



LIMPOPO

PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

GRADE 9

NATURAL SCIENCES

TERM 3 CONTROLLED TEST

19 SEPTEMBER 2025

DURATION: 60 MINUTES

MARKS:50

This question paper consists of **07** pages including the cover page

INSTRUCTIONS

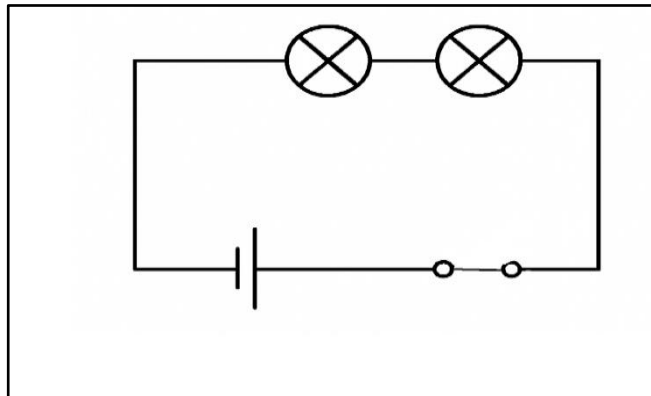
1. This question paper consists of TWO sections: SECTION A and SECTION B.
2. Answer **ALL** questions.
3. Write ALL the answers on your answer sheet.
4. Number the answers correctly according to the numbers used in this question paper.
5. Present your answers according to the instructions of each question.
6. Show reasoning where necessary.
7. Write neatly and legibly.

SECTION A: MULTIPLE CHOICEQUESTION 1

Choose the correct answer and write down only the letter (A–D) next to the question number.

1.1.	What is the unit of force?	(1)	
	A. Watt		
	B. Newton		
	C. Joule		
	D. Ampere		
1.2.	In a series circuit, when more resistors are added, the total resistance....	(1)	
	A. Increases		
	B. Decreases		
	C. Stays the same		
	D. Doubles		

Question 1.3 and 1.4 are based on the circuit diagram below:



1.3.	What happens in a series circuit when one of the bulbs stops working?	(1)	
	A. The entire circuit stops functioning		
	B. Only the faulty bulb turns off		
	C. The current bypasses the broken bulb		
	D. The brightness of the remaining bulbs increases		
1.4.	What happens to the brightness of bulbs in a series circuit when more bulbs are added?	(1)	
	A. Increases		
	B. Decreases		
	C. Stays the same		
	D. Bulbs explode		

1.5.	Which energy source powers the national grid in South Africa?		(1)	
	A.	Solar		
	B.	Wind		
	C.	Nuclear		
	D.	Coal		
			[5]	

QUESTION 2: MATCHING COLUMNS

Match the items in Column A with the correct description in Column B.
Write only the letter (A–E) next to the number.

COLUMN A		COLUMN B		
2.1.	Gravity	A. Force that opposes motion between surfaces	(1)	
2.2.	Magnetic force	B. Force that pulls objects toward Earth	(1)	
2.3.	Friction	C. Force that acts between charged objects	(1)	
2.4.	Electrostatic force	D. Force that acts between magnets and magnetic materials	(1)	
2.5.	Tension	E. Force in a stretched rope or string	(1)	
		F. Force that pushes upward in water		
		G. Force caused by air resistance		
			(5)	

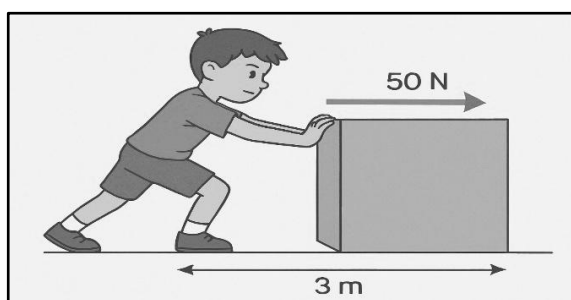
SECTION A:

[10]

SECTION B: DESCRIPTIVE QUESTIONS

QUESTION 3: FORCES

A learner pushes a box across the floor with a force of 50 N. The box moves 3 metres

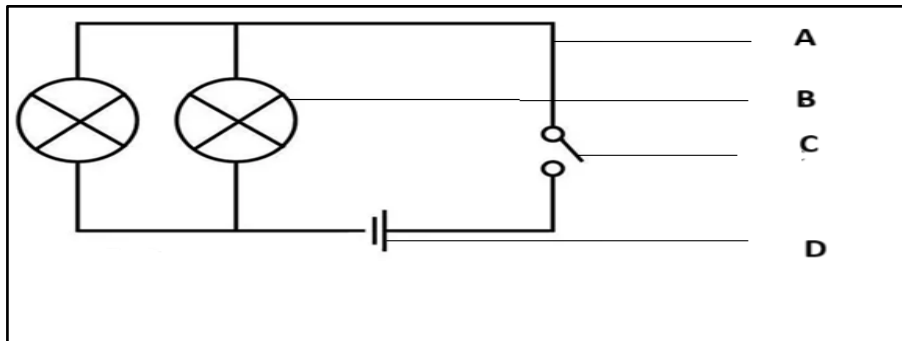


3.1.	Identify TWO different types of forces acting on the box while it is being pushed	(2)	
3.2.	What happens to the box after the boy stops pushing	(1)	
3.3.	Name the force responsible for the action in Question 3.2	(1)	
3.4.	List TWO effects of forces on objects	(2)	

3.5	Categorise each of the following as contact or non-contact forces: (gravity, friction and magnetism)	(2)	
		(8)	

QUESTION 4: SERIES AND PARALLEL CIRCUITS

Study the diagram of a circuit with two light bulbs connected in parallel to a battery.



4.1	Provide labels for A, and D	(2)	
4.2	Explain how current flows in a parallel circuit.	(2)	
4.3.	Compare the brightness of bulbs in series versus parallel.	(2)	
4.4	Describe what happens if one bulb is removed in a parallel circuit	(1)	
4.5	Suggest a reason why parallel circuits are preferred in homes.	(1)	
		(8)	

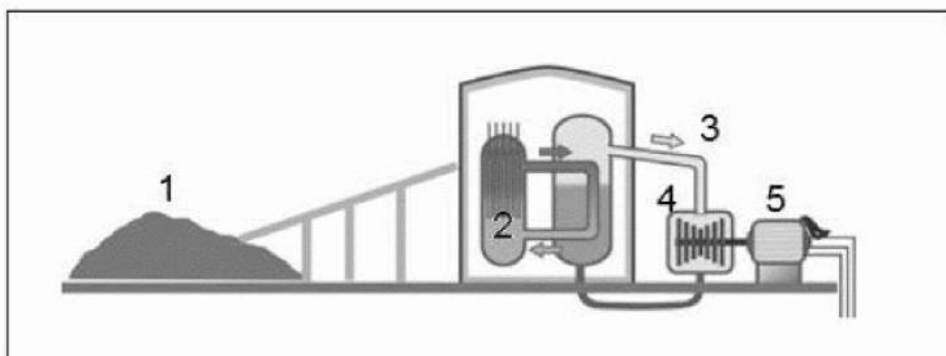
QUESTION 5: COST OF ELECTRICAL POWER

A family receives an electricity bill showing 500 kWh used.

5.1	If the cost is R2.49 per kWh, calculate the total cost.	(2)	
5.2	Suggest TWO ways they could reduce their electricity usage.	(2)	
5.3	Why is energy efficiency important for the environment?	(1)	
		(5)	

QUESTION 6: ENERGY AND NATIONAL ELECTRICITY GRID & SAFETY WITH ELECTRICITY

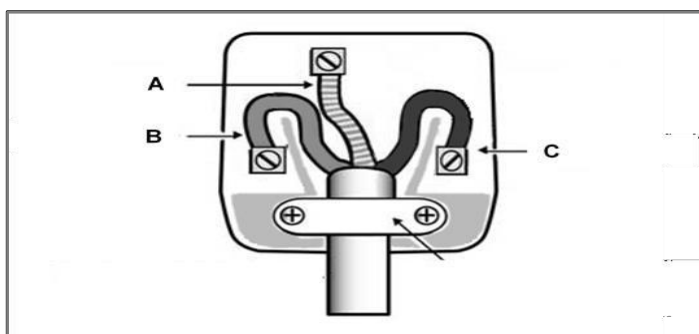
Study the diagram below and read the passage before answering the questions.



This diagram shows a typical coal-fired power station producing electricity. Coal (1) is burnt to generate heat which boils water under high pressure in a boiler (2). This produces high pressure steam which is taken through pipes (3) to the turbine (4) where it is used to turn the turbine at high speeds. From the turbine, the steam enters the condenser where it is cooled back into liquid water. The water is then returned to the boiler.

The turbine shaft is used to rotate the large magnets within coils of wire which form the main parts of the generator (5). The energy needed to spin the magnet in the coils of wire comes from the heat produced by burning the coal. A giant power station can burn about 350 tons of coal per hour.

- | | | | |
|-----|---|------|--|
| 6.1 | What causes the turbine to rotate? | (1) | |
| 6.2 | Name ONE disadvantage of coal-fired power stations. | (1) | |
| 6.3 | Suggest ONE alternative source of energy that can be used to generation electricity, other than coal. | (1) | |
| 6.4 | Analyse the impact of load shedding on households. | (1)) | |
| 6.5 | Refer to the diagram of a three-pin plug below and answer the questions that follow | | |



6.5.1	Which wire in the diagram is responsible for carrying current to the appliance?	(1)											
6.5.2	What is the function of the earth wire in the plug?	(1)											
6.5.3	Why is the neutral wire important in completing the circuit?	(1)											
		(7)											
QUESTION 7: RESISTANCE													
The following graph is based on a set of results gathered during an investigation to establish the relationship between the resistance and the length of a conductor at constant temperature.													
<table><caption>Data points from the graph</caption><thead><tr><th>Length in cm</th><th>Resistance in Ohm</th></tr></thead><tbody><tr><td>0</td><td>0</td></tr><tr><td>10</td><td>4</td></tr><tr><td>20</td><td>12</td></tr><tr><td>30</td><td>6</td></tr></tbody></table>				Length in cm	Resistance in Ohm	0	0	10	4	20	12	30	6
Length in cm	Resistance in Ohm												
0	0												
10	4												
20	12												
30	6												
7.1	Use the graph to answer the following questions:												
7.1.1	Name the independent variable.	(1)											
7.1.2	Name the dependent variable.	(1)											
7.2	List THREE factors that affect the resistance of a conductor	(3)											
7.3	Define a resistor	(1)											
7.4	Name the device that uses a resistor to produce light	(1)											
7.5	Define the following terms:												
7.5.1	Electric cell	(1)											
7.5.2	Battery	(1)											
7.6	Explain how a chemical reaction inside a cell can produce electricity.	(1)											
7.7	A learner builds a lemon cell using zinc and copper plates. The LED does not light up.												
7.7.1	Suggest one reason why the LED might not light up.	(1)											

	7.7.2	Recommend a way to improve the set-up so the LED can work.	(1)	
			(12)	
	SECTION B			[40]
	GRAND TOTAL			[50]