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

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

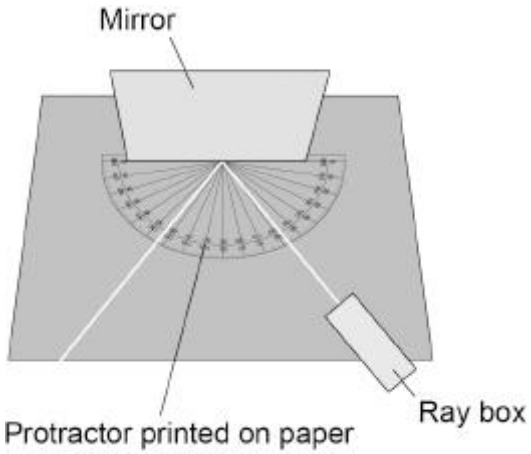
Q1.

A student investigated the behaviour of light.

The student used a mirror with a smooth surface to investigate reflection.

Figure 1 shows the equipment used.

Figure 1



(a) What name is given to reflection from a smooth surface?

_____

(1)

The student measured the angle of reflection for different angles of incidence.

The table below shows the results.

Angle of incidence in degrees	**Angle of reflection in degrees**			
	Test 1	Test 2	Test 3	Mean
10	8	10	11	10
20	20	21	20	20
30	28	29	32	30
40	39	41	41	40
50	49	50	52	50

(b) What conclusion can be made from the results in the table above?

_____

_____

(1)

(c) What type of error caused the variation in the results for the angle of reflection?

Suggest **one** cause of this error.

Type of error _____

Cause of error _____

_____

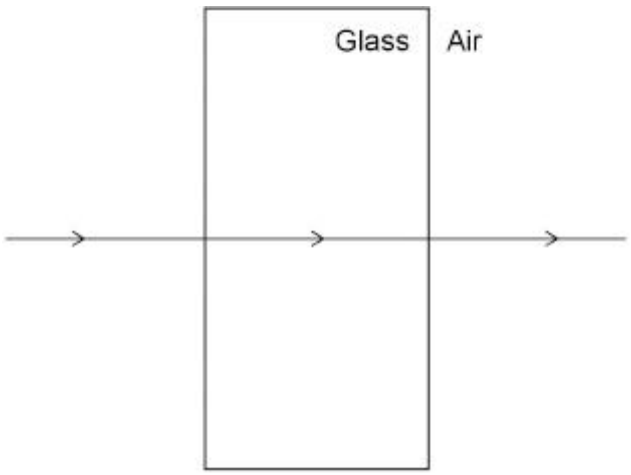
_____

(2)

The student also investigated the refraction of light.

(d) **Figure 2** shows the path of a ray of light through a glass block.

Figure 2



Why has refraction **not** occurred?

_____

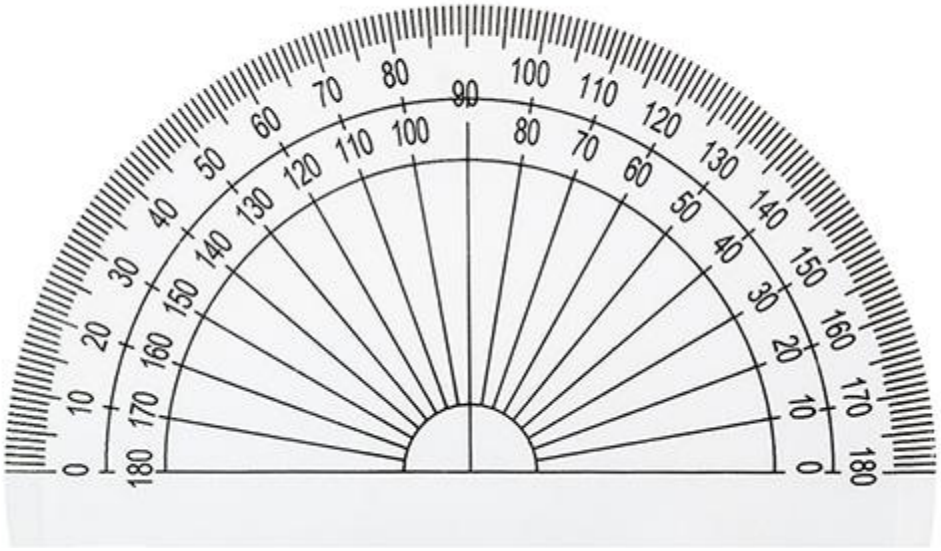
_____

(1)

(e) The student measured the angle of refraction for different angles of incidence.

Figure 3 shows the protractor used.

Figure 3



When the angle of incidence was 10° the student measured the angle of refraction four times.

The student recorded the measurements as:

6.0° 6.3° 6.4° 5.8°

Explain why the student should **not** have recorded these results when using the protractor in **Figure 3** to make the measurements.

_____

_____

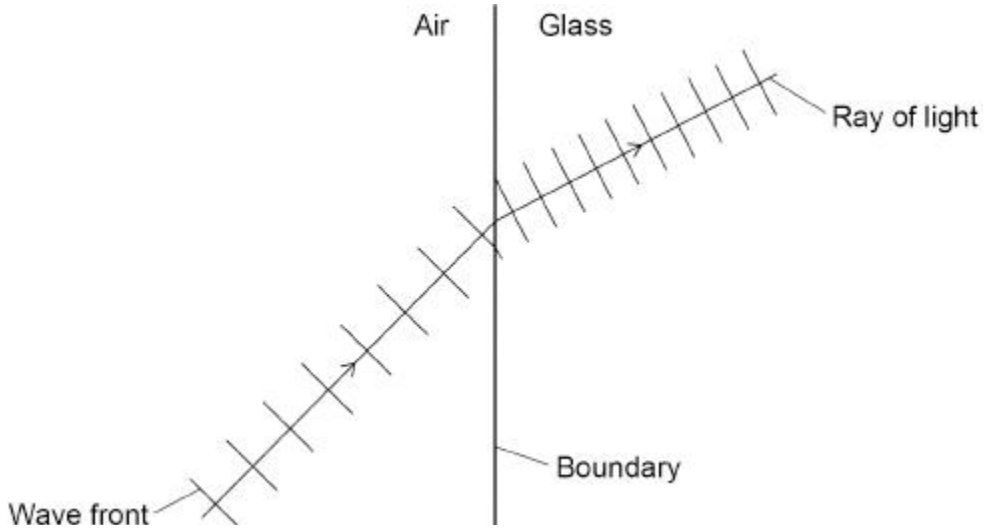
_____

_____

(2)

(f) **Figure 4** shows what happens to wave fronts as they pass across the boundary between air and glass.

Figure 4



Explain in terms of the wave fronts, why refraction happens at the boundary between air and glass.

_____

_____

_____

_____

_____

_____

_____

_____

(3)

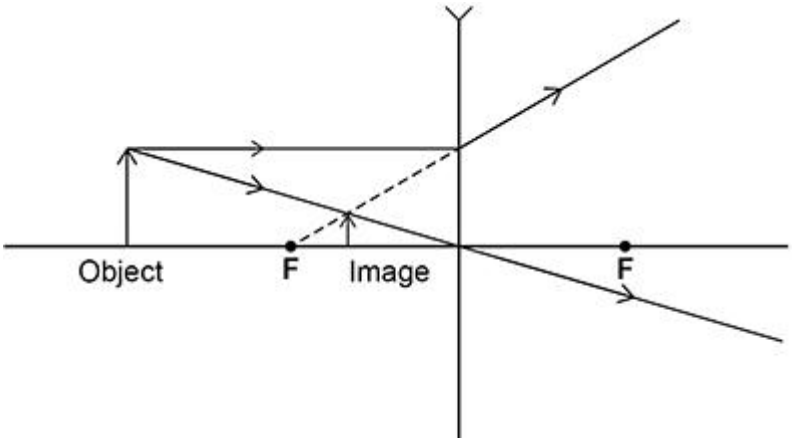
(Total 10 marks)

Q2.

Lenses are used to form images of objects.

(a) **Figure 1** shows how a concave lens forms an image of an object.

Figure 1



The image of the object in **Figure 1** is upright.

Give **two** other words that describe the image.

1 _____

2 _____

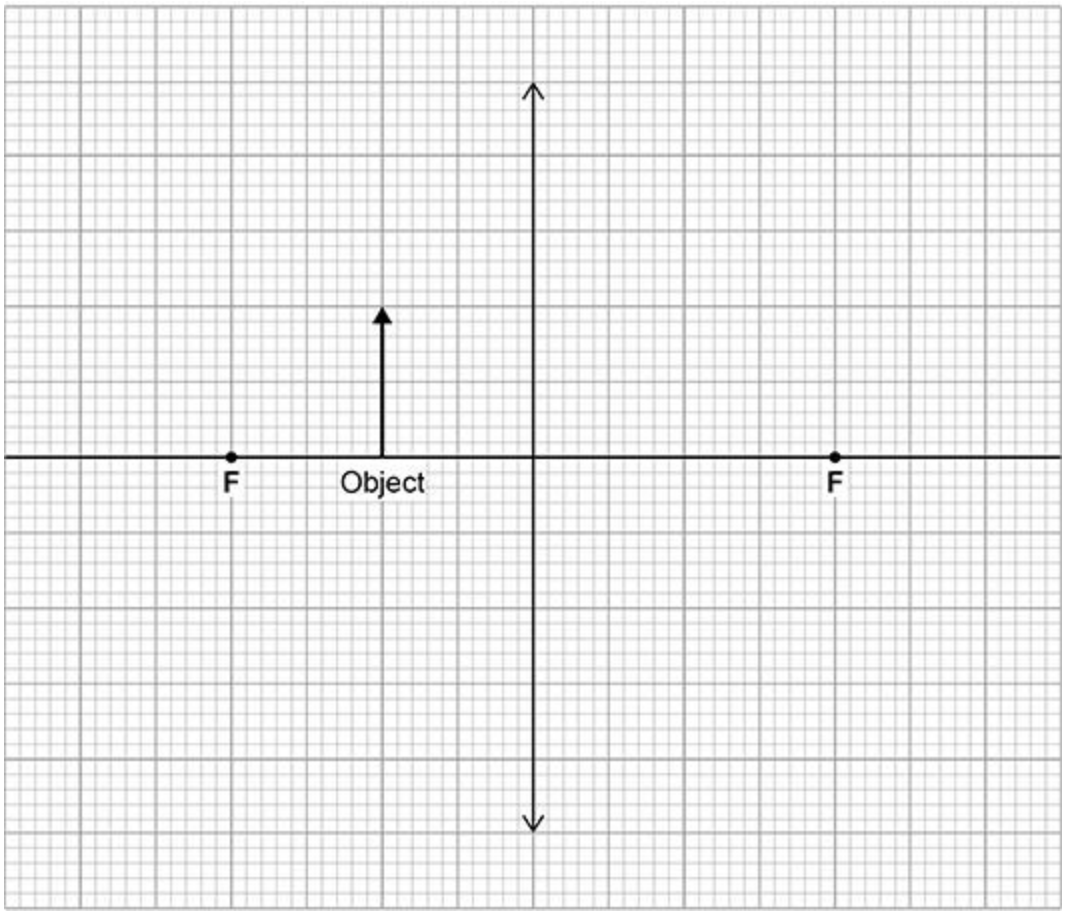
(1)

(b) **Figure 2** shows an object near to a **convex** lens.

Complete the ray diagram to show how the image is formed.

Use an arrow to represent the image.

Figure 2

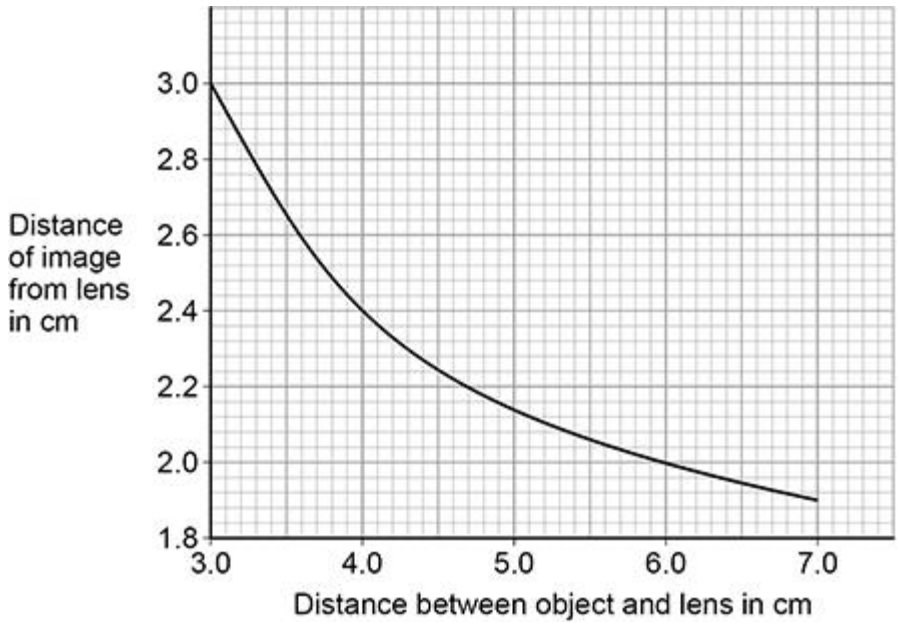


(3)

The position of an image formed by a convex lens varies with the distance between the object and the lens.

Figure 3 shows the results of a student's investigation using a convex lens.

Figure 3



(c) Describe how the distance of the image from the lens decreases as the distance between the object and the lens increases.

_____

_____

(1)

(d) The student measured the distance from the image to the lens four times.

The distance between the object and the lens did not change.

The 4 measurements from the image to the lens were:

1.9 cm 1.7 cm 2.2 cm 1.4 cm

Calculate the uncertainty in the measurements.

_____

_____

_____

Uncertainty = ± _____ cm

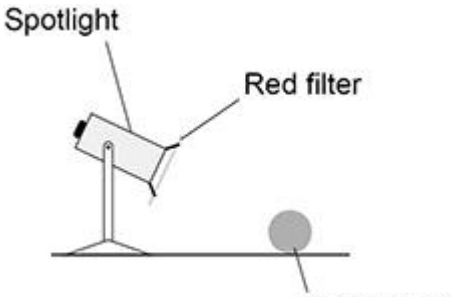
(2)

(e) **Figure 4** shows a spotlight containing a convex lens.

A red filter is placed in front of the spotlight.

The spotlight is directed at a blue object.

Figure 4



Explain why the blue object appears black.

_____

_____

_____

_____

_____

_____

(3)

(Total 10 marks)