Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: GCSE Triple Science_Waves (SDQ)

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Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Q1.

(a) Some scientists think that there is a link between using a mobile phone and some types of illness. Other scientists disagree. They say that the evidence is limited and unreliable.

(i) Suggest what scientists could do to show a link between using a mobile phone and illness.

_____

_____

(1)

(ii) How could scientists improve the reliability of the evidence?

_____

_____

(1)

(iii) Complete the following passage by drawing a ring around the word in the box that is correct.

There has been little or no experimental research into the health of children who use mobile phones.

This is partly because of the

economic
environmental
ethical

issues involved in using

children in scientific research.

(1)

(b) Before being sold, new mobile phones must be tested and given a SAR value.
The SAR value is a measure of the energy absorbed by the head while a mobile phone is being used.

The table gives the SAR value for three mobile phones made by different companies.
To be sold in the UK, a mobile phone must have a SAR value lower than 2.0 W/kg.

Mobile phone	SAR value in W/kg
J	0.18

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K	0.86
L	1.40

(i) All companies use the same test to measure a SAR value.

Why is using the same test important?

_____

_____

(1)

(ii) Would the companies that make the mobile phones, **J**, **K** and **L**, be correct to claim that these three phones are totally safe to use?

Answer yes or no. _____

Give a reason for your answer.

_____

_____

(1)

(c) Devices designed to protect a mobile phone user from microwave radiation are now available.

Why is it important that these devices are tested by scientists who are **not** working for the company that makes the devices?

_____

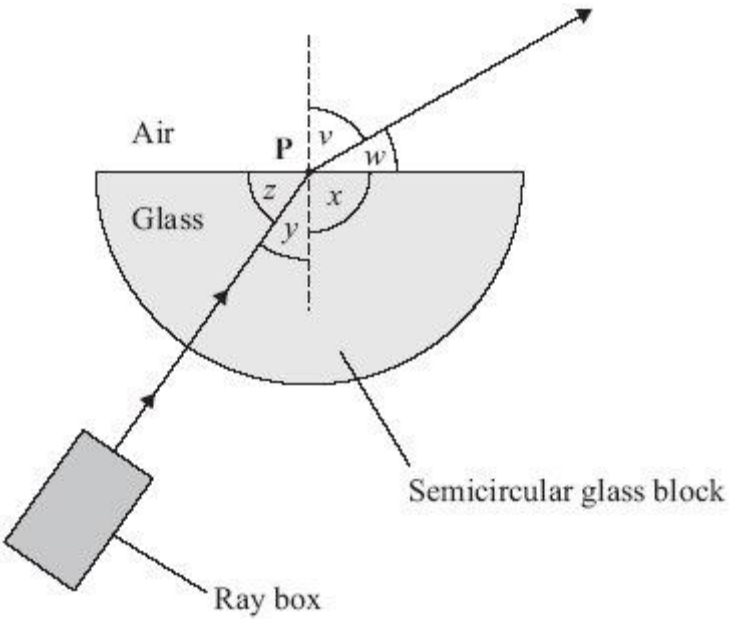
_____

(1)

(Total 6 marks)

Q2.

A student uses a ray box and a semicircular glass block to investigate refraction.



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(a) What is the vertical dashed line called?

_____

(1)

(b) Which angle, *v*, *w*, *x*, *y* or *z*, is the angle of refraction?

_____

(1)

(c) Why has refraction taken place?

_____

_____

(1)

(d) In an investigation, a student always aims the light from the ray box at point **P**.
She moves the ray box to give different values of angle *v*.
She records angle *y* for each of these values. The table shows her results.

Angle *v* measured in degrees	**Angle *y* measured in degrees**
30	19
40	25
50	31
60	35
70	39
80	41

The student studies the data and comes to the following conclusion.

Angle *y* is directly proportional to angle *v*.

Her friend says that this conclusion is **not** correct.

(i) Use data from the table to explain why the conclusion is **not** correct.

_____

_____

(2)

(ii) Write a correct conclusion for the experiment.

_____

_____

(1)

(iii) Why is your conclusion only valid when angle *v* is between 30° and 80°?

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_____

_____

(1)

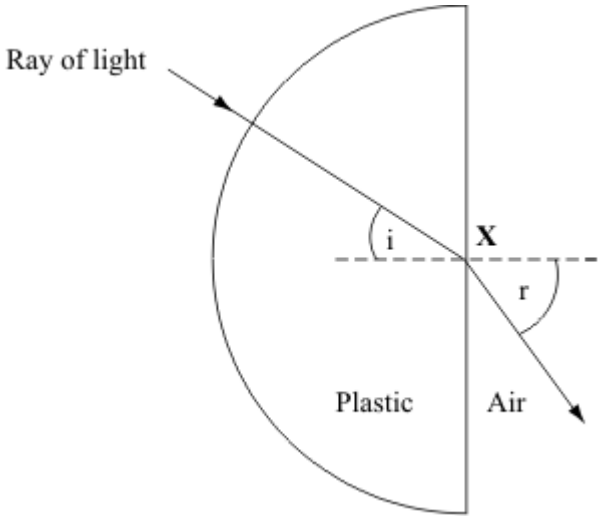
(Total 7 marks)

Q3.

(a) A student investigated the refraction of light as it passes out of a transparent plastic block.

She aimed a ray of light at point **X**. She marked the position of the ray as it passed through the transparent plastic block and into the air.

The angle *i* is the angle of incidence.



(i) What is the name of angle **r**?

_____

(1)

(ii) What is the name of the dashed line?

_____

(1)

(b) A camera uses a lens to produce an image which falls on a light detector.

Name a light detecting device which may be used in a camera.

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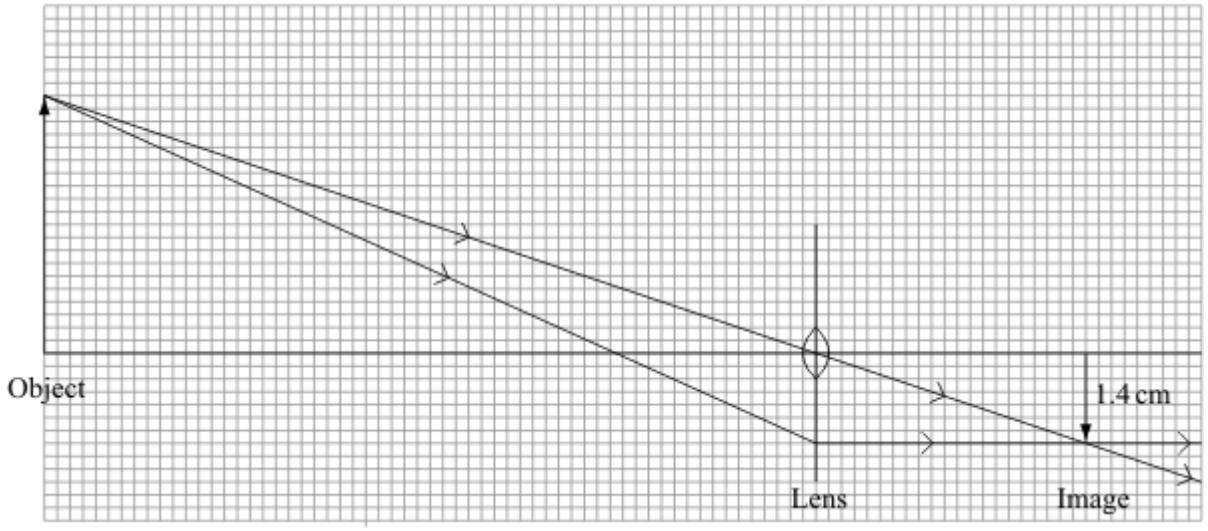
_____

(1)

(c) The diagram shows the position of an image formed in a camera.



(i) What type of lens is shown in the diagram?

_____

(1)

(ii) Use the equation in the box to calculate the magnification.

$$\text{magnification} = \frac{\text{image height}}{\text{object height}}$$

Show clearly how you work out your answer.

_____

_____

Magnification = _____

(2)

(d) Why does the image formed in a camera have to be a real image?

_____

_____

(1)

(Total 7 marks)

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