Term 1 - 2024
DRAWING AND DESIGN (449/1)
FORM ONE
Marking Scheme

1. (a)State any six general objectives of drawing and design as a subject. (6 marks)

a. **Communicate engineering concepts using technical drawing as a language**
b. **Interpret visualized ideas correctly so as to realize functional designs.**
c. **Demonstrate an ability to present ideas in 2D @ 3D**
d. **Undertake income generating activities relevant to the community in the field of drawing and design**
e. **Attain a firm foundation for further training and education**
f. **Observe safety in the disposal of waste materials**

(b) Name three instruments used in linear measurement (3 marks)

- ✓ **Ruler**
- ✓ **Tape measure**
- ✓ **Vernier calipers**
- ✓ **Tee-Square**

2. Indicate the sizes of the following drawing papers (6 marks)

Paper name	Size	
	LENGTH	WIDTH
A_5	**297**	**210**
A_4	**420**	**297**
A_3	**297**	**420**
A_2	**840**	**594**
A_1	**841**	**594**
A_0	**1189**	**841**

3. Differentiate between the following terms as used in engineering. (4 marks)

a. Technical drawing
b. Artistic drawing

Artistic drawings are subjectively interpreted;

Technical drawings are understood to have one intended meaning.

4. List four aims of technical drawing. (4mks)

i. **Speed**
ii. **Accuracy**
iii. **Neatness**
iv. **Technique**

5. state where each of the following types of lines are used (5mks)

Line	*Description*	*General Applications*
	Continuous thick	A1 Visible outlines
	Continuous thin (straight or curved)	Imaginary lines of intersection Dimension lines Projection lines Leader lines Hatching lines Outlines of revolved sections in place Short centre lines
	Continuous thin, free-hand	Limits of partial or interrupted views and sections, if the limit is not a chain thin
	Continuous thin (straight) with zigzags	Line (see Fig. 2.5)
— — — — — — —	Dashed thick	E1 Hidden outlines

1 Correct Use @ 1mark
Total 1x5 = 5 Marks

6. (a) Give one reason why the following are used in drawing. (4marks)

i. Symbols and abbreviations
To eliminate too many notes

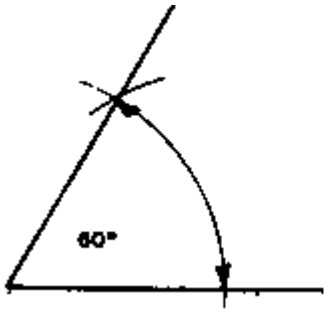
ii. Lettering
Provides brief but clear information which is not easily conveyed by the drawing

(b)State three factors that contribute to quality drawing. (3 marks)

i. cleanliness
ii. proper use of drawing instruments
iii. maintenance of the drawing instruments

7. Construct the following angles using a pair of compass , a pencil and a ruler only (10 marks)

i. 60^0



drawing of base line 1 mark
construction of 60^0 =] 1 mark

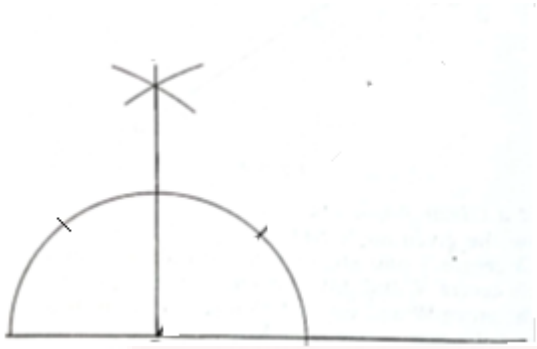
TOTAL 2 Marks

ii. 30^0

drawing of base line =1/2 mark
construction of 60^0 = 1/2 mark
drawing of arc W V ==1/2 mark
Angle Of 30^0 =1/2 mark

TOTAL 2 Marks

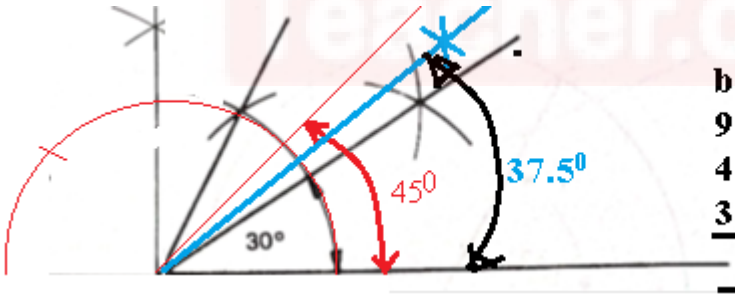
iii. 90^0



drawing of base line =1/2 mark
drawing of arc =1/2 mark
construction of 90^0 =1 mark

TOTAL 2 Marks

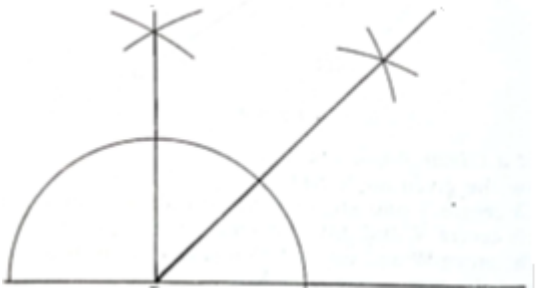
iv. 37.5^0



base line = 1/2 mark
90 deg angle=1/2 mark
45 deg angle 1/2 mark
37.5 deg angle=1/2 mark

TOTAL= 2 MARKS

v. 45^0



drawing of base line =1/2 mark
construction of 90^0 = 1/2 mark
drawing of arc ==1/2 mark
Angle Of 45^0 =1/2 mark

TOTAL 2 Marks

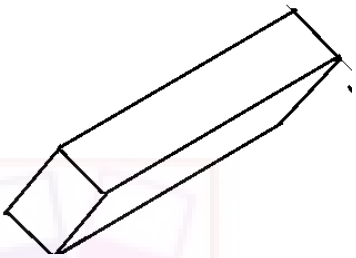
8. (a). Name four types of triangles and state their characteristics (8 marks)

- ✓ ***Right angled triangles (*Only One Angle Is At 90^0*)***
- ✓ ***Scalene (*** **None Of The Sides Or Angle Are The Same*)***
- ✓ ***Equilateral (*** **All Sides Are Equal, All Angles Are At 60^0*)***
- ✓ ***Isosceles(*** **Two Sides Are Equal, Two Angles Are Equal)**

Naming Of Triangles 1@ =1x4=4 Marks
Characteristics@1 =1x 4= 4 Marks
Total =8 Marks

9. Sketch the following types of drawing instruments pictorially (6 marks)

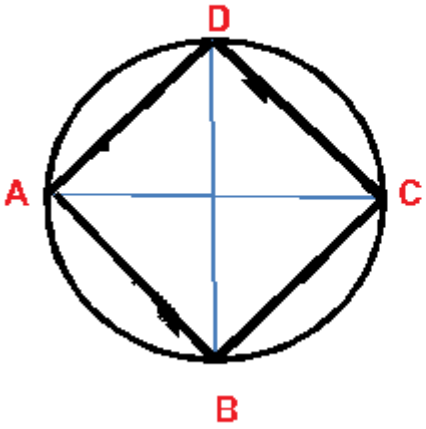
a. Eraser
b. Pair of compasses with a pencil attached



Correct Pictorial Of Each Instrument @ 3 Each Marks

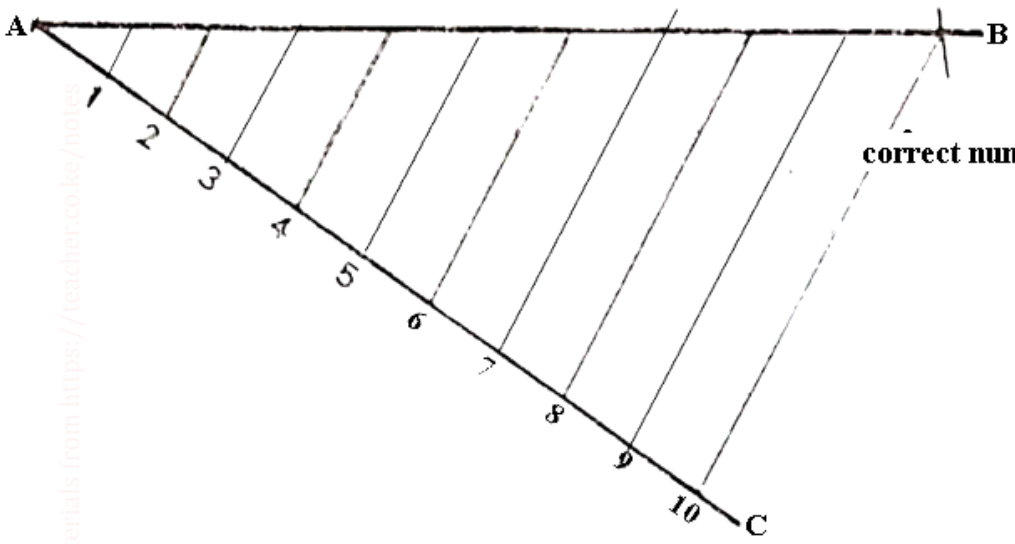
Total= 6 Marks

10. Construct a square whose diagonal is 65mm (6mks)



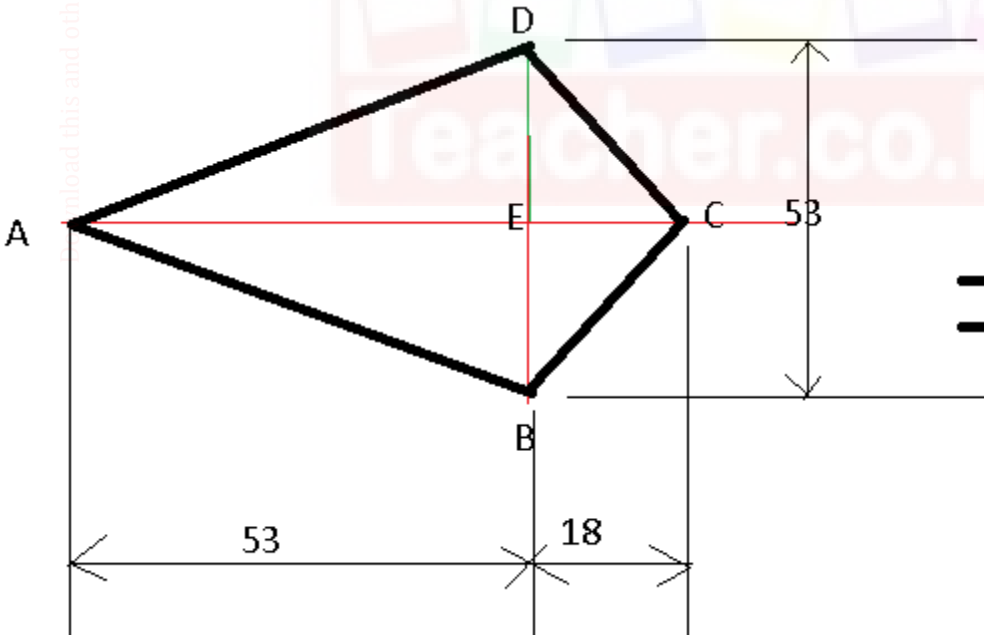
Drawing of diameter-----1 mark
bisection of diameter----1 mark
drawing of circle---------1 mark
drawing of square--------2 marks
TOTAL----------5 Marks

11. From the given line AB, illustrate how a line can be proportionally sub- divided into 10 equal portions. (6mks).



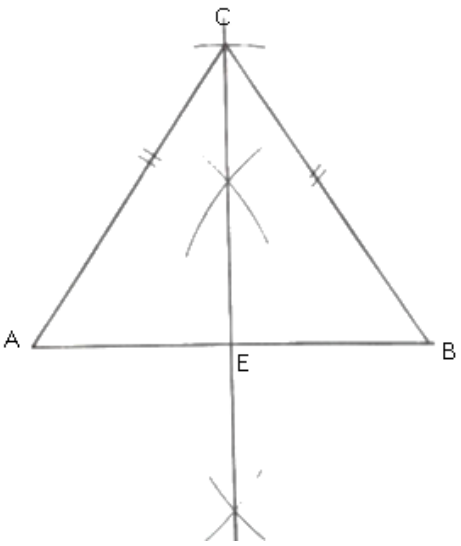
Line A B = 1 mark
Line A C = 1mark
10 steps = 1mark
10 parallel lines= 2 marks
correct number of sub-divisions= 1 mark
TOTAL =6 Marks

12. Construct a kite when given the lengths of the diagonals as 71 mm and 53mm and the point of intersection is 53mm from one end of the longer diagonal. (7mks)



diagonal AC = 1 Mark
locating E = 1 Mark
Diagonal DB =2 Marks
Correct kite = 2 marks
TOTAL= 6 MARKS

13. Construct an isosceles triangle with a base measuring 62mm and an altitude of 50mm (6mks)



Base AB=$1\frac{1}{2}$ Mark

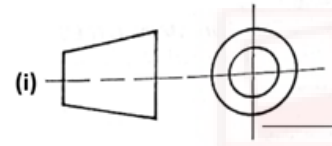
Bisection of AB=$1\frac{1}{2}$ Mark

Correct Altitude= $1\frac{1}{2}$ Mark

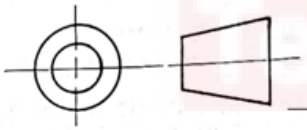
Correct triangle= $1\frac{1}{2}$ Mark

TOTAL = 6 MARKS

14. What do the following symbols represent? (10 marks)



(i) First Angle orthographic Projection



(ii) Third Angle orthographic Projection

(iii) ℄ Centre line

(iv) ⌀ diametrer

(v) □ Square

1 Mark @ x 5 = 5 Marks

15. Draw the three views of the block shown below in first angle projection (6 marks)