GCSE Science Gateway Physics B J645

Test Name: P5 Space for Reflection Foundation Level

Test Duration (minutes): 0

Test Created By: David Coates

Number of questions in test: 5

Candidate forename:		Candidate surname:	

INSTRUCTIONS TO CANDIDATES

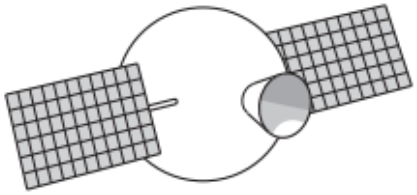
- Answer **all** questions
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answers to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets **[ ]** at the end of each question or part question.

Question: 1

Artificial satellites orbit Earth.



(a) Write down **two** things artificial satellites can be used for.

1 .....

2 .....

[2]

(b) Geostationary satellites orbit Earth.

To maintain circular motion these satellites need a centripetal force.

(i) What provides the centripetal force for these satellites?

[1]

(ii) What is meant by a satellite in **geostationary** orbit?

[1]

(iii) How long does it take a geostationary satellite to orbit the Earth?

answer ..... hours

[1]

[Total: 5]

Question: 2

The Keirin is a sprint cycle race.

The cyclists follow a motorised cycle until they are travelling at a speed of 14 m / s.

The motorised cycle leaves the track.

The cyclists then accelerate from 14 m / s to 18 m / s at a steady rate.

This takes 3 seconds.

(a) What distance do the cyclists travel during the 3 seconds?

answer = ... m

[2]

(b) The motorised cyclist leaves the track travelling at a **speed** of 14 m / s.

Speed is a scalar quantity.

Velocity is a vector quantity.

What is the difference between a **scalar** and a **vector** quantity?

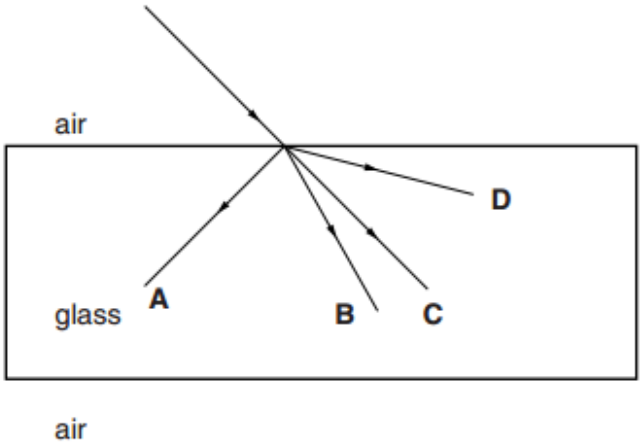
[1]

[Total: 3]

Question: 3

This question is about **refraction**.

(a) Look at the diagram of a ray of light passing from air into glass.



Which line shows the correct path?

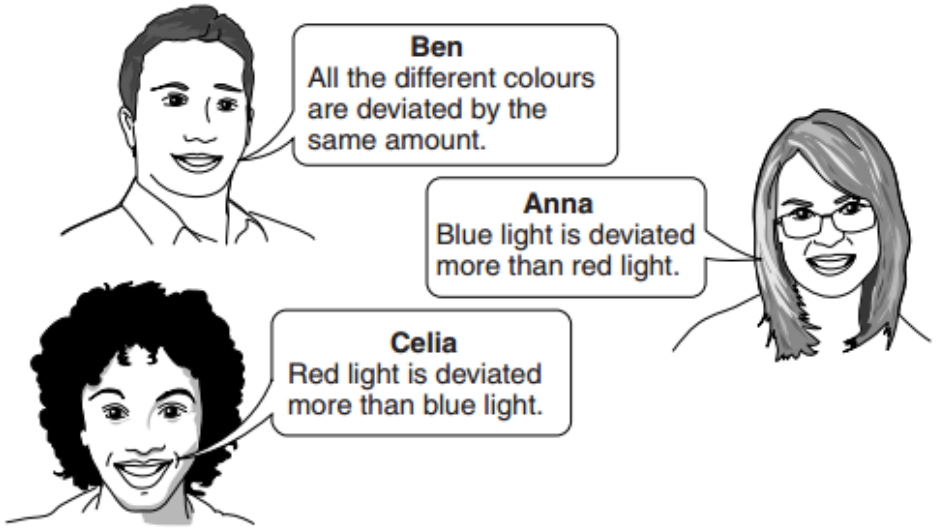
Choose from **A** **B** **C** **D**

answer ..... .

[1]

(b) When white light is refracted, it is dispersed (splits into different colours).

Some friends discuss this effect.



Who is correct?

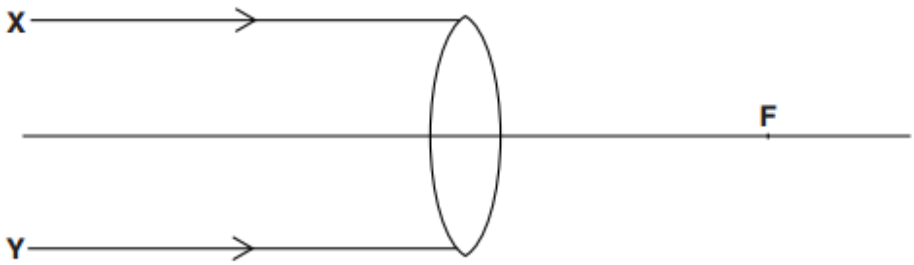
Choose from **Ben** **Anna** **Celia**

answer ..... .

[1]

(c) Donna experiments with lenses.

Look at the diagram.



(i) Write down the **name** of this type of lens.

[1]

(ii) Use a ruler to complete the diagram to show what happens to the rays **X** and **Y** when they pass through the lens.

[2]

(iii) Write down one **use** of this type of lens.

[1]

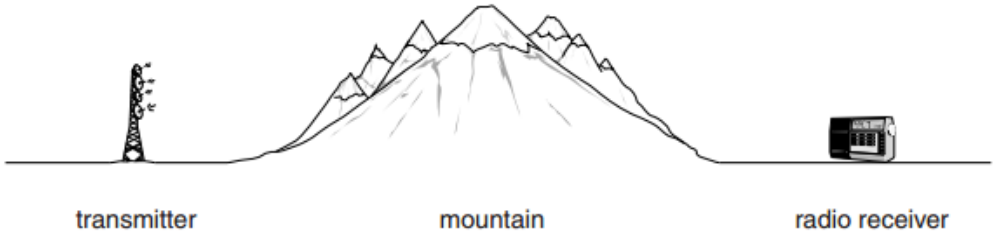
[Total: 6]

Question: 4

Radio waves and microwaves are used in communications.

Radio waves carry signals from a transmitter to a radio receiver.

Look at the diagram.



(a) The mountain is between the transmitter and the radio receiver.

(i) The radio waves from the transmitter reach the radio receiver.

Suggest **two** ways the radio waves get to the receiver.

[2]

(ii) Which part of the radio receives the radio signals?

[1]

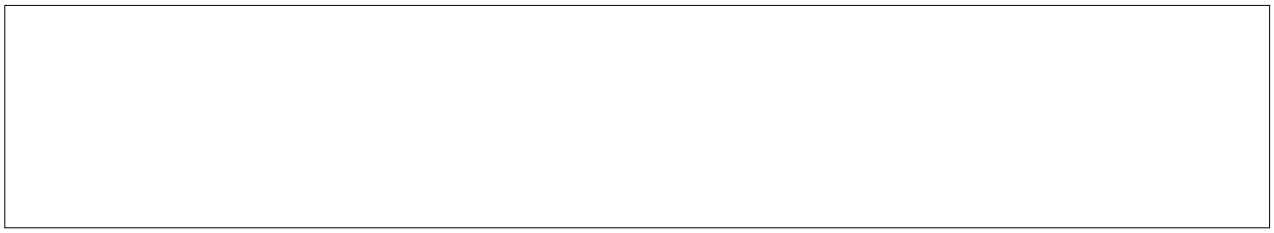
(iii) Satellite TV signals are sent by transmitters.

What is needed to collect and receive these satellite signals?

[1]

(b) Microwaves have a wavelength of about 0.5 cm.

How is the **wavelength** of radio waves **different**?



[1]

[Total: 5]

Question: 5

Cannon balls **fired from a gun** are projectiles.

(a) Describe one **other** example of a projectile.

[1]

(b) What name do scientists give to the **path** of a projectile?

[1]

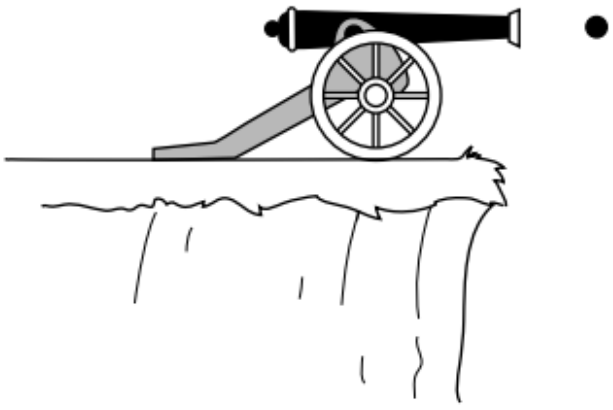
(c) In this question ignore the effects of air resistance.

A cannon ball is fired **horizontally** from the top of a cliff.

The ball leaves the cannon. Its **horizontal** velocity is 30 m / s.

Its **vertical** velocity is 0 m / s.

The acceleration due to gravity (g) is 10 m / s^2.



(i) What is the horizontal velocity of the ball after 3 seconds?

[1]

(ii) Calculate the vertical velocity of the ball 3 seconds after it leaves the cannon.

answer .....

[2]

[Total: 5]