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2024 MID YEAR EXAM GRADE 8



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

**SEKHUKHUNE EAST EDUCATION DISTRICT(SEED)
-DISTRICT ON THE RISE**

GENERAL EDUCATION AND TRAINING

GRADE 8

TECHNOLOGY
MID YEAR EXAMINATION
31 MAY 2024

MARKS: 80

DURATION: 1H30 MINUTES

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 labelled.
6. Coloured pencils may be used only for shading where such is required.

This question paper consists of 12 pages including cover page.

SECTION A (40 MARKS)**QUESTION 1**

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

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

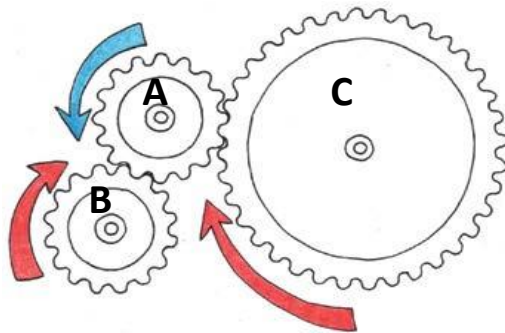
- A. Inside
- B. Outside
- C. Both inside and outside
- D. Neither inside or outside

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... (1)

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

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- 1.1.5 To **decrease** the speed in a gear system, the driver gear should be... (1)
- A. Same size as the driven gear
 - B. Smaller than the driven gear
 - C. Bigger than the driven gear
 - D. Faster than the driven gear
- 1.1.6 Bio-degradable materials are... (1)
- A. Environmentally friendly as they easily decompose
 - B. Cannot decompose
 - C. None of the above
 - D. All of the above
- 1.1.7 In graphic communications, outer lines are always... (1)
- A Feint, thick and continuous
 - B Thick, dark and continuous
 - C Thick, dark and broken
 - D Feint and dashed
- 1.1.8 Isometric drawing refers to... (1)
- A. a 2D view of an object
 - B. a 4D view of an object
 - C. a 1D view of an object
 - D. a 3D view of an object
- 1.1.9 The importance of recycling packaging material is to ... (1)
- A. Safe guard human health and environment
 - B. Increases air pollution
 - C. Make environment dirty
 - D. Increase unemployment
- 1.1.10 One of the negative impacts of plastics scattered in our environment is that.(1)
- A. They make the environment clean
 - B. They are expensive to buy
 - C. Some do decompose
 - D. If eaten by animals, they could die

[10]

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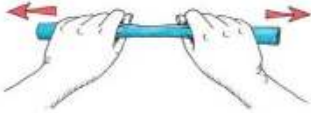
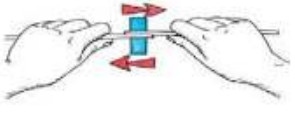
1.2 Which of the following statements are **true** or **false**? Just write true or false next to the statement.

- 1.2.1 Plastic bags generates less air pollution when produced _____ (1)
- 1.2.2 Mechanical system help us to do more work with less effort. _____ (1)
- 1.2.3 The 2-D drawing has 3 dimensions. _____ (1)
- 1.2.4 One of the disadvantages of modern technology is that it can cause fatal accidents or even death _____ (1)
- 1.2.5 Triangulation shapes makes a frame structure more rigid or stiff. _____ (1)
- 1.2.6 Beams do not reinforce structures. _____ (1)
- 1.2.7 To recycle is to re-manufacture waste materials into new products. _____ (1)

[7]

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

[4]

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

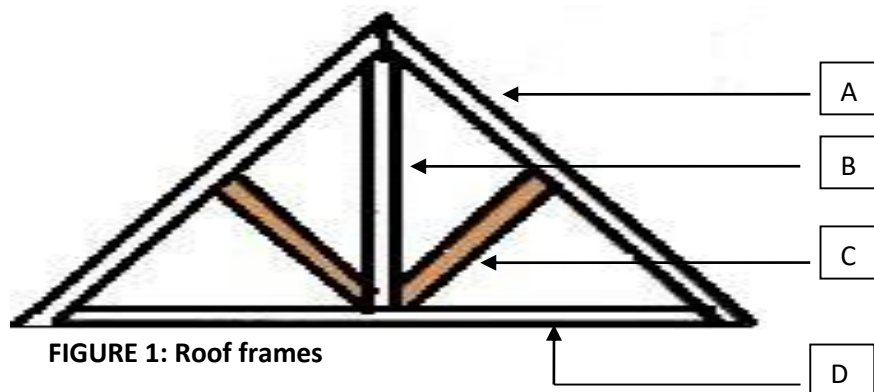
QUESTION 2

2.1.1 Define a pylon (2)

2.1.2 Why do electrical pylons have to be very tall? (2)

2.1.2 List THREE types of materials used to make electrical pylons. (3)

2.2 A certain company was allocated a tender to build RDP houses in your area. One of the specifications of the tender was that the structure of the roof frame should be made very strong as tiles would be used. A total of 30 houses were to be built. In a mission to save costs, the contractor came up with a roof structure that is shown in **FIGURE 1** below. You are now tasked to do inspection and provide the contractor with a plan to improve his roof structures for such to meet the expected standard.



2.2.1 What are the names of members labeled:- (4)

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- A _____
- B _____
- C _____
- D _____

2.2.2 What is likely to happen to the structural member labeled A if the tiles laced on top of it becomes too heavy and overcome the strength of such a member? (2)

2.2.3 To solve the problem in 2.2.2 above, Queen post could be mounted parallel to the structural member labeled B. **Draw** such queen posts on Figure 1 above. (2)



2.2.4 The other method to solve the problem in 2.2.2 would be to change the tiles as they are usually very heavy and expensive. Which material would you use to replace the roof tiles? (1)

2.2.5 Which structural failure is likely to happen to this structure due to lack of:- (3)

a) Strength _____

b) Stiffness (Rigidity) _____

c) Stability _____

TOTAL SECTION A: 40 MARKS**SECTION B (24 MARKS)****Question 3**

3.1 Design and make a colorful package to contain shoes.

Your school has adopted an orphanage home in Burgersfort area, and they have decided to donate school shoes. Toughees has donated some shoes to the school, but the shoe boxes have torn during delivery. You are requested to design and make for them a colorful shoe box to contain the donated shoes.

It should:

- Be made from a found cardboard box e.g., cornflakes box.
- Be of a suitable size and shape for the shoes.
- Be decorated.
- Have a gift tag.

3.1.1 Identify the problem from the above scenario: (2)

3.1.2 Write the design brief. (3)

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3.1.3 Write TWO (2) design specifications. (2)

3.1.4 Write TWO (2) design constraints. (2)

QUESTION 4

4.1 A gear system has a driver gear with 15 teeth and transfers a force to a larger driven gear with 30 teeth.

4.1.1 Calculate the mechanical advantage of the system. ($MA = \frac{\text{Driven}}{\text{driver}}$) (5)

4.2 When Gear A rotates 20 times it causes Gear B to rotate 10 times. Gear A has 40 teeth

4.2.1 How many teeth does Gear B have? (2)

4.2.2 State which is the driver Gear (2)

4.2.3 State which is the driven Gear (2)

QUESTION 5

Figure 4 below shows a grand piano basic structure drawn in isometric view. Use it to answer the questions that follow.

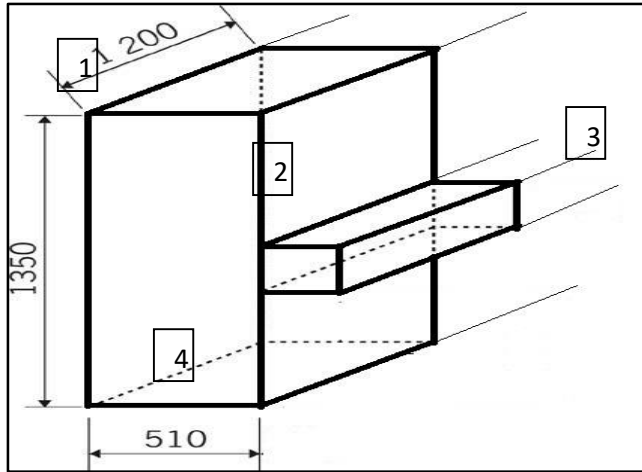


FIGURE 2: Basic structure of a Grand Piano

5.1 What are the names of the line types labeled 1 – 4 (4)

1. _____
2. _____
3. _____
4. _____

SECTION C (16 MARKS)**QUESTION 6****6.1 Reducing the negative impact of plastic bags.**

Until 2003, South African shops gave customers free plastic bags to carry their shopping. These bags were very thin and broke easily. This meant that the bags were thrown away after they were used. Our government wanted to reduce plastic waste. In 2003, it banned supermarkets from giving customers shopping bags for free and banned the use of very thin plastic shopping bags. These bags are illegal. Since then, supermarkets ask customers to pay for thicker, stronger shopping bags that can be used repeatedly. The bags still look very thin, but they are less thin than the shopping bags used before 2003. Customers can choose not to buy new bags, and rather take old shopping bags with them to the shops. The new, thicker plastic shopping bags are easier to recycle by recycling factories. But this only helps if people separate their waste so that the plastic bags can be sent to a recycling factory.

6.1.1 When did they stop giving away free plastic bags? (1)

6.1.2 Do you think that making people pay for thicker, reusable shopping bags helps to reduce the amount of plastic shopping bags that people throw away? Explain your answer. (2)

6.1.3 What percentage of people do you think separate their plastic waste from the waste made of other materials? Explain your answer. (2)

6.1.4 Are there other things people can do so that less plastics are thrown away? Give two examples. (2)

QUESTION 7

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

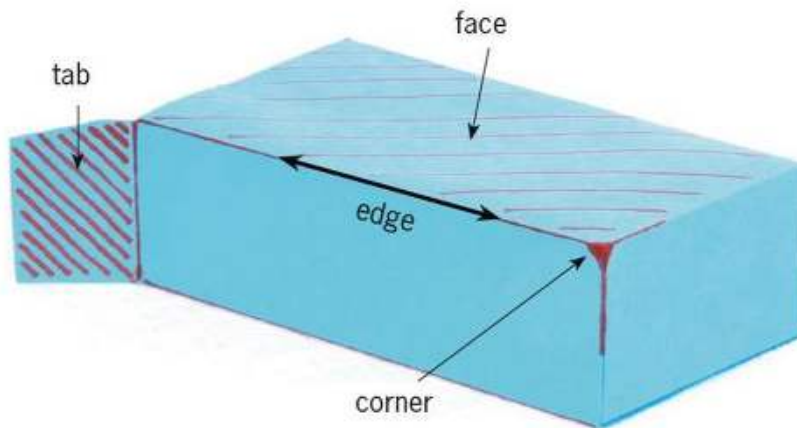


FIGURE 3 shows the different parts of a box

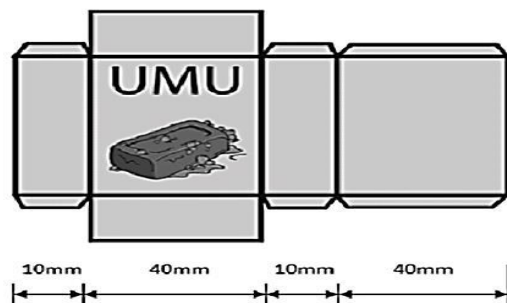
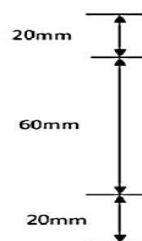
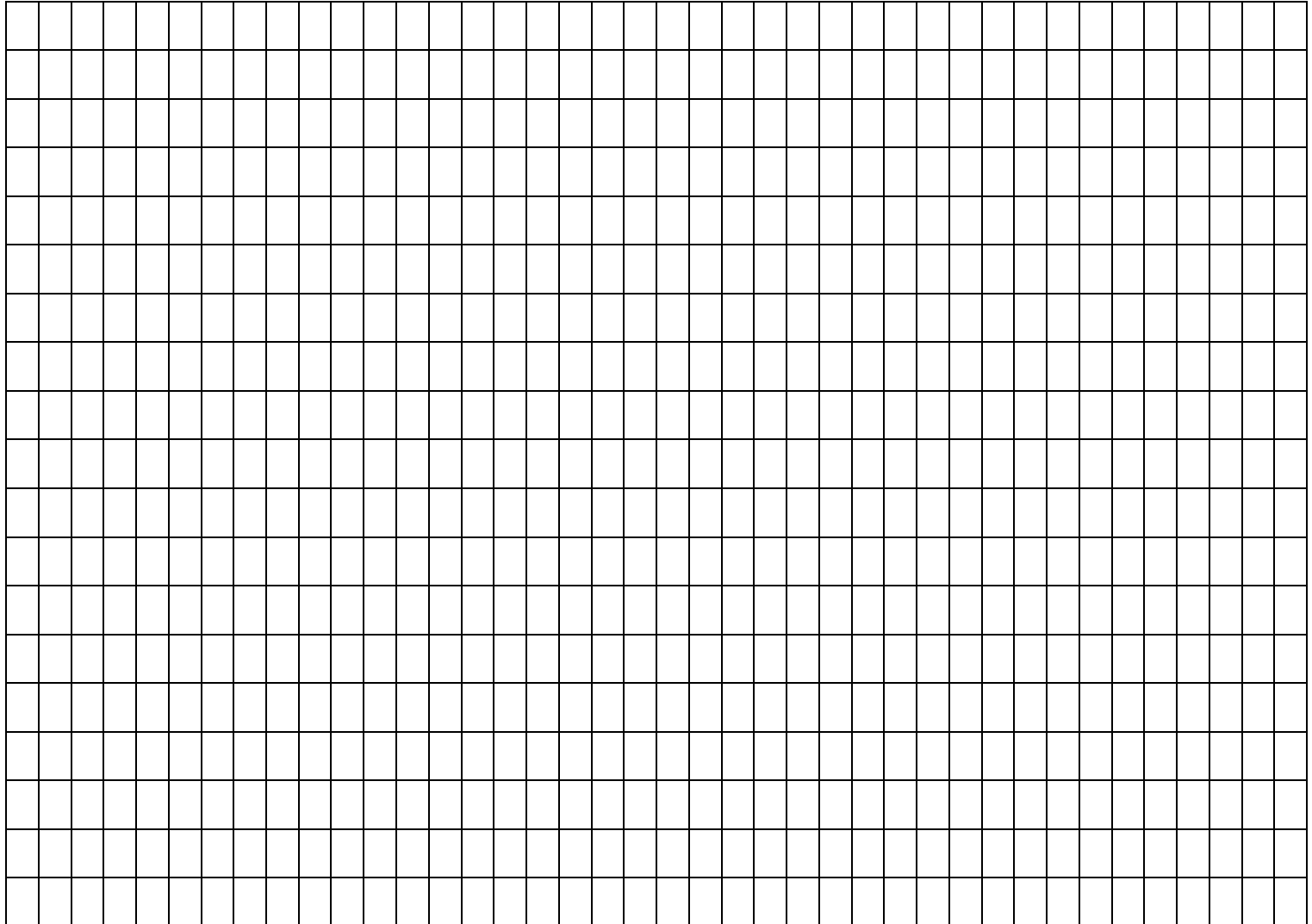
7.1.1 How many faces does the box have? (1)

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

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

QUESTION 8

8.1 Look at the development of the box and use given measurements to re-draw it on the grids provided. 1 block = 5mm. (6)



GRAND TOTAL 80 MARKS

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