education

Department of Education
FREE STATE PROVINCE

GRADE 7

NATURAL SCIENCES CONTROLLED TEST

NOVEMBER 2025

TIME: 90 MINUTES

MARKS: 60

GENERAL INSTRUCTIONS AND INFORMATION:

1. The question paper consists of 10 pages including the cover page.

2. There are 5 questions in total.
3. Allocation of marks

   SECTION A: 20
   SECTION B: 40

4. Read and answer all the questions thoroughly.
5. Answer **ALL** the questions in a **separate answer book provided**.
6. Leave one line between two sub- sections, and questions.
7. Write neatly and legibly.

SECTION A

QUESTION 1

1.1 Choose the correct answer from the possible answers given in each statement. Write down only the correct letter next to the relevant number. e.g. 1.1.1 C

1.1.1 Heat moves through solids mainly by… (1)

A. convection
B. conduction
C. radiation
D. reflection

1.1.2 Which material is the best conductor of heat? (1)

A. plastic
B. iron
C. wood
D. rubber

1.1.3 The moon's light comes from… (1)

A. the Earth
B. the stars
C. the Sun
D. the Moon itself

1.1.4 Which of the following is a renewable source of energy? (1)

A. coal
B. oil
C. wind
D. gas

1.1.5 The rotation of the Earth around its own axis causes (1)

A. tides
B. solar eclipse
C. day and night
D. seasons

1.1.6 Which form of energy is obtained from moving water… (1)

A. biofuel
B. geothermal
C. hydropower
D. wind

1.1.7 A unit for measuring energy is… (1)

A. kilogram
B. degree Celsius
C. joule
D. newton's

1.1.8 Conservation of heat energy means… (1)

A. increasing heat losses and gains
B. limiting heat losses and gains
C. energy can be destroyed
D. energy can be created

1.1.9 A type of system represented by heating of water is a…. (1)

A. biological system
B. thermal system
C. electrical system
D. mechanical system

1.1.10 Which of the following sources of energy is obtained from plant and animal waste? (1)

A. geothermal
B. biofuel
C. nuclear
D. wind

[10]

1.2 Choose a term from Column B that matches the description in Column A. Write **ONLY** the letter next to the question number 1.2.1 – 1.2.5, e.g. 1.2.1 D **[5]**

	Column A	Column B
1.2.1	The fixed path an object in space travels in as it revolves around another object.	A. convection
1.2.2	The tilt of the Earth's axis causes….	B. potential Energy
1.2.3	The transfer of heat into liquids and gases.	C. orbit
1.2.4	The energy stored in a system.	D. fossil fuels
1.2.5	The fuel made from the remains of dead plants and animals that died millions of years ago.	E. seasons
		F. tilt

1.3 Give one word/term for each of the following descriptions. Write only the correct word/phrase next to the question number (1.3.1 – 1.3.5) in your ANSWER BOOK. **[5]**

1.3.1 An imaginary line that divides the Earth into two equal Southern and Northern Hemispheres. (1)

1.3.2 The movement of heat from a hotter object to a cooler one. (1)

1.3.3 Days on which a day and a night are equal in length. (1)

1.3.4 The output energy that is lost to the environment (1)

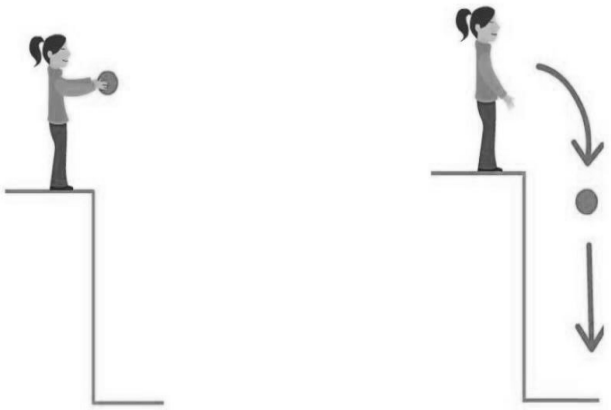
1.3.5 The force that attracts a body towards the centre of the Earth (1)

SECTION A TOTAL: [20]

SECTION B

QUESTION 2

2.1 Study the picture below and answer the following questions.



A **B**

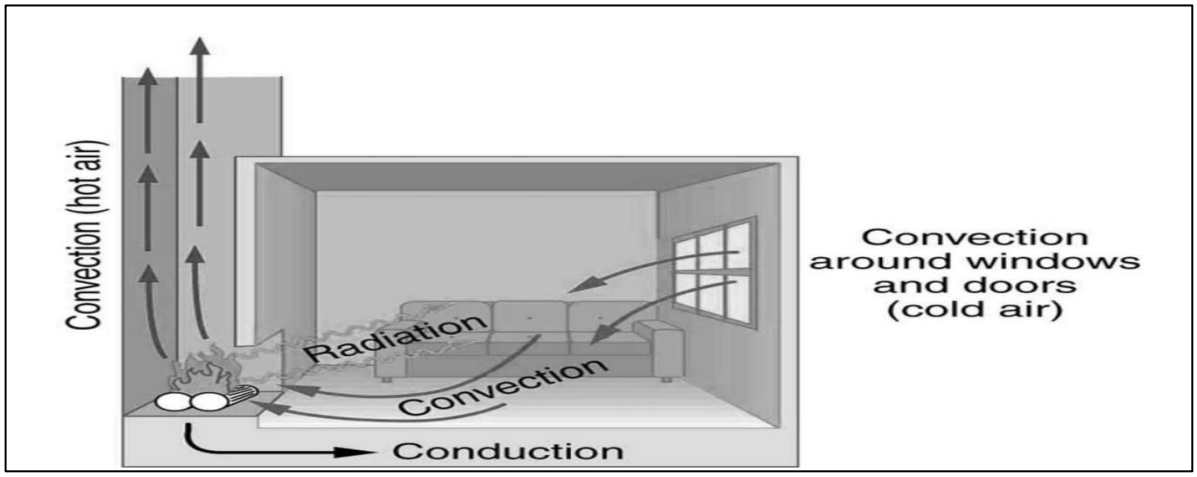
2.1.1 Does the ball in diagram **A** have kinetic energy? Explain your answer. (2)

2.1.2 Define potential energy. (1)

2.1.3 Describe the energy change of the ball in diagram B (2)

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2.2 Use the diagram to answer the questions that follow.



2.2.1 Describe how radiation from the fireplace warms the couch? (2)

2.2.2 Explain why hot air rises above the fireplace? (2)

2.2.3 Which heat transfer method **most** directly would warm a person sitting on the couch? Explain your answer (2)

[11]

QUESTION 3

3.1 Read the scenario provided below and answer the questions that follow.

Sipho wanted to investigate how colour affects heat absorption. He used three shoe boxes of different colour - white, black and silver. Each box contained the same amount of shredded paper. Thermometers were inserted through small holes in the lids to measure the temperature inside the boxes every 3 minutes while they were placed in sunlight. The table below shows the findings from his investigation.

Box colour	Temperature		
	3 minutes	6 minutes	9 minutes
White	24ºC	26 ºC	29 ºC
Black	26 ºC	32 ºC	40 ºC
Silver	23 ºC	25 ºC	26 ºC

3.1 Identify the independent and dependent variables.

3.2 What conclusion can Sipho make about colour and heat absorption? (2)
(1)

3.3 Draw a line graph to show the temperature of the black box over time (3)
[6]

QUESTION 4

4.1 During cold days wool is widely used because it serves as an insulator to keep our bodies warm. Explain which property of wool makes it a good insulator (2)

4.2 Give one example of an insulator that is used in our homes to prevent heat loss or heat gain. (1)

4.3 Explain how energy is transferred when a kettle boils water. (2)

4.4 Describe how energy is wasted when we use electrical appliances. (1)

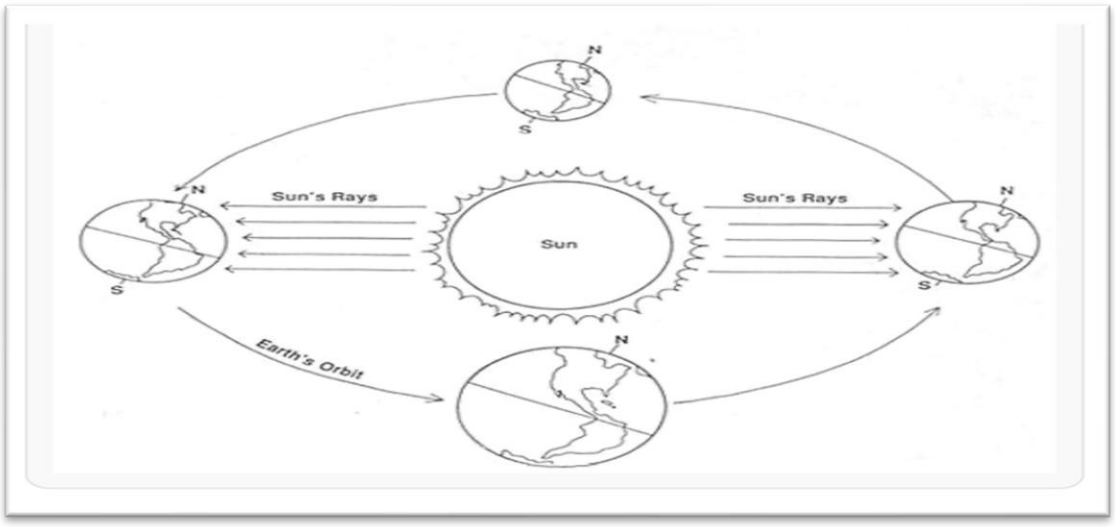
4.5 Explain what energy efficiency means. (2)

4.6 Suggest one way to reduce energy waste in the home. (1)

[9]

QUESTION 5

5.1 Study the diagram below and answer the questions that follow.



5.1.1 Explain the term “tilt” and provide the degree at which the Earth’s axis is tilted. (2)

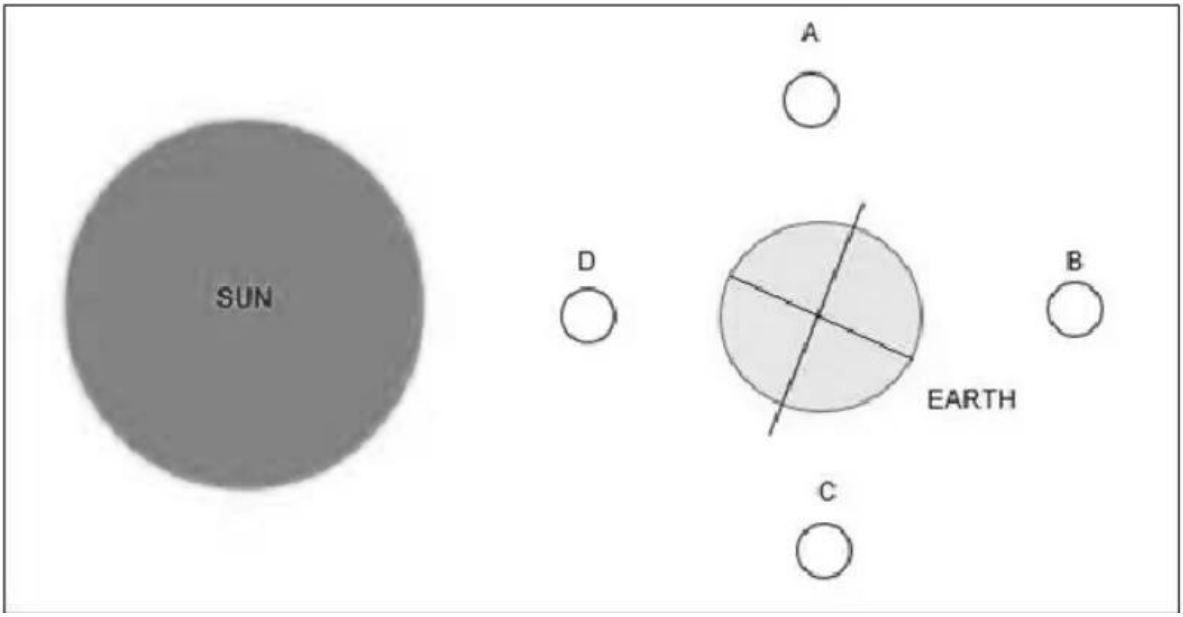
5.1.2 Explain why the seasons are different in the Northern and Southern Hemispheres. Support your answer with reasons. (2)

5.13 Describe the role of the Sun’s rays in causing different seasons on Earth. (2)

5.1.4 Predict what would happen if the Earth’s axis was not tilted in space. (2)

[8]

5.2 Study the diagram below and answer the questions that follow.



5.2.1 Explain why we cannot see the Moon shining in the sky when it is at point D in the diagram. (2)

5.2.3 What causes different phases of the Moon? (2)

5.2.4 How does the position of the Moon, Earth and Sun cause tides? (2)

[14]

SECTION B TOTAL: [40]

OVERALL TOTAL: [60]