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.

Question 1 (8 marks)

What is Engineering Graphic Design?

Question 2 (12 marks)

List four types of lines used in engineering drawings and explain the purpose of each.

Line Type	Purpose	Marks
1. _____	_____	3
2. _____	_____	3
3. _____	_____	3
4. _____	_____	3

Question 3 (10 marks)

Explain the difference between orthographic projection and isometric drawing.

Question 4 (6 marks)

Name three common tools used in manual technical drawing.

1. _____ (2 marks)
2. _____ (2 marks)
3. _____ (2 marks)

Question 5 (10 marks)

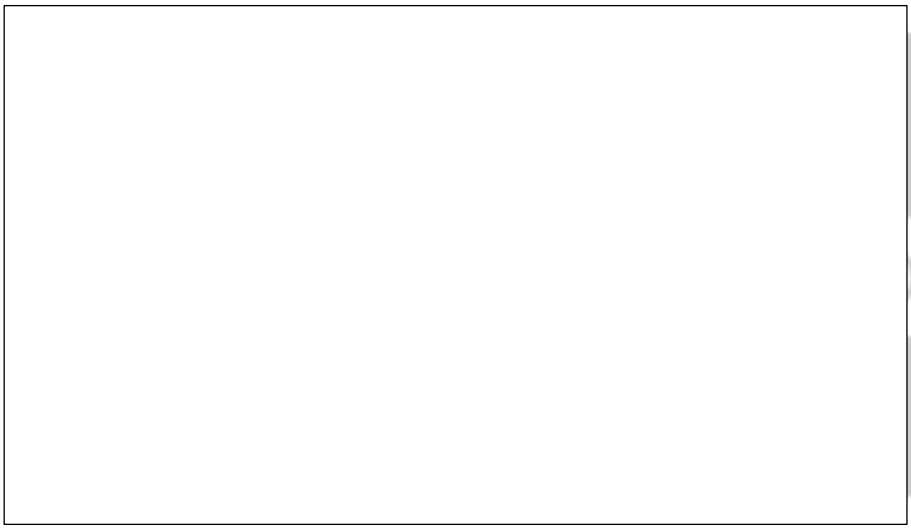
What are the advantages of using CAD (Computer-Aided Design) in engineering graphic design?

Question 6 (8 marks)

Define the term ‘scale’ in engineering drawings and explain why it is important.

Question 7 (12 marks)

Draw a simple isometric cube and label its dimensions.
(You may use the back of this page if necessary)



Question 8 (8 marks)

What is a sectional view in technical drawing, and why is it used?

Question 9 (8 marks)

Explain the importance of dimensioning in engineering drawings.

Question 10 (8 marks)

Describe how engineering graphic design contributes to the overall engineering process.

End of Examination

MEMO

Question 1 (8 marks)

What is Engineering Graphic Design?

- Engineering Graphic Design is the use of drawings and visual representations to communicate engineering ideas, designs, and specifications clearly.
- It includes creating technical drawings, plans, and 3D models to help engineers, manufacturers, and builders understand and produce components or structures.
  (Any accurate, clear definition—8 marks)

Question 2 (12 marks)

List four types of lines used in engineering drawings and explain the purpose of each.

Line Type	Purpose
1. **Continuous thick line**	Used for visible edges and outlines of objects. (3 marks)
2. **Dashed line**	Used for hidden edges or features not visible in that view. (3 marks)
3. **Chain (long dash - short dash) line**	Used for center lines or lines of symmetry. (3 marks)
4. **Continuous thin line**	Used for dimension lines, projection lines, or hatching. (3 marks)

Question 3 (10 marks)

Explain the difference between orthographic projection and isometric drawing.

- Orthographic projection shows different views of an object (front, top, side) in 2D, with each view aligned and scaled exactly.
- Isometric drawing shows a 3D representation of an object where the three axes are equally angled (120°) to give a pictorial view.
- Orthographic is used for precise measurements; isometric is used for visualizing the object in three dimensions.
  (Any accurate explanation covering these points — 10 marks)

Question 4 (6 marks)

Name three common tools used in manual technical drawing.

1. T-square (2 marks)
2. Compass (2 marks)
3. Protractor (2 marks)
   (Other valid tools include ruler, set squares, French curve)

Question 5 (10 marks)

Advantages of using CAD in engineering graphic design:

- Faster drawing and editing process
- High precision and accuracy
- Easy to create 3D models and simulations
- Easy to store, share, and reproduce drawings digitally
- Ability to easily correct mistakes and reuse designs
  (Any 4-5 advantages with brief explanations)

Question 6 (8 marks)

Define 'scale' and its importance:

- Scale is the ratio of the size of the drawing to the actual size of the object.
- It allows large objects to be represented on paper in a smaller, manageable size while keeping proportions accurate.
- Important for clear communication and accurate construction or manufacturing.

Question 7 (12 marks)

Draw a simple isometric cube and label dimensions:

- Correct isometric cube shape with three visible faces (top, front, side)
- Equal edges drawn at 30° from horizontal
- Dimensions clearly labeled on edges
  (Award marks for accuracy, neatness, and labeling)

Question 8 (8 marks)

What is a sectional view and why is it used?

- A sectional view is a drawing that shows an object as if it were cut through to reveal internal features.
- Used to show hidden details that cannot be clearly seen from the outside.
- Helps in understanding the internal construction and assembly.

Question 9 (8 marks)

Importance of dimensioning:

- Provides exact measurements needed to manufacture or construct the object.
- Removes ambiguity and ensures all parts fit together properly.
- Helps maintain quality and accuracy.
- Enables clear communication between engineers, manufacturers, and builders.

Question 10 (8 marks)

How engineering graphic design contributes to engineering:

- Facilitates clear communication of ideas and designs.
- Enables visualization and testing of concepts before production.
- Reduces errors and misunderstandings.
- Helps in documentation and standardization.
- Assists in planning, manufacturing, and construction phases.

TOTAL : 100