

# Physics Entrance Exam



# 13+

Name:

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Current School:

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This paper lasts 30 minutes

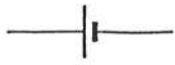
Attempt ALL questions

The number of marks available is shown in brackets

## Good Luck!

1.

What do each of these symbols represent? Write the names under the symbols.



\_\_\_\_\_

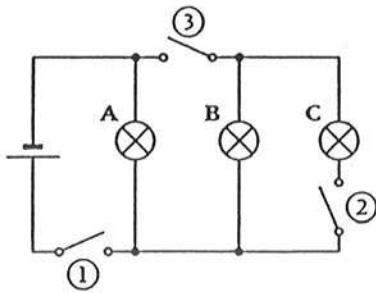
(4 Marks)

2.

a) What is an ammeter used for?

\_\_\_\_\_

b) What happens if you close switch 1 and switches 2 and 3 are left open?



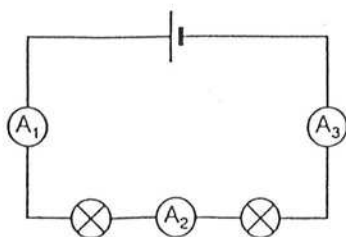
\_\_\_\_\_  
\_\_\_\_\_

c) Which switches must you close to make bulb B light?

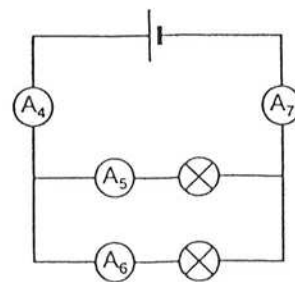
\_\_\_\_\_  
\_\_\_\_\_

(3 Marks)

3.



Circuit X



Circuit Y

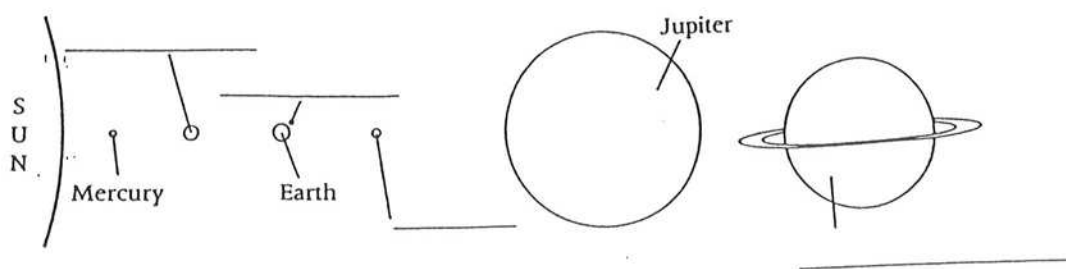
Complete the table below.

	Ammeter	Reading
Circuit X	A <sub>1</sub>	_____
	A <sub>2</sub>	0.2 A
	A <sub>3</sub>	_____
Circuit Y	A <sub>4</sub>	1.2 A
	A <sub>5</sub>	0.8 A
	A <sub>6</sub>	_____
	A <sub>7</sub>	_____

(5 Marks)

4. a) The path a planet follows around the Sun is called its:

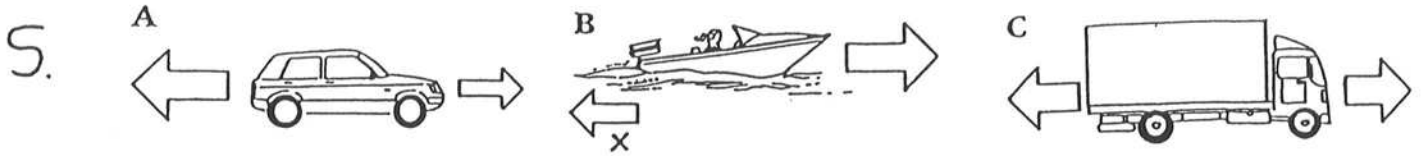
b) This diagram shows part of the solar system. Fill in the missing names in the blank spaces.



c) How many planets are there in the solar system altogether?

d) Which planet is the coldest? **Explain** your answer.

(8 Marks)



a) Which picture shows balanced forces? \_\_\_\_\_

b) What will happen to the speed of the car? \_\_\_\_\_

c) What will happen to the speed of the lorry? \_\_\_\_\_

d) What is the name of force X? \_\_\_\_\_

e) Why doesn't a rocket in space need to use its engines to keep moving?

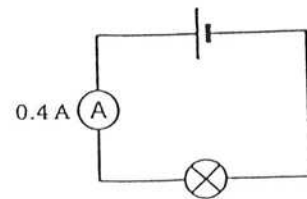
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(5 Marks)

6. The current is 0.4 A and the bulb in this circuit is bright.



a) What will happen to the brightness of the bulb if you put another bulb in series in the circuit?

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b) What will the current be in the circuit if the two bulbs are identical?

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(2 Marks)

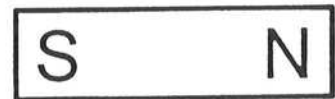
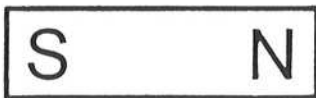
7 a) Which three of these materials will a magnet attract? Circle the right answers.

iron   copper   steel   nickel   aluminium   glass   wood

b) Draw the magnetic field lines around this bar magnet.



c) Draw the field lines between these magnets.



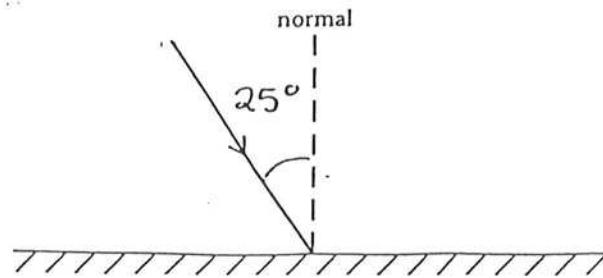
d) Will these magnets attract or repel each other?

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(9 Marks)

8.

a) This diagram shows a mirror with a ray of light hitting it. Draw the ray that is reflected by the mirror.



b) At what angle will the ray be reflected? Please circle the correct answer.

- 20°      30°      25°      40°

c) The ray is reflected off the mirror but some objects allow light to travel through them. What is the name given to objects that allow ALL the light to pass through them?

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d) What is the name given to objects that allow light to pass through them but they scatter the light as it does so?

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(4 Marks)

9.

a) White light is made up of a spectrum of colours. Red, orange, yellow, green, blue, indigo and violet. Use this information to explain why;

i) A red cap looks red in white light.

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ii) A blue cap looks black in red light.

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(3 Marks)

10.

Write **true** or **false** next to these statements.

Sound can travel through vacuum but light cannot.	_____
Light travels much faster than sound.	_____
Sound usually travels faster through denser materials like steel.	_____

(3 Marks)

11.

Jenny was watching a thunderstorm from her bedroom window. When a lightning flash occurs the sound of thunder is made.

a) Which did she detect first, the thunder or the lightning?

\_\_\_\_\_

b) There were 5 seconds between the thunder and the lightning. Sound travels at 330 m/s how far away is the storm?

\_\_\_\_\_

\_\_\_\_\_

(3 Marks)

12.

Complete these statements by filling in the blanks.

Sounds are produced when objects \_\_\_\_\_

Frequency is the number of \_\_\_\_\_ per second.

(2 Marks)