

Hillcrest High School

Grade 8

TECHNOLOGY

JUNE 2023

MARKS: 100

EXAMINER: Mrs N. Magubane

TIME: 1 Hour

MODERATOR: Mrs T. Tonkin

NAME: _____ **GRADE 8** _____

SUBJECT EDUCATOR: BEGA/STOLS/D'ALMAINE /MAGUBANE/PEARL

INSTRUCTIONS

1. The question paper consists of 4 questions and 6 pages including the cover page.
2. Answer all questions in the spaces provided.
3. Write your name and grade clearly and neatly in the space provided.
4. Highlight your Technology teacher's name above.
5. Technological based answers must be written.
6. All drawings/sketches must be completed using a sharp pencil and drawing instruments unless otherwise instructed.
7. Marks will be deducted for untidy work especially drawings/sketches.

Q1	Q2	Q3	Q4	TOTAL
20	20	30	30	100

QUESTION 1 **Short questions**

[20]

- 1.1. Read the question and circle your chosen answer: (10)
- 1.1.1. One method of categorizing structures is....
- A Natural and Synthetic
 - B Normal and abnormal
 - C Regular and Irregular **D**
 - D Natural or Manmade
- 1.1.2. The three types of structures are...
- A Frame, Shell, Mass
 - B Cage, Shell and solid
 - C Solid, Liquid and Gas **D**
 - D None of the above
- 1.1.3 A strongest shape used to make a structure is called
- A Rectangle
 - B Triangle **B**
 - C Circle
 - D Hexagon
- 1.1.4. A structural member that is mounted vertically is called...
- A Beam
 - B Column **B**
 - C Strut
 - D Pile
- 1.1.5. A bridge that is supported on one end only is known as a / an....
- A Arch bridge
 - B Suspension Bridge **D**
 - C Clapper Bridge
 - D Cantilever Bridge
- 1.1.6. When a bridge collapses when it should not have, it is called
- A Poor design
 - B Structural weakness **C**
 - C Structural failure
 - D Failure of design
- 1.1.7. A pylon is...
- A A vertical structure
 - B A type of strut that supports over a distance **C**
 - C Supports heavy objects over a distance
 - D Supported at one end
- 1.1.8. _____ and symbols are another form of communication.
- A Signs **A**
 - B Graphics
 - C Trademarks
 - D Pictures

1.1.9. The function of the structure is to...

- A Spanning a gap
- B Supporting the load
- C Enclosing people and animals
- D All of the above

D

1.1.10. _____ is the influence an object has on its immediate surroundings.

- A Visual impact
- B Redundant
- C Visual impairment
- D Impact of Technology

A

1.2. Match the terms in Column A with the description in Column B. (5)

Term		Definition		Answers	
1.2.1.	2D	A	Investigating	1.2.1.	D
1.2.2.	Provide stability to the roof truss	B	Scaling up	1.2.2.	C
1.2.3.	3D	C	King Post	1.2.3.	E
1.2.4.	Finding information about a given topic	D	Orthographic	1.2.4.	A
1.2.5.	Drawing objects bigger than the original object	E	Isometric	1.2.5.	B

1.3. Using the words from the box below, choose ONE for each of the terms defined. (5)

Rafters, Tie, Queen post truss, Strut, Tie beam

- 1.3.1. It holds or pulls members framework together
- 1.3.2. It has one beam with parallel beams
- 1.3.3. It has horizontal beams that rest on two opposite columns
- 1.3.4. It holds members of a framework in place by pushing against them
- 1.3.5. It has two supporting beams that are attached to a tie beam

tie

rafters

tie beam

strut

queen post truss

QUESTION 2

[20]

2.1. Read this definition and answer the questions that follow: (5)

Technology is the use of knowledge, skills, and resources to meet human needs and recognized and solve problems by a., b., c., d and e. a product, also taking into consideration social and environmental factors into consideration.

From the definition above, list the design process. Write the steps in the correct order.

- a) **Investigate**
- b) **Design**
- c) **Make**
- d) **Evaluate**
- e) **Communicate**

2.2. List three advantages and three disadvantages of technology. (6)

Advantages: **(any reasonable answer)**

Easy access to information, better communication, Better Housing,

Change to health industry, Entertainment, efficiency to production,

Convenience to education, efficiency and productivity...

Disadvantages: (any relevant example)

Weapons of destruction, Increased loneliness, job loss, competency...

- 2.3. “Technology has changed every aspect of life, making it easier, better and different. Technology has changed living. The standard of living has increased. Our needs are met with greater ease. Technology has brought advancement and boosted every industry.” (4)

Explain how technology has changed using four points.

Needs are met with ease, Standards of living changed, needs met with greater Ease, advancement in technology that boosts every industry.

- 2.4. Complete the systems diagram for a Food Processor: (5)

Input	Process	Output
Electricity ✓ Food pieces ✓	Electrical energy is converted into kinetic energy, spinning the blades, chopping/ cutting food ✓✓	Chopped/ Pureed or mixed food. – Milkshake, etc...✓

QUESTION 3

[30]

- 3.1. Complete the table below by ticking in the relevant spaces. (5)

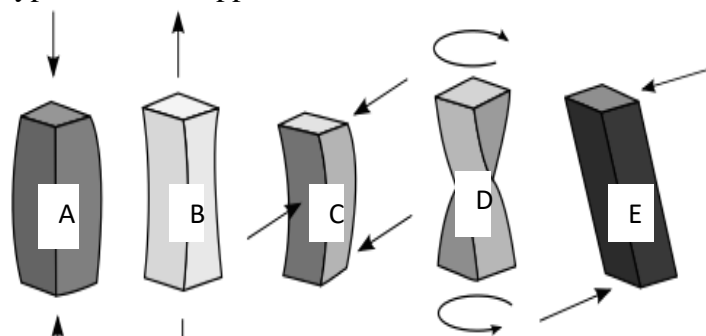
	Frame	Solid	Shell	Man-made	Natural
E.g. Spider web	✓				✓
A rock		✓			✓
Bicycle	✓			✓	
Ostrich egg			✓		✓
Roof truss	✓			✓	
Birds nest			✓		✓

- 3.2. Some structures can occur naturally, and some are man-made. Explain the difference between natural and man-made structures. (2)

Natural: **occurs naturally through soil erosion, animals/**

Man-made: **not naturally occur but made and designed by humans**

- 3.3. Identify the types of forces applied on structures and describe each of them. (10)



A Compression: A force that pushes against a member, causing it to become squeezed, squashed or compacted.

B Tension: A force that pulls members apart

C Bending: a force applied in the middle of the structure causing it to bend

D Torsion: A force that twist members apart

E Shearing: A force that slides one part of the structure past another part in opposite directions

3.4. Define the following terms: (4)

Cross-bracing: when a structure is stiffened by members crossing one another, the members form a base which strengthened the structure.

Triangulation: when triangular shapes are formed by members that are used to brace a structure, and to make it more stable and rigid

3.5. Identify the two types of bridges below and explain the difference between them. (4)



Suspension Bridge



Cable stayed

Explain:

Cable stayed: cables are connected directly to the nearest tower

Suspension Bridge: cables connected directly to a pair of suspended cables

3.6. Read the short extract and answer questions that follow:

“Structural failure refers to the loss of structural integrity, or the loss of load-carrying capacity in either a structural component or the structure itself.”

3.6.1. Name three ways in which structure can fail. (3)

Fracture

Bending

Toppling over

3.6.2. Explain how top-heavy toppling over happens on structures. (2)

This happens when heavy objects are placed on top of narrow base or objects causing structure failure.

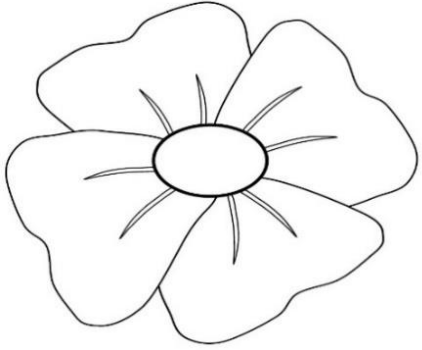
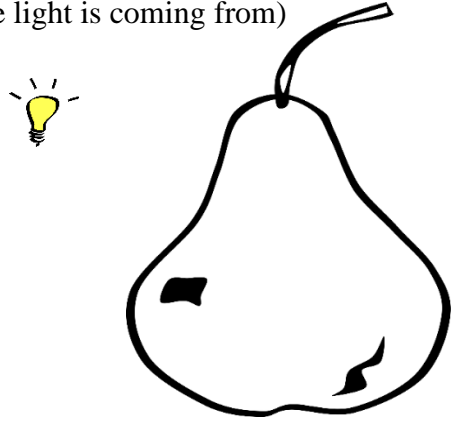
QUESTION 4

[30]

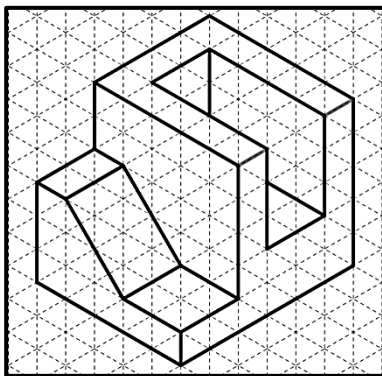
4.1. Draw the following types of lines: (5)

Name of line	Draw the line
Hidden detail	-----
Construction	_____
Outline	—————
Centre line	—————
Dimension line	←————→

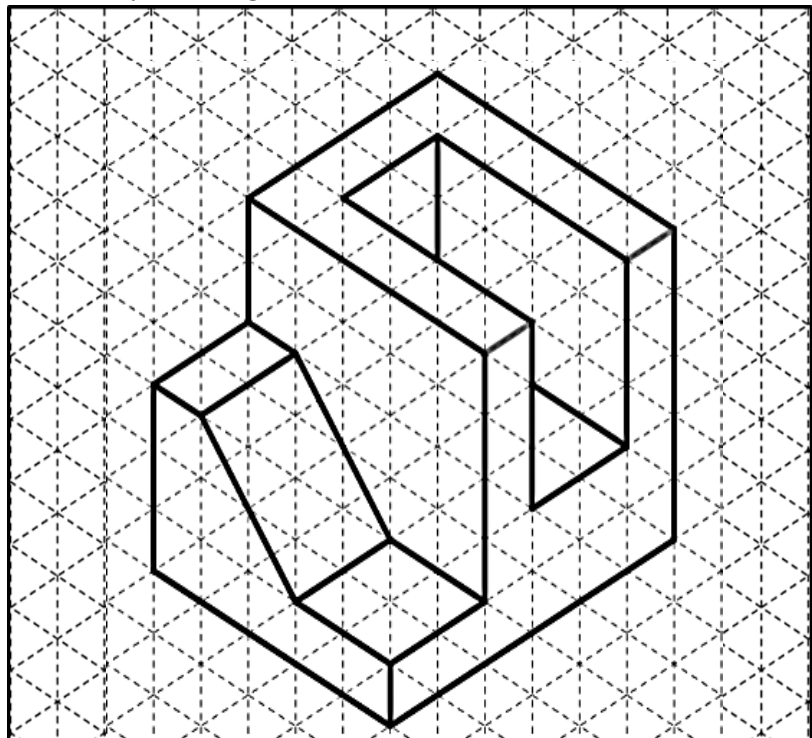
4.2. Use colouring and shading to enhance the drawings below, make them more realistic. (6)

<p>Colour the flower:</p> 	<p>Shade the pear: (The light bulb indicates where the light is coming from)</p> 
---	---

4.3. The given figure shows an isometric view of a simple object. Copy the object onto the isometric grid. Show the different views by colouring in each view in a different colour. (14)



RUBRIC		
Lines	10	
Colour	3	
Neatness	1	
TOTAL	14	



4.4. Complete the picture of the snowman using the grid lines as a guide. (5)

