



Province of the
EASTERN CAPE
DEPARTMENT OF EDUCATION

TECHNOLOGY

GRADE 8

NOV/DEC EXAMS

NAME OF SCHOOL: _____

SURNAME AND NAME: _____

INSTRUCTIONS AND INFORMATION

1. Make sure you have all 13 pages, including the cover page, clearly printed.
2. Write your name, class and initial of your teacher on each answer sheet
3. All answers must be completed on the question paper.
4. 15 minutes reading time is allowed.
5. The invigilator will tell you when you may start to write.
6. Only use a blue/black pen when answering the questions.
7. All sketches or drawing must be done in pencil.
8. Write neatly and legibly.
9. Read the instructions for EACH question carefully.
10. Consult the rubrics and marks allocated to guide you when answering the questions.

SPECIFIC AIMS ASSESSED

TECHNOLOGICAL PROCESSES AND SKILLS	50%	40
TECHNOLOGICAL KNOWLEDGE AND UNDERSTANDING	30%	24
TECHNOLOGY, SOCIETY AND THE ENVIRONMENT	20%	16

ALLOCATION OF MARKS

SECTION	Questions	Possible Marks	Marks Obtained
A	1.	5	
	2.	35	
	TOTAL	40	
B	3.	17	
	4.	07	
	TOTAL	24	
C	5.	16	
	TOTAL	16	
	TOTAL	80	

SECTION A: TECHNOLOGICAL DESIGN PROCESS SKILLS**[40]****MULTIPLE-CHOICE QUESTIONS****(5)****QUESTION 1**

1.1 Encircle the letter that corresponds with the correct answer in each of the questions below:

1.1.1 are used to show the edges of a product. (1)

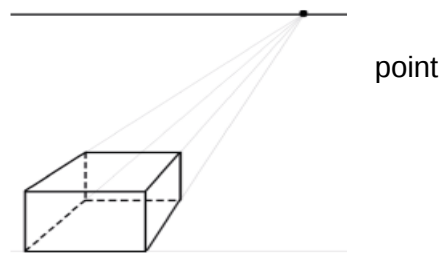
- A. Construction lines
- B. Hidden detail lines
- C. Centre lines
- D. Outlines

1.1.2 Scale 1:2 means that (1)

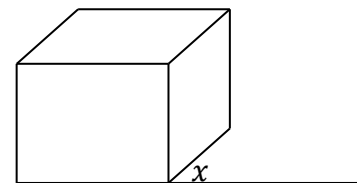
- A. 2 mm in your drawing represents 1 mm in real life
- B. 1:2 mm represents 2 mm in real life
- C. 1 mm is equal to 1:2 mm
- D. 1 unit in your drawing represents 2 units in real life

1.1.3 One of the features below is not a feature of the drawing given: (1)

- A. Hidden detail lines
- B. Single vanishing
- C. True face
- D. Centre lines



1.1.4 The diagram below shows _____ drawing (1)



- A. Rectangle
- B. Isometric
- C. Oblique
- D. Double vanishing point

1.1.5 The diagram in Question 1.4 above is (1)

- A. 2 D shape
- B. 3 D shape
- C. 1 D
- D. A Vanishing point

QUESTION 1.2.

Match the stages of design process in column **A** with the correct action in column **B** and the letter of the matching action in the middle column. **(5)**

COLUMN A	Write the Correct letter here	COLUMN B
1.2.1. Investigate		A. Construct the article using working drawings as your reference.
1.2.2. Design		B. Presenting your design to the target audience.
1.2.3. Make		C. Testing to see whether the design performs the task it is designed for.
1.2.4. Evaluate		D. Find information from various sources and use it to solve the problem.
1.2.5. Communicate		E. Create notes and drawings showing measurements.
		F. Write a brief statement about your design.

QUESTION 2**Scenario: Combining AND Logic with OR Logic**

Many buses have push switches for passengers to let the driver know they want to get off at the next stop. The circuit diagram might look like one in Figure 3 below. In this circuit diagram, there are two push switches for passengers. Any of these switches can ring the bell next to the driver.

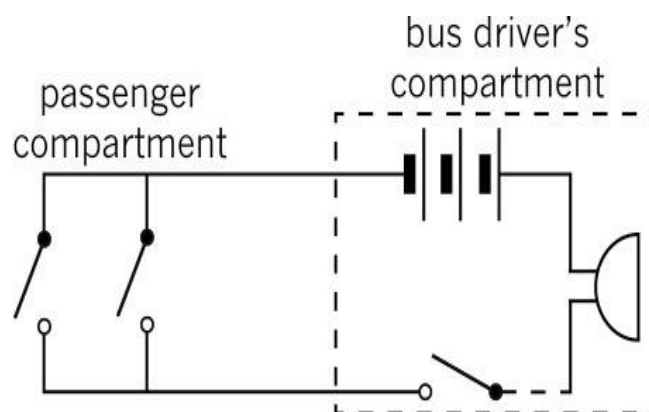


Figure 3: a circuit diagram for passengers to tell the driver they want to get off.

In one of the schools, they still used the old model buses, where these switches are for the passengers only. Mr Abdullahi, the school bus driver, always complains about the learners he transports. When school learners go on an excursion, they sometimes ring the bell many times just for fun. This prevents the driver, Mr Abdullahi, from concentrating on the road, and this might cause accidents, so he has a **Master switch** to turn off the bell.

Questions 2.1. INVESTIGATION **[15]**

2.1.1 What problem is Mr Abdullahi experiencing? (1)

2.1.2 What is the solution to the problem? (2)

2.2 Re-draw Figure 3 in the space provided below.



2.2.1 In the drawing above, mark the switches SW1 and SW2 and the **Master switch** **SW_{master}** (3)

2.2.2 Which switch gives the bus driver control over the whole circuit? (1)

2.2.3 What type of Logic do passengers have? Explain why? (2)

2.2.4 Should the Bell system use AND-Logic or OR-Logic or both? Explain (3)

2.2.5 Which device can he use for the bell to make a sound? (1)

2.2.6 Draw the symbol for the device. (2)

QUESTION 2.3. – DESIGN
[15]

2.3.1 Write the design brief: (1)

- 2.3.2 Now write a list of specifications for the solution. Specifications have details about the system you are going to make. Remember that the system: (3)
- should make a sound when either one of the two switches is closed.
 - should have a switch to turn the whole system off.
-
-
-

QUESTION 3 - ISOMETRIC DRAWING
(11)

Below is the school bus. When one enters the bus, it has a 3-staircase that is $80mm \times 40mm \times 60mm$. Draw the stairs in **Isometric** in a ratio 1:2. (Use the grid paper provided). Enhance your drawing by showing all the line types used. (Use the attached grid)



Isometric interpretation	Dimensions (in correct scale)	Line types	Neatness	Total
3	3	3	2	11

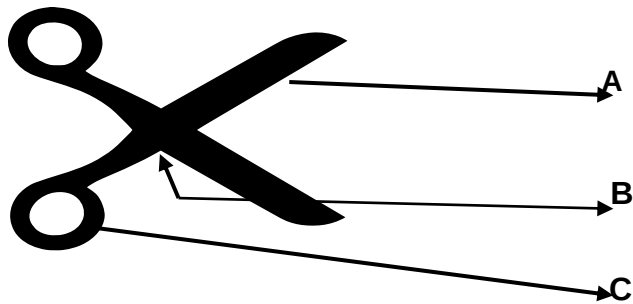
SECTION B: TECHNOLOGICAL KNOWLEDGE AND UNDERSTANDING

[24]

MECHANICAL SYSTEMS AND CONTROL - LEVERS, LINKAGES AND GEARS

QUESTION 4

4.1. Look at the following picture and answer the questions that follow.



4.1.1 Based on your knowledge of levers,

A is for _____

B is for _____

C is for _____

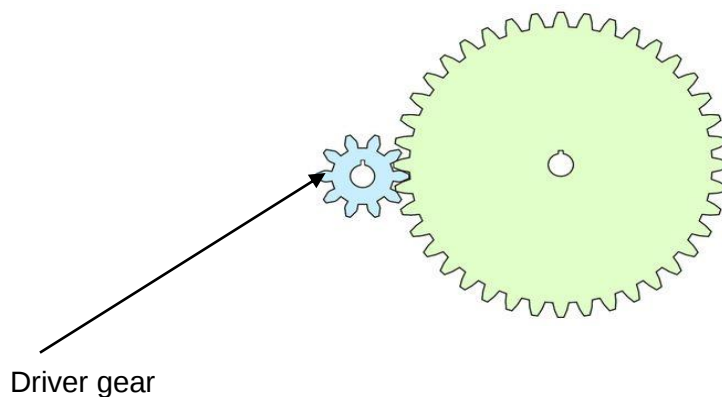
(3)

4.1.2 Which class does the above picture show?

(1)

QUESTION 5

5.1. Look at the figure below, then answer the questions that follow:



5.1. 1 What is a gear?

(1)

- 5.1. 2 What can you say about the output turning force at the driven axle compared to the input turning force at the driver axle? (1)

- 5.1. 3 Calculate the gear ratio. (3)

- 5.1. 4 If the driver gear rotates at 100 rpm, calculate speed of the driven gear. (2)

QUESTION 6 ELECTRICAL SYSTEMS AND CONTROL

- 6.1.1 Refer to the given Circuit diagram in Fig 3:

For the bell to ring, SW_{master} and one of the SW1 or SW2 must be ON.
Complete the TRUTH Table below for the bell System (3)

SW _{master}	SW1	SW2	Output from the bell
0	0	0	0
0	1	0	0
0	0	1	0
0	1	1	0
1	0	0	
1	1	0	
1	0	1	
1	1	1	1

6.1.2 Use your knowledge of the series/parallel circuits as well as switches and describe whether each item in the picture below is on or off. (4)

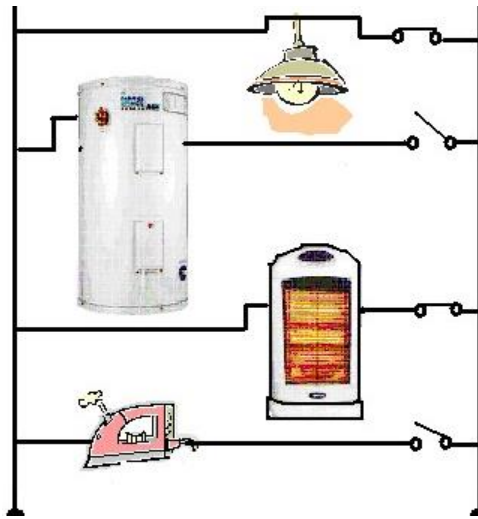


Fig 4 Supply voltage – 230 V

- a. Lightbulb: _____
- b. Geyser/Boiler: _____
- c. Heater: _____
- d. Iron: _____

6.1.3 List two advantages of a Parallel Circuit (Refer to Fig 1 above) (2)

6.1.4 Complete the table below on series and parallel connection of cells: (4)

Battery type	Advantages	Disadvantages
Series		
Parallel		

SECTION C: TECHNOLOGY, SOCIETY AND ENVIRONMENT

QUESTION 7: ENVIROMENT AND SOCIETY

[16]

Read the scenario below and answer the questions that follow:

DOORNBACH INFORMAL SETTLEMENT CELEBRATES ELECTRICITY PROVISION

West Cape News, July 2012

There was much celebration in Doornbach, an informal settlement just outside Cape Town, when the city switched on about 200 new electrical connections over the period of a few months in 2012. The illegal electricity connections had previously been the only supply of electricity to the area. Authorities often encounter fierce opposition when trying to cut down illegal electricity connections in informal settlements. But the Doornbach residents immediately took upon themselves to cut down the massive web of illegal wires in response to finally receiving formal, legal electricity provision.

Besides the mass of wires running through the informal settlement, many of the wires had been strung across Postdam Road, the main road running through. This was **extremely dangerous as the wires hung incredibly low and would often catch on trucks passing through and snap. Fire threats and electrical shocks to passers-by and vehicles was also a safety concern.** The use of legal electricity will also help to prevent shack fires as residents will rely less on candles and paraffin stoves.

A fifty-two-year-old Doornbach resident, celebrating the end of illegal connections in the settlement, said that she had lived there for 18 years and never received any municipal services from the city. The reason being that they had originally settled on privately owned land, which meant that the City could not, in terms of National legislation, install services on privately owned land. However, the city bought the land. However, the city bought the land in May 2011, and Eskom could therefore begin the process of providing electricity to households in Doornbach. The fifty-two-year-old was extremely excited about being able to use an electric iron and installing a refrigerator.

As a symbolic gesture, the residents took it upon themselves to remove the illegal wires. Many of the youth climbed up the dangerous makeshift poles to collect the wire which they would then sell to scrap yards. Not everyone was celebrating the switching on legal electricity connections in Doornbach. Many residents in neighbouring settlements, living in formal housing, were making money by selling and supplying electricity illegally to Doornbach. Street lighting has also been installed in Doornbach and it is hoped this will help to reduce the crime rate.

Lastly, the City of Cape Town extended their sincere thanks to the community of Doornbach, as without their support, involvement, and cooperation, such a project would not have been possible.

7.1 After reading this article, what do you think is the main reason that the people of Doornbach originally set up illegal connections? (2)

7.2 Why is it dangerous to climb the makeshift electricity poles? (2)

7.3 List FOUR of the physical dangers of illegal connections in Doornbach. (4)

7.4 Why are the residents so excited about this project, including a fifty-two-year-old. (1)

7.5 “Not everyone was celebrating the switching” Why this was so? (2)

7.6 What measures have been put in place to reduce crime? (1)

7.7 Describe what course of action **YOU** would take against people who sell electricity illegally? (2)

7.7 Do you think it is more important that industry and private homes get electricity? Support your answer with examples. (2)

[16]

GRAND TOTAL: 80 MARKS

