

SEKHUKKHUNE EAST DISTRICT



GRADE 08

TECHNOLOGY

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08 JUNE 2023

TIME: 2 hours

MARKS: 60

DURATION: 1H30 MINUTES

NAME OF LEARNER: _____

CLASS : _____

This question paper consists of 10 pages including cover page.

Please turn over

Instruction to learners:

1. Answer **ALL** the questions.
2. Answer questions on the spaces provided.
3. Sketches and diagrams must be large, neat and fully labelled.
4. Show **ALL** calculations and round off answers correctly to **TWO** decimal places.
5. Number the answers correctly according to the numbering system used in this question paper.
6. Show the units for all answers of calculations.
7. Write neatly and legibly.

SECTION A

QUESTION 1

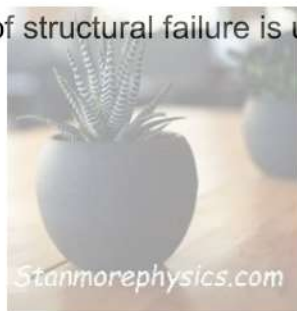
1.1 Four possible answers are given. Circle the letter of the correct one.

1.1.1 Frame structures support the load from.... (1)

- A. Inside
- B. Outside
- C. Both inside and outside
- D. Neither inside or outside

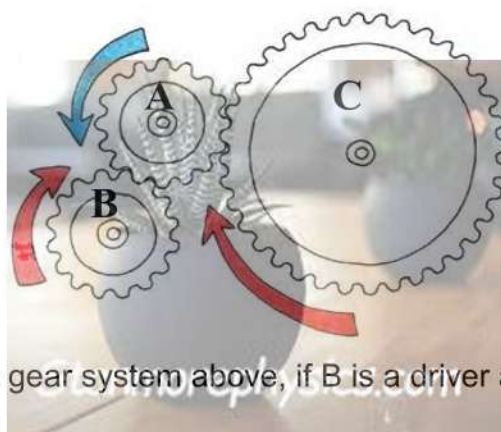
1.1.2 Bending as part of structural failure is usually caused by lack of... (1)

- A. Strength
- B. Stiffness
- C. Stability
- D. Hardness



1.1.3 Velocity ratio is.... (1)

- A. The speed of driver gear and driven gear
- B. Speed of idler gear
- C. Speed of two wheels
- D. Speed of small wheels



1.1.4 In the gear system above, if B is a driver and C driven, **both** gears will rotate in the...

- A. Same direction
- B. Opposite directions
- C. Different directions
- D. Anticlockwise direction

(1)

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

Please turn over

- 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)

[5]

1.2 Which of the following statements are **true** or **false**? Just write true or false next to the statement.

1.2.1 Triangulation shapes makes a frame structure more rigid or stiff. _____ (1)

1.2.2 Beams do not reinforce structures. _____ (1)

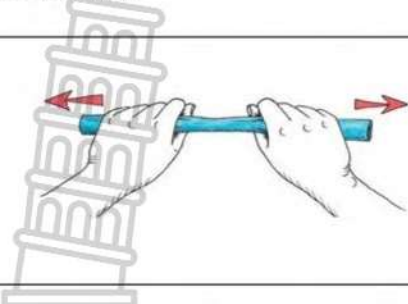


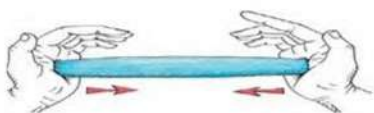
1.2.3 To recycle is to re-manufacture waste materials into new products. _____ (1)

1.2.4 Mechanical system help us to do more work with less effort. _____ (1)






1.2.5 The 2-D drawing has 3 dimensions. _____ (1)

[5]

1.3 Match the type of force in Column A with its name in Column B. Just write the letter of the appropriate name in Column C. [4]

COLUMN A	COLUMN B	COLUMN C
		A. Compression
		B. Torsion
		C. Shear
		D. Tension

1.4 Complete the table below with appropriate information.

Line convention	Name of line / Type	Property
Eg. 	Construction line	Very thin and continuous
		
		
		
		

[8]

QUESTION 2

TeleMax construction company won a tender to build a roof for local secondary school in the village, the existing roof of the school was blown away by storm. The specifications of the tender were that the structure of the roof frame should be made strong because tiles would be used. The contractor decided to use the roof structure that is shown below in *figure 1*.

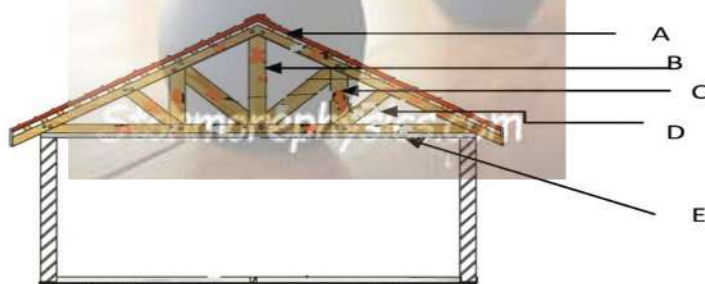


Figure 1

2.1.1 Write names of the members labelled A-E in the space provided. (5)

A. _____

Please turn over

- B. _____
- C. _____
- D. _____
- E. _____

2.1.2 Which type of the roof did the contractor choose? (1)

2.1.3 Which structural failure is likely to happened due to lack of: (3)

- a) Strength _____
- b) Stiffness _____
- c) Stability _____



[11]

TOTAL SECTION A: 30 MARKS

SECTION B

QUESTION 3

SCENARIO



Figure 2 shows two people carrying shopping bags

Maria uses a paper bag to carry her shopping. John uses a plastic bag. Answer the following questions for each type of bag.

3.1 What will happen to the bag when it gets wet?

3.1.1 Paper bag _____ (2)

3.1.2 Plastic bag _____ (2)

3.2 Write down one negative impact of the following materials in the environment: a)

Paper _____ (2)

b) Plastic _____ (2)

3.3 Explain what bio-degradable materials are and give two examples. (2)

(10)

QUESTION 4

4.1 A gear system has a driver gear with 20 teeth and the driven gear with 80 teeth

4.1.1 Calculate the gear ratio (3)_____



4.1.2 Will this system gear up or gear down? (2)_____

4.2 List Three machines that use gear systems in real life?

4.2.1 _____ (1)

4.2.2 _____ (1)

4.2.3 _____ (1)



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[6]

Total for section B: 18 marks

SECTION C

QUESTION 6

6.1 FIGURE 4 below shows cardboards being recycled



6.1.1 Explain what is recycling?

(1)

6.2 Read the scenario below and answer questions below.

Martha does not have a pencil case and she keeps losing her school stationery. She decides she needs to solve this problem. The pencil case she needs to make should have a replaceable lid to keep her stuff enclosed. The length of the pencil case must be 32 cm to accommodate the ruler. The box must be made of recyclable cardboard.

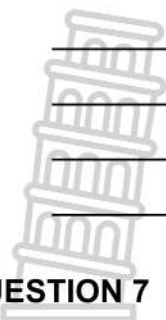
6.2.1 Identify the problem in the scenario.

(2)

6.2.2 Write a design brief to solve the problem.

(3)

6.2.3 Write any three specifications for the solution of the problem. (3)



QUESTION 7

7.1 Look at the labelled parts of the box below and answer the questions that follow:

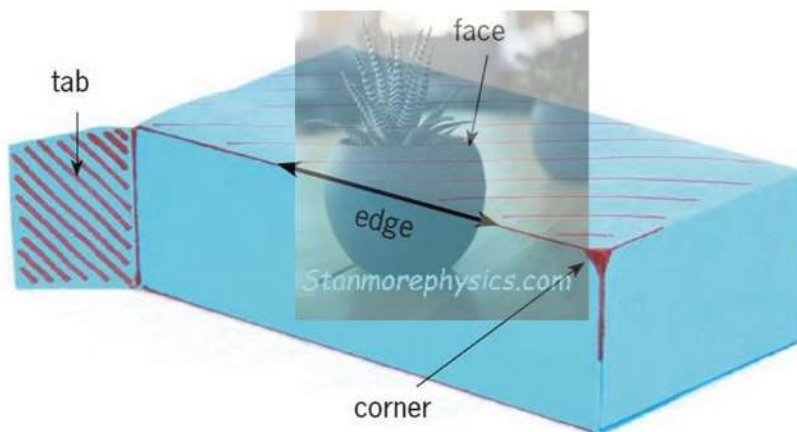


FIGURE 4 shows the different parts of a box

7.1.1 How many faces does the box have? (1)

7.1.2 How many edges does the box have? (1)

7.1.3 How many corners does the box have? (1)

[3]

TOTAL 12

END

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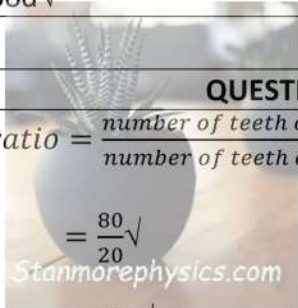
08 JUNE 2023

MARKS: 60

MEMORANDUM

Please turn over

Question	Answer	Marks																		
QUESTION 1																				
1.1	1.1.1 A✓	1																		
	1.1.2 B✓	1																		
	1.1.3 A✓	1																		
	1.1.4 A✓	1																		
	1.1.5 D✓	1																		
		5																		
1.2	1.2.1 True✓	1																		
	1.2.2 False✓	1																		
	1.2.3 True✓	1																		
	1.2.4 True✓	1																		
	1.2.5 False✓	1																		
		5																		
1.3	COLUMN B	1																		
	D✓	1																		
	C✓	1																		
	B✓	1																		
	A✓	1																		
		4																		
1.4	<table border="1"> <thead> <tr> <th>Line convention</th><th>Name of line / Type</th><th>Property</th></tr> </thead> <tbody> <tr> <td>Eg. _____</td><td>Construction line</td><td>Very thin and continuous</td></tr> <tr> <td>_____</td><td>Outline</td><td>Thick And Continuous</td></tr> <tr> <td>-----</td><td>Dotted Line</td><td>Thin And Interrupted</td></tr> <tr> <td>↔</td><td>Limit/Dimension Line</td><td>Thin And Continuous</td></tr> <tr> <td>- . - . - .</td><td>Centre Line</td><td>Dashed and dot line</td></tr> </tbody> </table>	Line convention	Name of line / Type	Property	Eg. _____	Construction line	Very thin and continuous	_____	Outline	Thick And Continuous	-----	Dotted Line	Thin And Interrupted	↔	Limit/Dimension Line	Thin And Continuous	- . - . - .	Centre Line	Dashed and dot line	
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- . - . - .	Centre Line	Dashed and dot line																		
		8																		
QUESTION 2																				
2.1	2.1.1 A-Rafter✓ B-K post✓ C-Queen post✓ D-Strut✓ E-Tie beam✓	1 1 1 1 1																		
	2.1.2 Pitched roof✓	1																		
	2.1.3 The roof will bend or break✓✓	2																		
	2.1.4 a) Fracture✓ b) Bend✓	1 1																		

		c) Topple over✓	1
			11
QUESTION 3			
3.1	3.1.1	It IS soggy and falls apart✓✓	2
	3.1.2	It gets wet but nothing happens to it✓✓	2
3.2	a)	Pollute the environment✓✓	2
	b)	Release toxic chemical in the environment✓✓	2
3.3	Materials which can be broken down by micro-organisms and absorbed by the earth ✓ Examples: a) Paper✓ b) Wood✓		2
			10
QUESTION 4			
4.1	4.1.1	$\text{gear ratio} = \frac{\text{number of teeth of driven gear}}{\text{number of teeth of driver gear}} \checkmark$  $= \frac{80}{20} \checkmark$ $= 4:1 \checkmark$	3
	4.1.2	Gear down✓	2
4.2	4.2.1	Clocks ✓	1
	4.2.2	Egg beaters✓	1
	4.2.3		1
			8
QUESTION 5			
6.1	6.1.1	To re-manufacture waste materials into new products✓	1
6.2	6.2.1	Martha does not have a pencil case	1
	6.2.2	I am going to design and make a pencil case using biodegradable material✓✓	2
	6.2.3	Have a replaceable lead✓ Biodegradable material✓ Length of 32 cm✓	2
		Any two	
			6
QUESTION 6			
7.1	7.1.1	The box has six faces✓	
	7.1.2	The box has twelve edges✓	
	7.1.3	The ox has seven corners✓	
			3

GRAND TOTAL: 60 MARKS

Please turn over