**TERM 2 - 2023**

**DRAWING AND DESIGN**

**PAPER 1**

**FORM FOUR (4)**

**Time: 2½ Hours**

**Name: …………………………………………………………. Adm No: ……………….**

**School: ……………………………………………………….. Class: …………………..**

**Signature: …………………………………………………….. Date: …………………...**

**Instructions to Candidates**

(a) You should have the following materials:

 Drawing instruments.

 3 sheets of drawing paper size A3;

(b) This paper consists of three sections; **A, B** and **C**.

(c) Answer all the questions in sections **A** and **B** and any **two** questions from section **C**.

(d) Questions in Section **A** must be answered in the spaces provided.

(e) Questions in Section **B** and **C** should be answered on the A3 sheets of drawing paper provided.

(f) All dimensions are in millimeters unless otherwise stated.

(g) **Candidates may be penalized for not following the instructions given in this paper.**

(h) **This paper consists of 8 printed pages.**

(i) **Candidates should check the question paper to ascertain that all the pages are printed as**

 **Indicated and that no questions are missing.**

**(j) Candidates should answer the questions in English.**

**FOR EXAMINERS USE ONLY**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **TOTAL** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**SECTION A** (50 marks)

***Answer all the questions in this section on the answer sheet provided***

1.(a) State two disadvantages of using tape to hold drawing paper on the drawing board. (2marks)

* Tears the paper
* Di

 (b) Name **two** methods of sharpening pencils leads and state where each is applied in

 Technical drawing. (2 marks)

* Chisel shape used for drawing construction lines
* Conical shape used for drawing visible outline

2. Sketch the conventional symbol for each of the following as used in drawing: (3 marks)

 (a) Planned timber.

 (b) Third angle projection.

 (c) Earth wire

3. (a) State **two** advantages of plywood over solid timber. (2 marks)

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 (b) Define each of the following properties of materials. (3 marks)

(i) Plasticity.

(ii) Elasticity.

4. **Figure 1** shows a simple shaped block drawn full size (Scale 1:1) in isometric projection.

 Copy figure and dimension it fully. (4marks)

 

5. (a) State two reasons why care must be taken when storing drawing instructions. (1 mark)

 (b) Name four components of a computer and state the use of each. (4 marks)

6. **Figure 2** shows a truncated cone whose base is 50mm and a perpendicular height of 60mm.

 Copy the figure and draw the following: (5 marks)

 (a) Complete plan.

 (b) True shape of the truncated section.



7. Construct an involute of a square whose side are 35 mm. (6marks)

8. **Figure 3** shows a diagonal scale.

 (a) Determine the accuracy of the scale. (1 mark)

 (b) Outline the steps to follow in order to obtain reading “p”. (4 marks)



9. **Figure 4** shows a shape block drawn in isometric projection.

 Sketch in good proportion the following views in first angle projection: (6 marks)

 (a) Front elevation in the direction of Arrow A.

 (b) End elevation in the direction of Arrow B.

 (c) Plan



10. **Figure 5** shows two views of a solid block drawn in first angle projection.

 In good proportion draw the block in Isometric projection with A as the front face (7 marks)



**SECTION B** (20 marks)

This question is **compulsory:**

*It should be answered on the A3 paper provided.*

*Candidates are advised* ***not to spend more than one hour*** *on this question*

11. **Figure 6** shows parts of a towing device drawn in first angle projection. Assemble the parts and draw full size the following views in third angle projection:

 (a) Sectional front elevation along the cutting plane P-P

 (b) Sectional Plan along the cutting plane K-K



**SECTION C** (30 marks)

*Answer any* ***two*** *questions from this section on the A3 paper provided*

12. The **Figure 7** shows a block drawn in isometric projection. Draw FULL SIZE in first angle projection the three orthographic views of the block. (15 marks)



13. The **Figure 8** shows a branch pipe A connected to a conical shaped base of a chimney B. Draw the curves of intersection between the pipe and the conical base in: (15mks)

1. Front elevation
2. plan



14. The **Figure** 9 shows an inclined plan of a block and its front elevation. Copy the given layout and draw a two-point perspective of the block showing the construction details. (15mks)

