SMARTWIZ

GRADE11 Engineering Graphic Designing (EGD) EXAM

MARKS: 100

MARKS	

TIME: 2 HOURS

SCHOOL _____

CLASS (eg. 4A) _____

SURNAME _____

NAME _____

Instructions for Learners:

- Read all instructions carefully before you begin the exam.
- Write your full name and student number clearly on the answer sheet/book.
- Answer all questions unless otherwise instructed.
- Show all your work/calculations where necessary.
- Write neatly and clearly.
- Use only a blue or black pen. Do not use correction fluid or tape.
- Electronic devices (calculators, cell phones, etc.) are not allowed unless explicitly permitted.
- Raise your hand if you have any questions.
- Do not talk to other learners during the exam.
- Any form of dishonesty will result in immediate disqualification from the exam.

This exam consists of five pages, including the cover page.

Section A: Multiple Choice Questions (20 marks)

Circle the correct answer.

1. What type of line is used to represent hidden edges in an engineering drawing?
   a) Continuous thick line
   b) Dashed line
   c) Chain line
   d) Dotted line
2. Which software is commonly used for Computer-Aided Design (CAD)?
   a) Microsoft Word
   b) AutoCAD
   c) Adobe Photoshop
   d) Excel
3. In an isometric drawing, the angles between the axes are:
   a) 90°
   b) 60°
   c) 120°
   d) 45°
4. Which tool is best suited for drawing circles manually?
   a) T-square
   b) Compass
   c) Protractor
   d) Set square
5. What does the term ‘scale 1:2’ mean?
   a) The drawing is twice the size of the object
   b) The drawing is half the size of the object
   c) The drawing and object are the same size
   d) The drawing is four times the size of the object

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Section B: Matching (15 marks)

Match the items in Column A with their correct descriptions in Column B. Write the letter of the correct description next to the number.

Column A	Column B
1. Orthographic projection	a) A 3D drawing with equal angles
2. Scale	b) The ratio between drawing size & actual size
3. Sectional view	c) Shows internal details by ‘cutting’ the object
4. Center line	d) A 2D representation showing multiple views
5. Isometric drawing	e) Line used to show symmetry or center

Section C: Short Answer Questions (35 marks)

1. Define the term **technical drawing** and explain its importance in engineering. (6 marks)

2. List and explain **three types of dimensioning** used in engineering drawings. (9 marks)
3.
4.
5.
6. Explain the purpose of **hatching** in sectional views. (5 marks)

4. Describe the difference between **first angle** and **third angle** projection methods. (7 marks)

5. What safety precautions should be followed when using manual drafting tools? (8 marks)

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Section D: Drawing (30 marks)

1. Draw a neat **orthographic projection** of a rectangular block with dimensions:
   Length = 80 mm, Width = 40 mm, Height = 30 mm.
   Label the views clearly (front, top, side). (20 marks)

(Use the back of the paper if necessary)

2. Draw an **isometric view** of the same block above, showing all dimensions clearly. (10 marks)

End of Examination

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MEMO

Section A: Multiple Choice Questions (20 marks)

1. **b) Dashed line**
2. **b) AutoCAD**
3. **c) 120°**
4. **b) Compass**
5. **b) The drawing is half the size of the object**

Section B: Matching (15 marks)

No.	Correct Letter	Explanation
1	d	Orthographic projection is a 2D drawing showing multiple views.
2	b	Scale is the ratio between drawing size and actual size.
3	c	Sectional view shows internal details by 'cutting' the object.
4	e	Center line shows symmetry or the center of circles or arcs.
5	a	Isometric drawing is a 3D drawing with equal angles (120°).

Section C: Short Answer Questions (35 marks)

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1. **Technical drawing definition and importance:** (6 marks)

- Technical drawing is the precise and standardized way of representing objects using lines, symbols, and dimensions.
- It is important because it clearly communicates design intent to engineers, manufacturers, and builders, ensuring accurate construction or fabrication.

2. **Three types of dimensioning:** (9 marks)

- **Linear dimensioning:** Shows straight-line distances between two points.
- **Angular dimensioning:** Specifies angles between lines or surfaces.
- **Radial dimensioning:** Used for arcs and circles, showing radius or diameter.

3. **Purpose of hatching in sectional views:** (5 marks)

- Hatching (or cross-hatching) indicates the cut surfaces in a sectional view.
- It helps distinguish the sectioned areas from the rest of the drawing, clarifying the internal structure.

4. **Difference between first angle and third angle projection:** (7 marks)

- **First angle projection:** The object is imagined to be placed in the first quadrant; views are arranged such that the top view is below the front view, and the right side view is on the left.
- **Third angle projection:** The object is placed in the third quadrant; views are arranged such that the top view is above the front view, and the right side view is on the right.

- The main difference is the relative positions of views.

5. **Safety precautions when using manual drafting tools:** (8 marks)

- Handle sharp tools (like compasses, cutters) carefully to avoid injury.
- Keep work area clean and organized to prevent accidents.
- Use protective equipment if necessary (e.g., safety glasses).
- Store tools properly after use.
- Avoid distractions while working to maintain focus.

Section D: Drawing (30 marks)

1. **Orthographic projection of rectangular block (20 marks):**

- Correctly drawn front, top, and side views.
- Dimensions labeled properly: Length = 80 mm, Width = 40 mm, Height = 30 mm.
- Views aligned correctly.
- Neatness and accuracy of lines.

2. **Isometric view of rectangular block (10 marks):**

- Correct isometric shape with three visible faces.
- Edges drawn at 30° angles from horizontal.
- Dimensions clearly labeled.
- Overall neatness and proportionality.

TOTAL : 100

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