



## Education and Sport Development

Department of Education and Sport Development  
Departement van Onderwys en Sportontwikkeling  
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**NORTH WEST PROVINCE**

### NORTH WEST PROVINCIAL ASSESSMENT

GRADE 8

TECHNOLOGY  
NOVEMBER 2016

**MARKS: 100**

**DURATION: 1H30 min**

**NAME OF LEARNER:** \_\_\_\_\_

**CLASS:** \_\_\_\_\_

#### INSTRUCTIONS

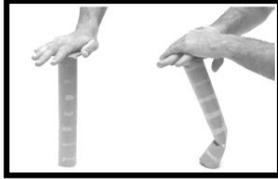
1. Answer all questions.
2. Write neatly and legibly.
3. **All the answers should be written in the spaces provide in the question paper.**
4. Follow instructions promptly.
5. All the drawings should be in pencil, neat and fully labeled.
6. Colored pencils may be used only for shading where such is required.

**This Question paper consists of 12 pages.**

**Question 1 ( Multiple- choice )**

Four possible answers are given. **Circle** the letter of the **correct one**.

1.1 Which force is applied in the figure below?



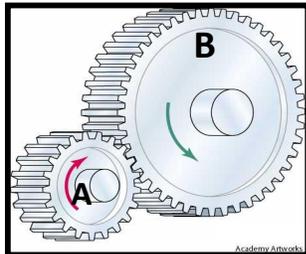
**FIGURE 1**

- A. Bending
- B. Compression
- C. Torsion
- D. Tension (1)

1.2 Which of the following causes a structural failure?

- A. Poor quality of materials
- B. Bad design
- C. Weak foundation
- D. All of the above (1)

1.3 In the gear system below, if A is a driver and B driven, **both** gears will rotate in the...



**FIGURE 2**

- A. Same direction
- B. Opposite direction (1)
- C. Clockwise direction
- D. Anticlockwise direction

1.4 To **increase** the speed in a gear system, the driver gear should be...

- A. Smaller than the driven gear
- B. Bigger than the driven gear
- C. Same size as the driven gear
- D. Faster than the driven gear (1)

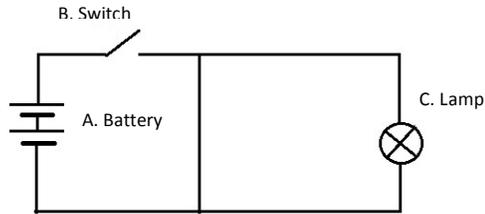
1.5 Bio-degradable materials are...

- A. Environmentally friendly as they easily decompose
- B. Cannot decompose

- C. None of the above
- D. Both A and B are correct (1)

- 1.6 One of the **negative** impacts of plastics scattered in our environment is that...
- A. If eaten by animals, they could die.
  - B. They make the environment clean
  - C. They are expensive to buy
  - D. Some do decompose (1)

- 1.7 Use the circuit in Figure 3 below to answer the question that follows.



**FIGURE 3**

When the switch is closed.....

- A. The bulb will glow bright
  - B. The bulb will not glow
  - C. The bulb will burn
  - D. The bulb will glow bright for some times then go off. (1)
- 1.8 The connection of the circuit in FIGURE 3 as shown in 1.7 above is called
- A. Closed circuit
  - B. Short circuit
  - C. Electric short
  - D. All of the above (1)
- 1.9 A 3volts battery is connected in series with a single pole single throw (SPST) closed switch and a bulb. The output in this circuit is a...
- A. Battery
  - B. Switch
  - C. Glowing bulb
  - D. Connecting wires. (1)
- 1.10 An electric circuit with 1 cell, 2 switches and a bulb is connected in such a way that only when both the switches are closed, the bulb will glow. The Logic Gate formed by this combination is called...
- A. OR gate
  - B. NOR gate
  - C. AND gate
  - D. NAND gate (1)

**[10]**

**Question 2**

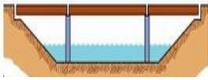
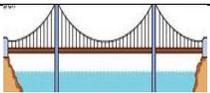
Which of the following statements are **TRUE** and which are **FALSE**? Just write true or false in the space provided at the end of each question.

- 2.1 A Buttress can be used to support the wall of the dam. \_\_\_\_\_ (1)
- 2.2 The steel ropes that are used to make the bridge stable are called stay cables/wires. \_\_\_\_\_ (1)
- 2.3 For the series cells to form a battery, they should be connected together positive to positive and negative to negative. \_\_\_\_\_ (1)
- 2.4 The liquid that allow current to flow through in electro chemical cells is called electrolyte \_\_\_\_\_ (1)
- 2.5 Only men should work in mines as the job is hard as per gender equity. \_\_\_\_\_ (1)

**[ 5 ]**

**Question 3**

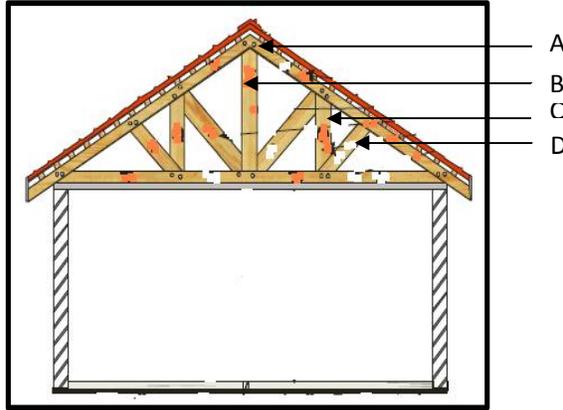
2.2 Match the bridge type in column A with its name in column B. Just write the letter of the appropriate bridge name in column C next to its bridge. (5)

	COLUMN A	COLUMN B	COLUMN C
1.			A. Arch bridge B. Suspension bridge
2.			C. Cable stayed bridge D. Beam bridge
3.			E. Cantilever bridge F. Truss bridge
4.			
5.			

**[ 5 ]**

**Question 4**

**4.1** In a local farmstead, majority of houses are roofed with thatch. The problem of this area is that it is usually affected by draught and veld fires which burn the thatch as it easily burns. You are now tasked to change the roofing of these houses to the one that cannot be easily affected by fire and you choose to use the zinc corrugated pitched roof.



**FIGURE 4: PITCHED ROOF CROSECTIONAL AREA**

4.1.1 Carefully read through the above scenario and with the help of **FIGURE 4**, formulate your own design brief to solve the existing problem. (2)

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4.1.2 **FIGURE 4** was drawn when the design for the solution was made. Write the names of the members labeled A – D on the spaces provided below. (4)

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

D. \_\_\_\_\_

4.1.3 The foundation should be very strong to ensure that the house is stable. Which two materials would you use to ensure that the foundation is strong enough? (2)

\_\_\_\_\_ and \_\_\_\_\_

4.2 Give a reason why structural members: (6)

4.2.1 Fracture \_\_\_\_\_  
\_\_\_\_\_

4.2.2 Bend \_\_\_\_\_  
\_\_\_\_\_

4.2.3 Topple over \_\_\_\_\_  
\_\_\_\_\_

4.3 Which two methods can you use to make a water tank stand at your house strong? (2)

\_\_\_\_\_ and \_\_\_\_\_

[ 16 ]

**QUESTION 5**

5.1 During lunch time, learners at your school buy food in plastic packages. They then throw them everywhere around the school yard thus causing littering. Suggest **THREE** ways to solve this littering problem. (6)

a) \_\_\_\_\_  
\_\_\_\_\_

b) \_\_\_\_\_  
\_\_\_\_\_

c) \_\_\_\_\_  
\_\_\_\_\_

5.2 Why is the burning of plastics not very suitable for solving littering problem? (2)

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5.3 FIGURE 5 below shows a man throwing different sorts of garbage in the flowing stream. Use it to answer the question that follow.



**FIGURE 5: MAN THROWING GARBAGE IN THE RIVER**

Give 4 negative effects of throwing such garbage in the stream. (4)

5.3.1 \_\_\_\_\_

5.3.2 \_\_\_\_\_

5.3.3 \_\_\_\_\_

5.3.4 \_\_\_\_\_

5.4 Which types of materials are said to be bio-degradable? (2)

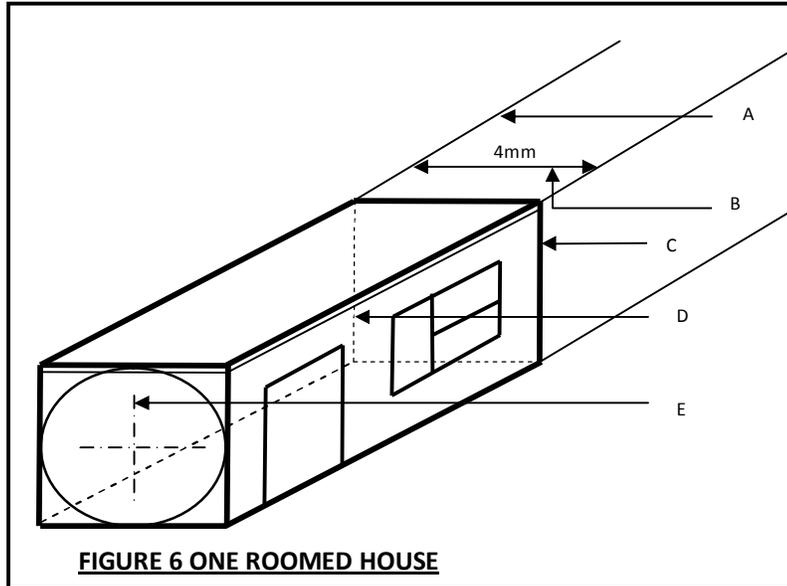
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**[14]**

**Question 6**

6.1 FIGURE 6 below shows the oblique drawing of the one roomed house. Use it to answer the questions that follow.



6.1.1 Give the names of the lines numbered A – E

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_
- D. \_\_\_\_\_
- E. \_\_\_\_\_

(1)  
(1)  
(1)  
(1)  
(1)

6.1.2 Draw the house in FIGURE 6 in 2 points perspective in the box below. (12)

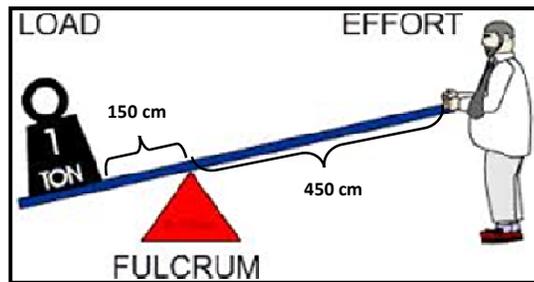



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[ 17 ]

**Question 7**

7.1 Look at the picture of a lever system in Figure 7 and use it to answer the questions that follow.



**FIGURE 7: LEVER REPRESENTATION**

7.1.1 Which class of lever is represented by the above lever system? (1)

\_\_\_\_\_

7.1.2 The load arm is given as 150cm and the effort arm as 450cm. Use this data to calculate the mechanical advantage of this lever using the formula

$$Ma = \frac{\text{Effort arm}}{\text{Load arm}}$$
(3)

7.1.3 Why should the effort arm be longer than the load arm in this class of a lever? (2)

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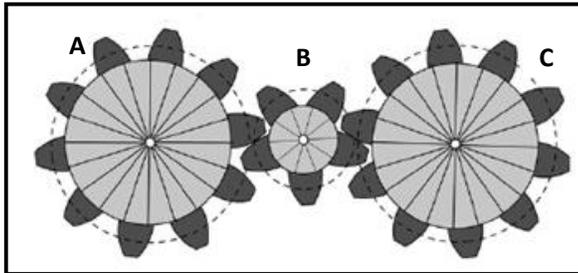
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7.1.4 What could be the danger of making the effort arm too long? (2)

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7.2 Use Figure 8 below to answer the questions that follow.



**FIGURE 8: GEAR TRAIN**

7.2.1 What is the special name given to the gear in the middle? (1)

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7.2.2 What is the special characteristic that this middle gear should have owing to its position in the gear train? (2)

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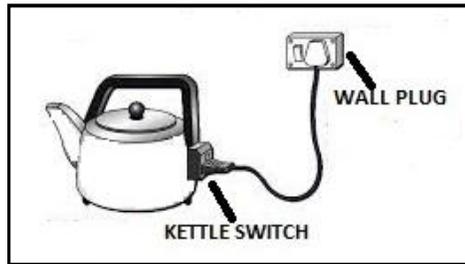
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7.2.3 Make a graphical representation of the gear train in FIGURE 8 (6)

[17]

**Question 8**

8.1 Figure 9 below shows the connection of an electric kettle to the socket outlet (Plug) in the house like any other electric appliance.



**FIGURE 9: ELECTRIC KETTLE**

8.1.1 Which logic gate is formed by this circuit? (1)

\_\_\_\_\_

8.1.2 Complete the truth table below with respect to FIGURE 9 above. (4)

A	B	X
0	0	
0	1	
1	0	
1	1	

8.2 Burglary has become rife in the township where you live. The houses of two of your neighbours were broken into in just the space of a week. Your family decided to install an alarm system for safety purposes. The design of the circuit to be used should be such that when a panic button in the kitchen is pressed, the alarm goes on and when the one in the bedroom or both of them are pressed, the alarm goes on. Only when both panic buttons are off will the alarm be off.

8.2.1 In your design, draw the circuit of this combination using two switches in place of the panic buttons and a light bulb in place of an alarm. Your circuit should be supplied from a 2cells battery. (6)

8.2.2 Which type of a logic gate is formed by this circuit? (1)

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8.3 Photovoltaic (Solar) cells are good alternative to chemical cells as the generation is free. They are still not commonly used as they come with some disadvantages. Name one of such disadvantages. (2)

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8.4



**FIGURE 8: Illegal connection of electricity**

Figure 8 above show how South Africans do illegal connection of electricity. Explain the two disadvantages of these illegal connections. (2)

a) \_\_\_\_\_

\_\_\_\_\_

b) \_\_\_\_\_

[16]

TOTAL = 100