GRADE 9

Natural Sciences

November Examination

MARKS: 80

TIME: $1_{1/2}$ hours

Name: _____ Class: _____

School: _____

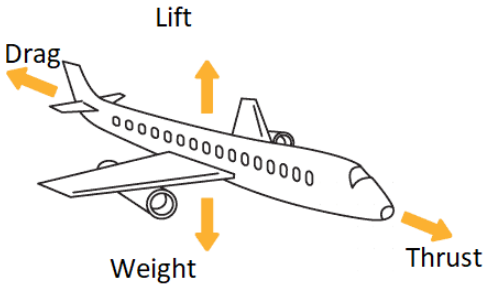
INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions in your question paper.
2. Write neatly and legibly.

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A–D) next to the question numbers (1.1 to 1.10) in your answer sheet e.g. 1.11 G.

1.1 Which of the forces in the diagram are acting in pairs? _____



A. Lift and thrust
B. Thrust and weight
C. Weight and drag
D. Lift and weight

(2)

1.2 Contact force includes friction, tension, and _____

A. gravity
B. magnetic force
C. electrostatic force
D. compression

(2)

1.3 A controlled variable is_____

A. the affected variable
B. the variable that is manipulated during the reaction
C. the variable that is kept the same
D. the variable that is independent

(2)

1.4 The layers of the Lithosphere are_____

A. crust, mantle and core
B. crust, mantle and inner core
C. crust, mantle and outer core
D. crust, mantle, inner core and outer core (2)

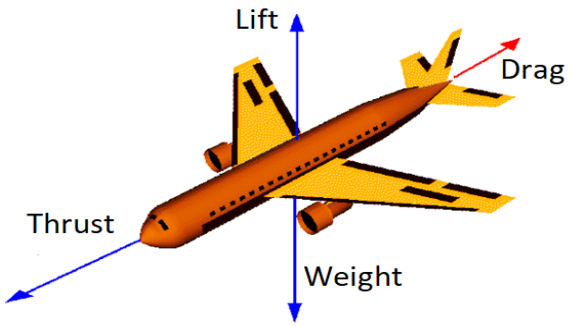
1.5 The inner core is solid because _____

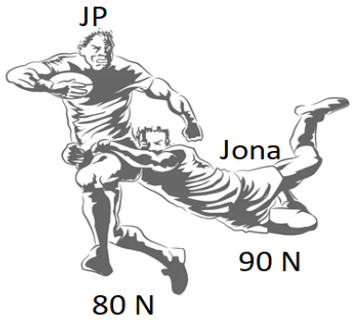
A. of density
B. it is made of dense and heavy metals
C. of pressure
D. of temperature (2)

[10]

QUESTION 2: FORCES

2. Use the diagram to answer some of the questions that follow.





2.1 What is a force? (1)

_____

2.2 Mention the two types of forces you have studied. (2)

_____

2.3 What is a field force? (2)

_____

2.4 A drag is a mechanical force generated by a solid object moving through a fluid. Explain the statement by referring to the diagram shown. (2)

_____

_____

2.5 Discuss why do you think Jona will or will not be able to stop JP. (2)

_____

2.6 Discuss the effect of the force by referring to the two rugby players in the diagram. (2)

_____

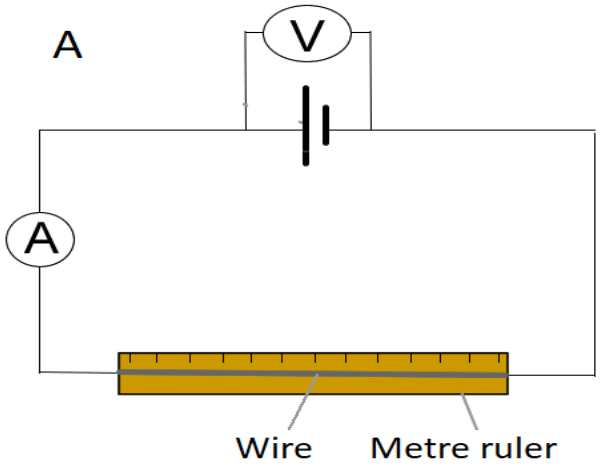
2.7 Explain what produces the thrust and the drag. (1)

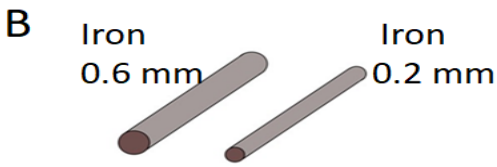
_____

[12]

QUESTION 3: ELECTRIC CELLS AND RESISTANCE

Use the diagram to answer some of the questions that follow:





3.1 What is the use of the ruler in the investigation in A? (2)

_____

3.2 Which factor of resistance is being investigated in B? (2)

_____

3.3 Which two factors are kept the same in B? (2)

_____

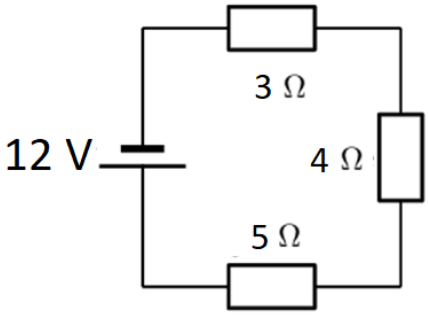
3.4 Discuss how thickness relates to resistance. (2)

_____

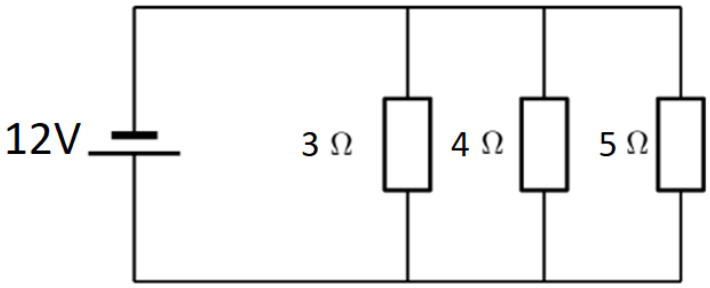
[8]

QUESTION 4: SERIES AND PARALLEL CIRCUITS

Use the diagram to answer some of the questions that follow.



Circuit A



Circuit B

4.1 How many resistors are used in each circuit? _____ (1)

4.2 Which circuit will have a higher resistance? (1)

_____

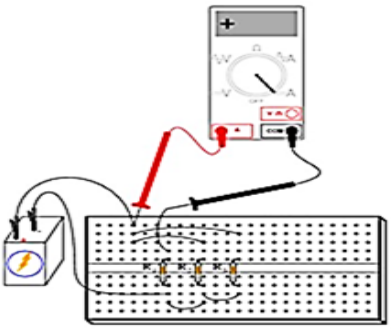
4.3 In circuit B, what is the voltage in each of the three resistors? (1)

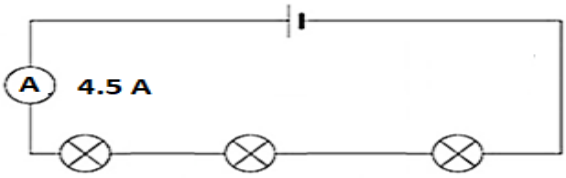
_____

4.4 In Circuit A, which resistor will have the highest voltage? _____ (2)

4.5 What is the total resistance in circuit A? _____ (2)

4.6 Use the diagram to answer some of the questions that follow:





4.6.1 How are the bulbs in the circuit diagram shown connected? _____ (1)

4.6.2 What is the current in the circuit? _____ (1)

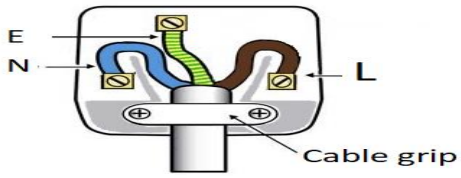
4.6.3 How will the circuit be affected if one bulb stops working? (2)

_____

[11]

QUESTION 5: SAFETY, ENERGY GRID AND COST

Use the diagram to answer some of the questions that follow:



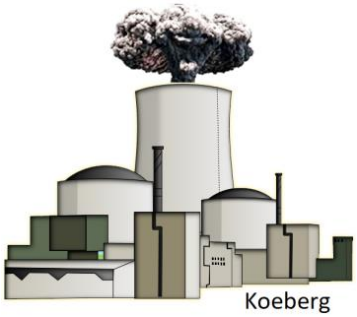
5.1 What kind of a plug is shown in the diagram? _____ (2)

5.2 What do the letters E and N represent? (2)

_____

5.3 Read the passage and answer the questions that follow:

Electricity Generation



A. Most power stations in South Africa are coal-fired (use coal). Solar, wind and nuclear produce alternative means of producing electricity.

B. Nuclear power stations, like Koeberg in Cape Town, use radioactive fuel instead of coal. Most nuclear power stations use uranium as fuel.

C. Uranium atoms are split into smaller nuclei releasing a lot of energy. The splitting of the nucleus of an atom into two or more smaller nuclei releasing energy is known as fission.

5.3.1 What is coal-fired power station? _____ (2)

5.3.2 What is a nuclear power station? (2)

_____

5.3.3 What is fission? (2)

5.4 One kilowatt-hour (kWh) is one thousand watts of electricity

used over one hour. It's a standard measurement of energy. Each

kWh represents one unit of energy and is used to work out an electric bill.

5.4.1 What is a kilowatt-hour? _____ (1)

5.4.2 Calculate the energy used when a 6 kW motor is used for 3 hours. (2)

_____

[13]

QUESTION 6: THE ATMOSPHERE AND LITHOSPHERE

Answer the following questions

6.1 What is the composition of oxygen in the air? (1)

_____

6.2 How does density relate to altitude? (2)

_____

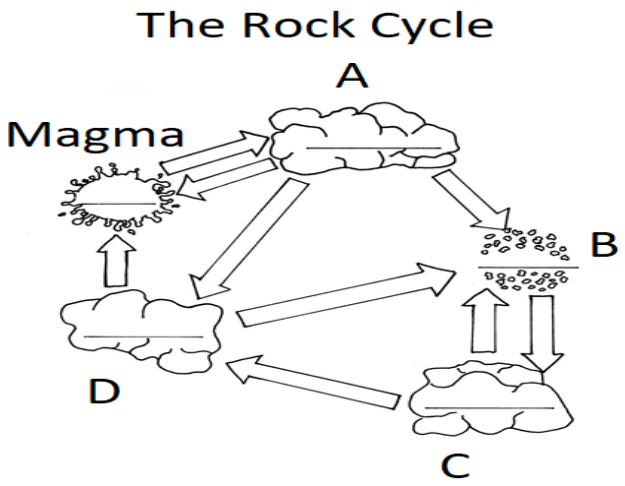
6.3 Temperature can be calculated as: Temperature at a point + 1 ◦C per 100 m. If the temperature is 23 ºC at an altitude of 230 m, what is the temperature at an altitude of 430 m? (2)

_____

6.4 What are the first three layers of the atmosphere? (3)

_____

6.5 Use the diagram to answer some of the questions that follow:



6.5.1 Which rock is formed from sediments? _____ (1)

6.5.2 Which rock forms from the cooling of magma? _____ (1)

6.5.3 Using the terms “heat” and “pressure”, explain what a metamorphic rock is.

_____ (2)

6.5.4 What is magma? (2)

_____

[14]

QUESTION 7: MINING AND MINERAL RESOURCES

Read the passage before answering the questions that follow:

Mining **is** the process of extracting useful materials or other geological material materials from the earth. Mining is very important in South Africa for the growth of the economy and job creation. Mining, however, impacts negatively on the environment. Some of the challenges include water pollution, dumps and destroying land for farming and disturbing wild live environment.

7.1 What is mining? (2)

_____

7.2 Discuss the importance of mining. (4)

_____

_____

7.3 Explain the negative impact of mining. (2)

_____

[8]

QUESTION 8: BIRTH; LIFE AND DEATH OF A STAR

Answer the following questions:

8.1 Where are stars born? (1)

_____

8.2 Do stars die the same way? Explain. (2)

_____

8.3 What happens to objects that get closer to the black hole? (1)

_____

[4]