



Write your name here

Surname

Other names

Scholarship Examination

Subject: Physics

Time: 45 mins

You must have: Your mathematical set.

Total Marks

45

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name.
- Answer **all** questions.
- Answer the questions in the spaces provided.
- Show all the steps in any calculations and state the units.

Information

- The total mark for this paper is 45
- The marks for **each** question are shown in brackets
- *Use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Write your answers neatly and in good English.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer every question.

Question 1

Complete the following sentences by filling in the blank spaces with the correct word(s).

- (a) An _____ is a device that measures electric current.
- (b) An electromagnetic is a magnet that can be turned on and off using _____.
- (c) Pressure is equal to _____ divided by area.
- (d) _____ occurs when light changes direction as it enters water.
- (e) The pitch of a sound depends on the sound's _____.
- (f) The planet _____ is between Saturn and Mars.
- (g) _____ is the way in which heat energy can travel through a vacuum.

[7]

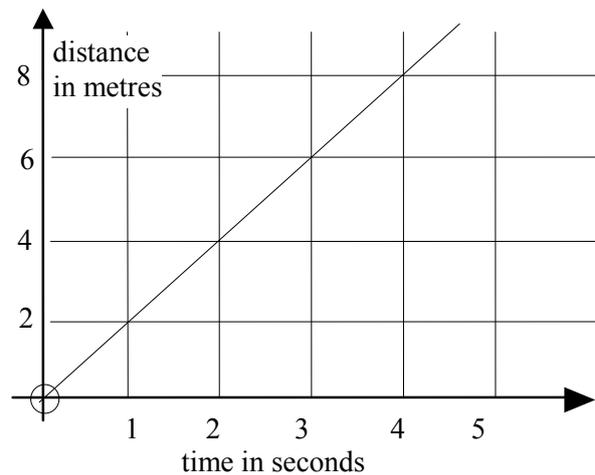
Question 2

The graph opposite shows how the distance of a child varies in time.

- (a) Estimate the distance covered by the child after 3.5 seconds.

- (b) How long does it take the child to cover 3 metres?

- (c) What is the child's average speed?



average speed = _____

[5]

Question 3

Draw in the space below an electrical circuit containing four 2V light bulbs, a 4V battery and one switch. All of the light bulbs should operate at full brightness, two of them should be controlled by the switch.

[4]

Question 4

(a) Describe the energy changes that occur when a light bulb is powered by a battery.

[3]

(b) How are 'energy efficient' light bulbs different energy wise from traditional filament light bulbs?

[3]

Question 5

A seesaw of length 10m is pivoted about its centre.
On one side a boy of weight 500N sits 4m from the pivot.
A woman of weight 800N sits on the other side.
How far must she sit from the pivot in order to balance the seesaw?

[3]

Question 6

(a) Name the nearest planet to the Moon.

[1]

(b) Roughly, how long does it take the Moon to perform one orbit around the Earth?

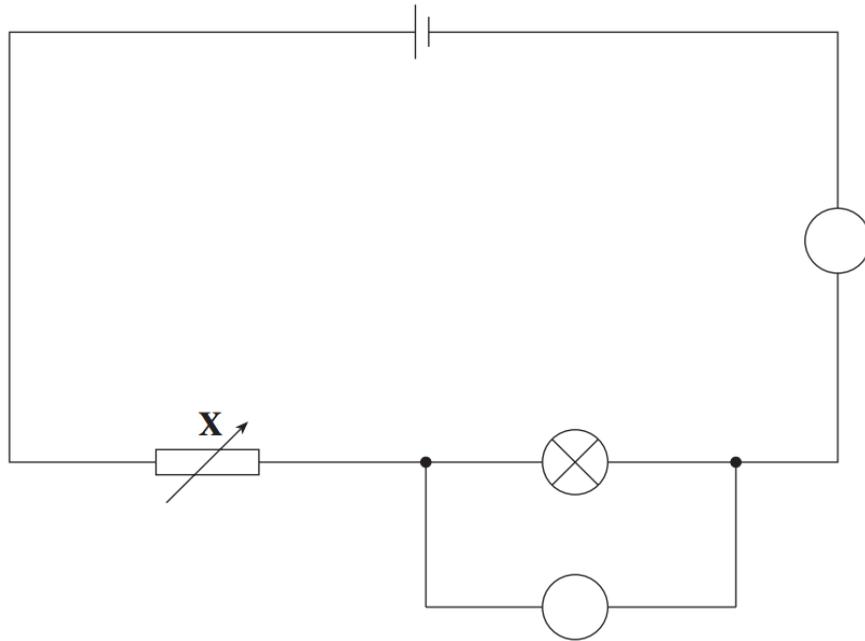
[1]

Question 7

With the aid of a diagram, describe an experiment that compares how well different materials conduct heat energy.

Question 8

The diagram shows a circuit used to find the resistance of a lamp.



(a) Write the letters A and V in the meters on the diagram to show which is the ammeter and which the voltmeter. (1)

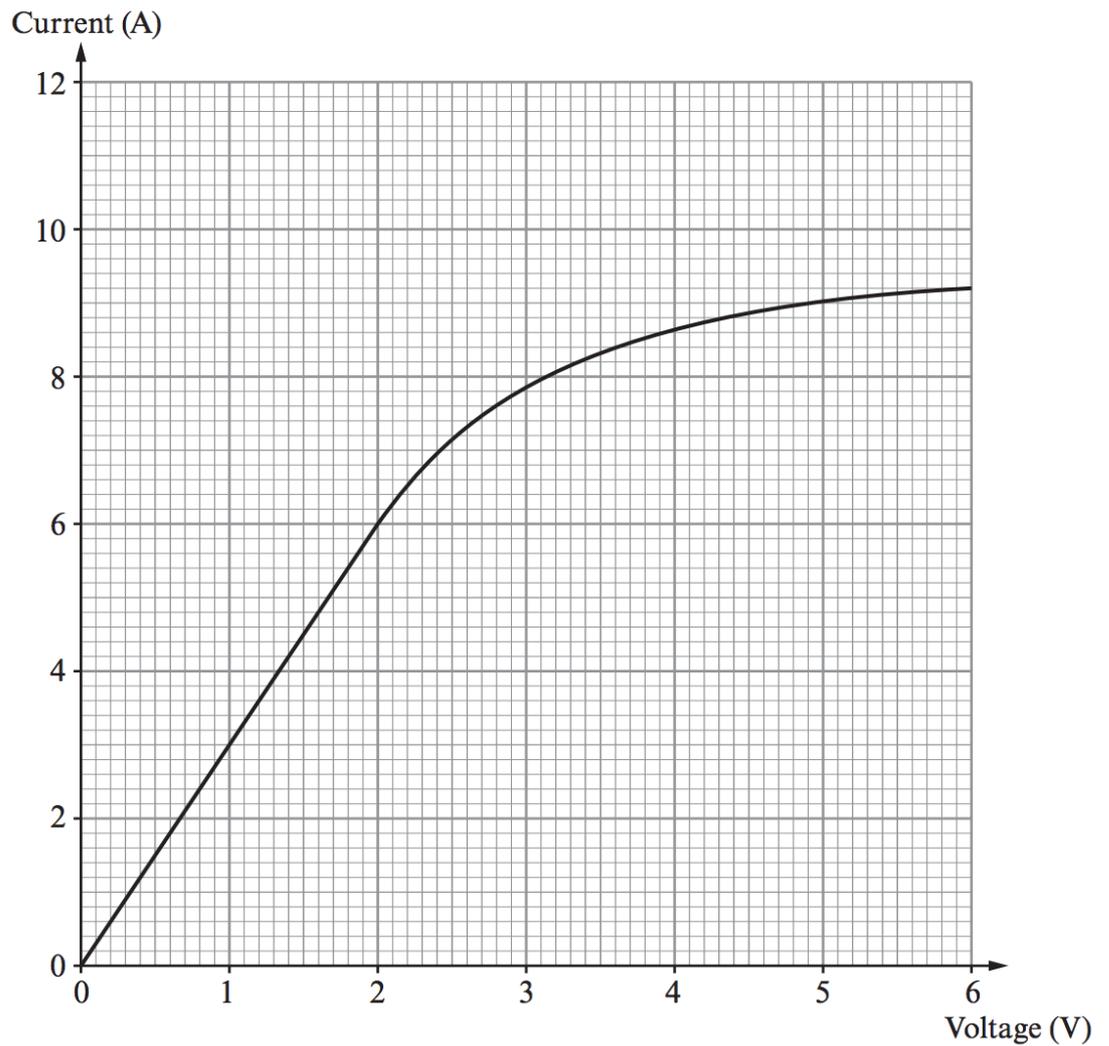
(b) The voltmeter reads 2V and the ammeter reads 4A. (2)

Use the equation **Resistance = Voltage \div Current** to calculate the resistance of the lamp in the circuit.

(c) (i) Name component X (1)

(ii) State how a series of readings of voltage and current is obtained from the circuit. (1)

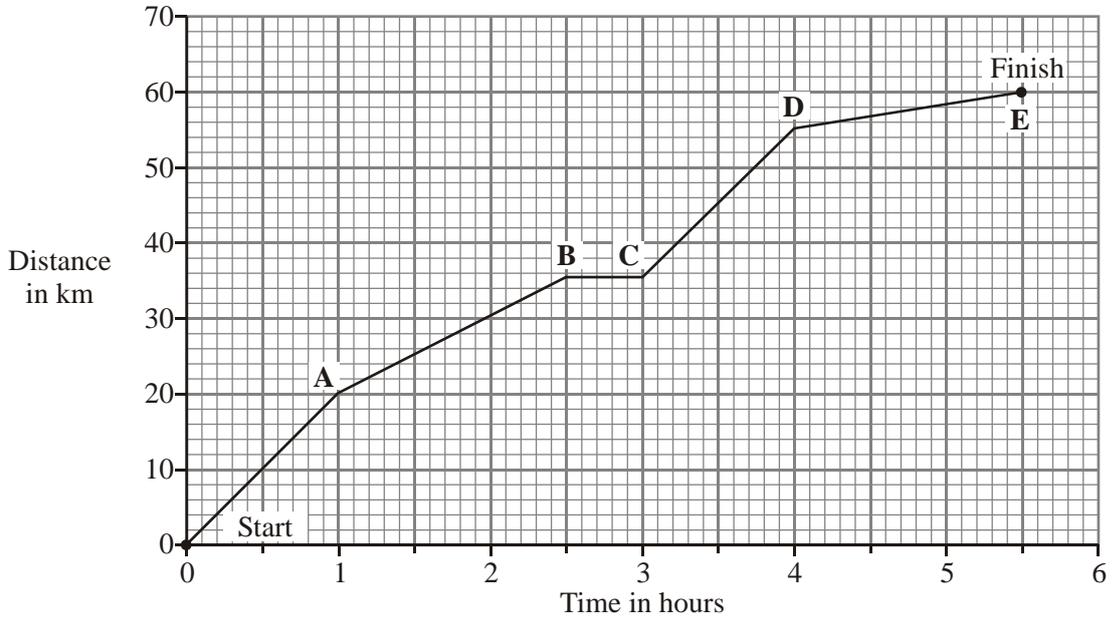
The following graph was obtained by taking a series of readings.



- (i) State the voltage value at the point where the resistance of the lamp starts to change. (1)
- (ii) Use the graph to give a reason for your answer to (d)(i). (1)

Question 9

A horse and rider take part in a long distance race. The graph shows how far the horse and rider travel during the race.



- (a) What was the distance of the race?
 distance = km (1)

- (b) How long did it take the horse and rider to complete the race?
 (1)

- (c) What distance did the horse and rider travel in the first 2 hours of the race?
 distance = km (1)

- (d) How long did the horse and rider stop and rest during the race?
 (1)

- (e) Not counting the time it was resting, between which two points was the horse moving the slowest?
 and
 Give a reason for your answer.

(3)
(Total 7 marks)