**Name of the Student**:_____
**Max. Marks : 18 Marks** **Time : 18 Minutes**

## Q1.

In the eye, rods and cones are used to detect light incident on the retina.

(a) Describe how the rods and cones are distributed over the surface of the retina.

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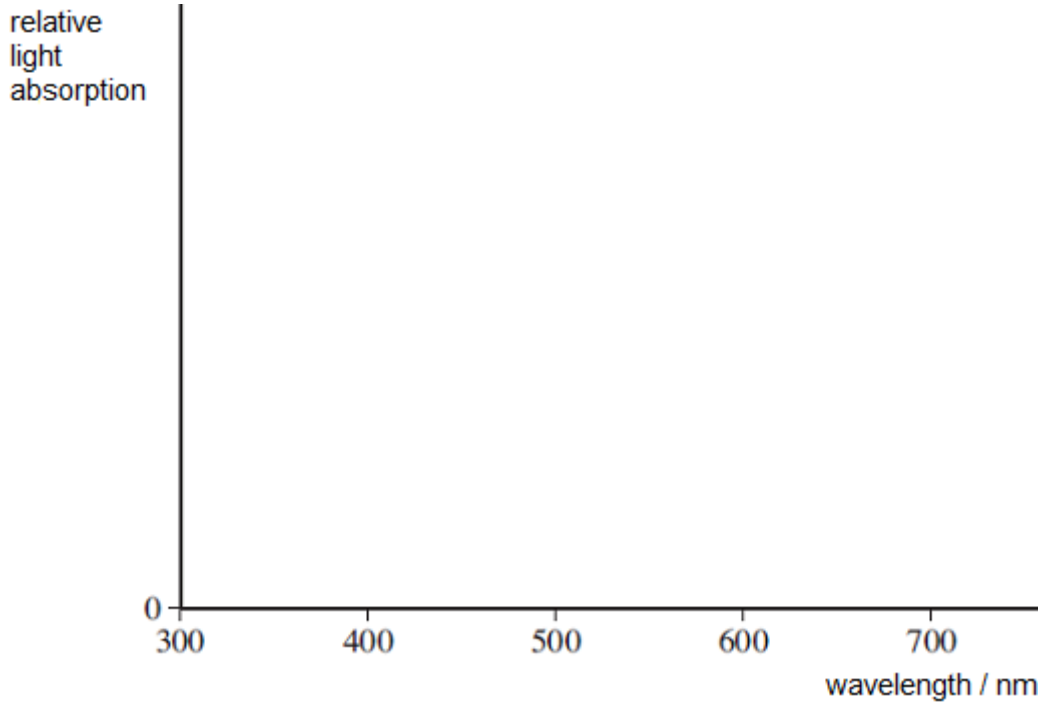
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**(2)**

(b) On the axes below sketch **three** curves to show how the response of each of the three types of cone found in the retina varies with the wavelength of light.

Label each of the three curves with the cone colour to which it refers.




**(3)**

(c) State the condition that must be satisfied for two objects to be resolved as individual images on the retina.

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**(1)**

(d) Explain how the resolution of the image of an object seen in very dim white light compares to that of the image of the same object seen in bright white light.

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**(2)**

**(Total 8 marks)**

## Q2.

(a) (i) Describe how the vibrations of a sound wave are received by the outer ear and transmitted to the inner ear.

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**(3)**

(ii) Explain how the pressure changes due to the sound wave are amplified by the ear.

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**(2)**

(b) An intensity meter, set to the dB scale, measures the intensity level of a sound as 46 dB. Calculate the intensity of the sound at the meter, giving an appropriate unit.

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answer = _____

**(3)**

(c) The scale on the intensity meter is changed to the dBA scale and the new reading, for the same sound, is found to be 50 dBA. Explain this change.

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**(2)**

**(Total 10 marks)**

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