determine the critical angle for glass.

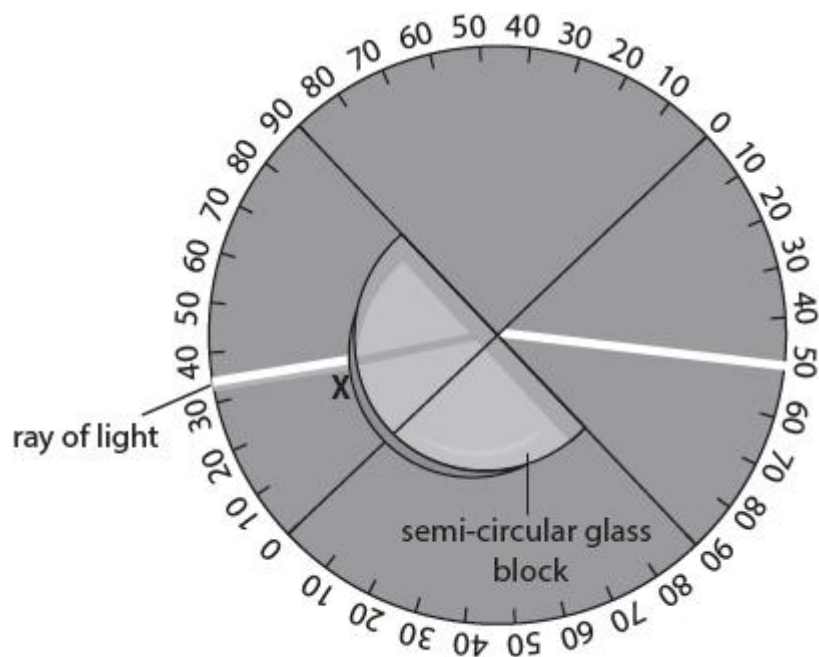


Figure 9

(i) State why the ray of light does not change direction as it enters the glass block at X.

(1)

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(ii) Describe how the critical angle for glass can be determined using the apparatus shown in Figure 9.

(3)

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(Total for question = 4 marks)