

Time : 1 Hour

Total : 100

Name _____

Grade 8 _____

Instructions

- Answer all questions in the spaces provided.
- Write neatly and legibly.
- All drawings must be done in pencil.
- Take time to read the questions carefully before answering.

Question 1

1.1. A house is classified as a.....structure.

- A. Solid
- B. Frame
- C. Shell
- D. Natural

_____ (2)

1.2. are used to show hidden details.

- A. Centre lines
- B. Construction lines
- C. Outline
- D. Dashed lines

_____ (2)

1.3. The purpose of dimensioning in graphic communication is to make sure that the drawing.....

- A. Is neat
- B. Is accurate
- C. Informs the reader of its size
- D. Is complete

_____ (2)

1.4. Grooved wheels attached to each other by a rope or cable are known as.....

- A. Cams
- B. Pulleys
- C. Gears
- D. Levers

_____ (2)

1.5. A wheel with teeth is known as a.....

- A. Cam
- B. Lever
- C. Gear
- D. Pulley

_____ (2)

1.6. A bridge supported at one end only is known as a/an.....

- A. Arch bridge
- B. Suspension bridge
- C. Clapper bridge
- D. Cantilever bridge

_____ (2)

1.7. A gear placed between the driver and the driven gear is known as.....

- A. Gear train
- B. Idler gear
- C. Driver gear
- D. Cog

_____ (2)

1.8. Which of the following is NOT an out put device?

- A. Light bulb
- B. Speaker
- C. Simple resistor
- D. Electric motor

_____ (2)

1.9. A force that causes a member to stretch is.....

- A. Tension
- B. Bending
- C. Twisting
- D. Shearing

_____ (2)

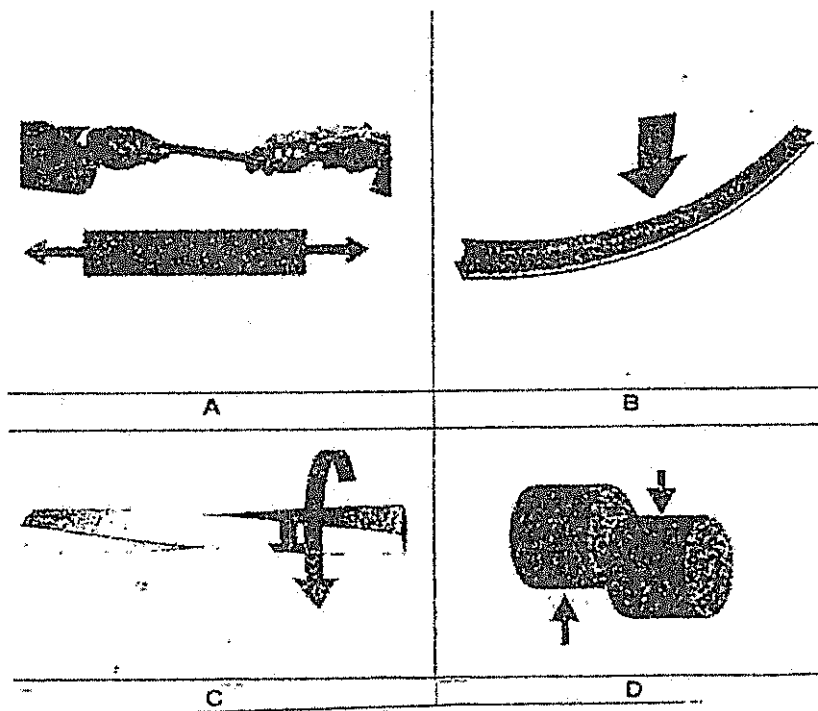
1.10. The following are all positive impact of Technology on Education EXCEPT.....

- A. Data projectors
- B. Smart boards
- C. Fax
- D. The use of computers

_____ (2)

Question 2

2.1. State whether the forces indicated in the following illustrations (A-D) are :
Tension , Shearing , Bending , or Torsion.

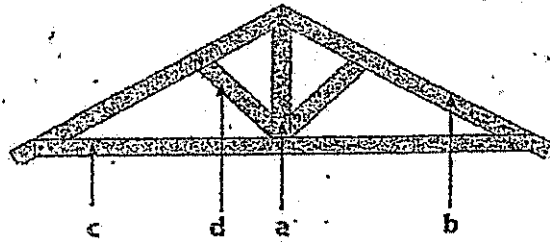


A _____ B _____

C _____ D _____

(4)

2.2. Label the structural members of the below truss.



2.2.1 _____ 2.2.2 _____

2.2.3 _____ 2.2.4 _____

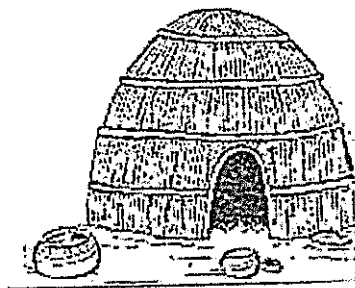
(4)

2.3. Read the following paragraph and answer the questions that follow.

The amaNgwane people who live in the foothills of the Drakensberg Mountains, designed and built a very successful, but simple dwelling. This was in response to the need to build housing, using local materials. Flexible poles were set in a circle and then bent over and fastened towards the centre. These formed the upright framework. Other thin poles were woven in-between to complete and strengthen the frame.

This was an ideal shape, as a domed shape is very strong with compressive forces being distributed over the whole frame. In this way they could withstand the strong winds that blow in this area. By using natural materials they were very environmentally friendly.

The frame was then covered with bundles of grass. This provided a good insulating layer so the dwellings were warm in winter and cool in summer.



2.3.1. What type of structure is described?

(1)

2.3.1. Give two materials that was used by the amaNgwane people for building these dwellings.

(2)

2.2.3. What was the advantage of using natural materials?

_____ (2)

 2.3.4. How was the structure strengthened against the forces that could act upon it?

_____ (2)

2.3.5. Give the main purpose of using grass to cover the framework.
 _____ (2)

Question 3.

3.1. Match the correct explanation in column 2 with the term in column 1.
 Write the number and the letter of the correct answer only.

Column 1	Column 2
(1) Fulcrum	A. The desired input that starts the movement in a lever
(2) Load	B. The load is placed between the fulcrum and the effort
(3) Third- class lever	C. The support around which a lever moves
(4) Second-class lever	D. The desired output of a lever that is moved
(5) Effort	E. The fulcrum is between the load and the effort
	F. The effort is between the fulcrum and the load

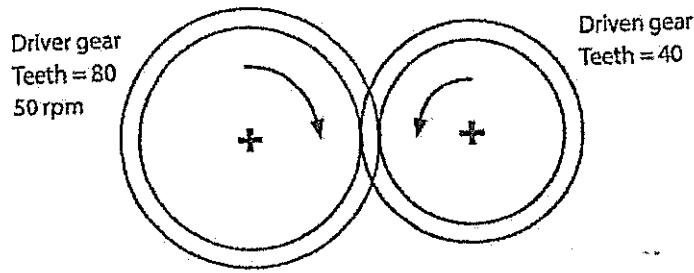
(1) _____ (2) _____ (3) _____
 (4) _____ (5) _____ (5)

3.2. Gear ratio = $\frac{\text{Number of teeth on the driven gear}}{\text{Number of teeth on the driver gear}}$

3.2.1. Calculate the gear ratio if the number of teeth on the driven gear is 11 and the number of teeth on the driver gear is 55.

 _____ (3)

3.3. Look at the gear train below and answer the questions. Show all your working.



3.3.1. Determine how many times the driven gear will rotate for every fully rotation of the driver gear.

(4)

3.3.2. Calculate the output speed of the driven gear if the input speed is 50 rpm (revolutions per minute)

(3)

3.4.1. Identify the class of lever illustrated below.

(2)

3.4.2. State whether it gives you a mechanical advantage or mechanical disadvantage.

(2)

3.4.3. On the diagram, mark in the position of the fulcrum (pivot point), the load, and the effort using letters F, L, and E

(3)



Question 4.

4. Explain the following terms :

4.1. Output device : _____ (2)

4.2. Control device : _____ (2)

4.3. Process device : _____ (1)

4.4. Give an advantage of a parallel circuit.

_____ (2)

Question 5.

5.1. State any four categories of the impact of Technology on human beings.

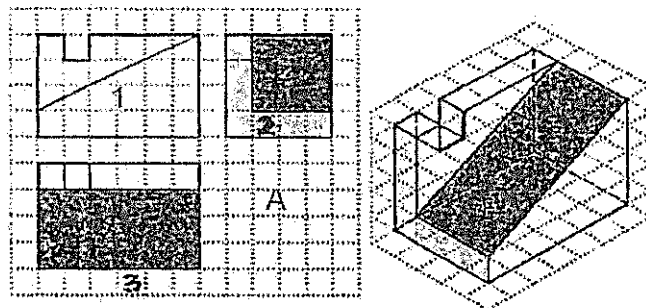
_____ (4)

5.2. Choose one category from the above and give three advantages of that category.

_____ (3)

Question 6.

6. Study the 2-D drawing of the shape below and answer the questions that follow : The 3-D drawing on the right is provided to assist you with extra visual conception of the shaped block.



6.1. Label the views marked 1, 2, and 3. Write down the number and then the view next to it.

(3)

6.2. State where you would use the following lines. Choose your answer from the following list.
Construction lines, Outlines, hidden detail lines

6.2.1. Dark lines _____

6.2.2. Dashes lines _____

6.2.3. Feint (light) lines _____

(3)

6.3. Using the back of this page draw the front view only of each of the irregular shapes. Each block on the grid represent 1cm.

(21)

