MARKING SCHEME
449/1
DRAWING AND DESIGN: FORM FOUR
Paper 1
July/ Aug. 2023
2½hours

SECTION A (50 marks)

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

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

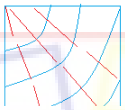
- Tears the paper
- Dirten drawing paper
- Peels th paper

(b) Name **two** methods of sharpening pencils leads and state where each is applied in Technical drawing. (2 marks)

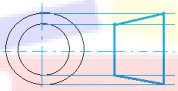
- Chisel shape used for drawing construction lines
- Conical shape used for drawing visible outline

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)

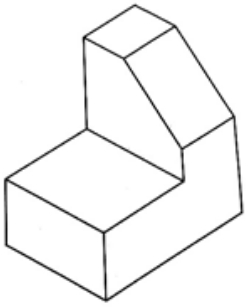
- Smooth
- Form different shapes
- Provide good surface finish

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

(i) Plasticity. Ability of a material to deform and retain its new shape

(ii) Elasticity. Ability of a material to deform and regain its original shape

4. **Figure 1** shows a simple shaped block drawn full size in isometric projection.
Copy figure and dimension it fully. (4marks)



8 correct dimensions @ $\frac{1}{2}$ = 4mks

dimensioning rules must be adhered to fully

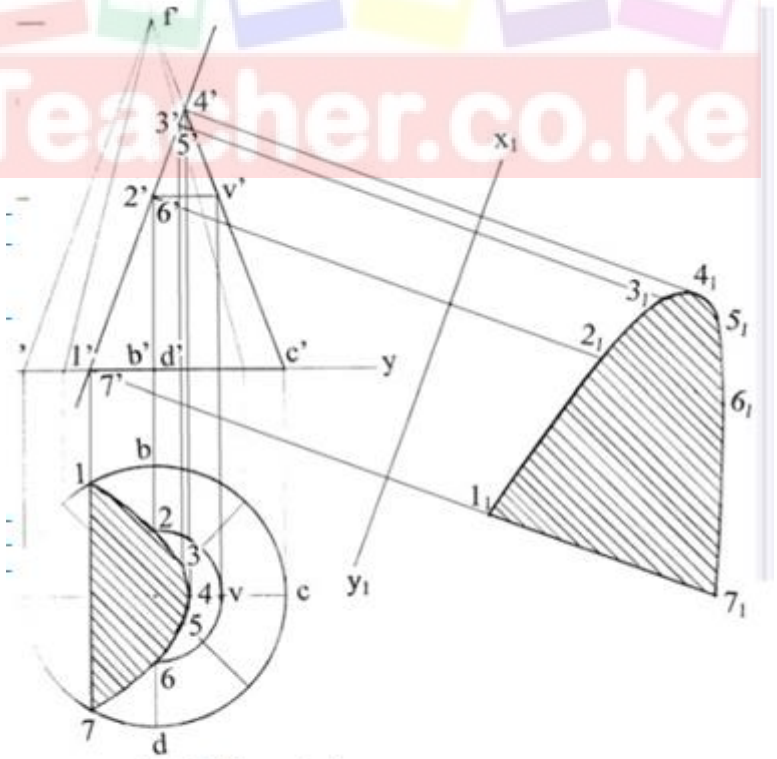
5. (a) State two reasons why care must be taken when storing drawing instructions. (1 mark)

- To maintain their accuracy
- To remain in good working condition

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

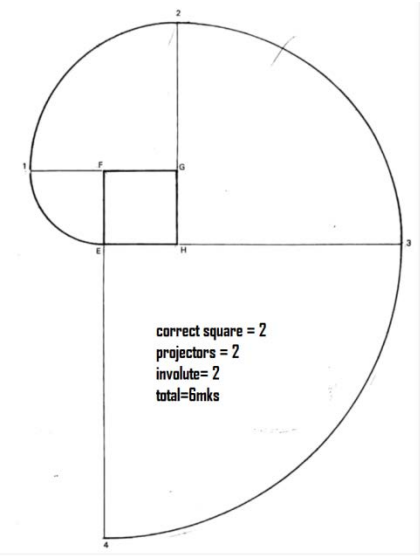
- CPU=process the data
- MONITOR= display information
- HARD DRIVE= store information
- KEYBOARD= keying data

6. **Figure 2** shows a truncated cone whose base is 50mm.
Copy the figure and draw the following: (5 marks)
(a) Complete plan.
(b) True shape of the truncated section.



copying of the figure = 1 mk
complete plan= 2 marks
true shape = 2 mks
total marks = 5

7. Construction an involute of a square whose side is 35 mm. (6marks)



8. **Figure 3** shown 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)

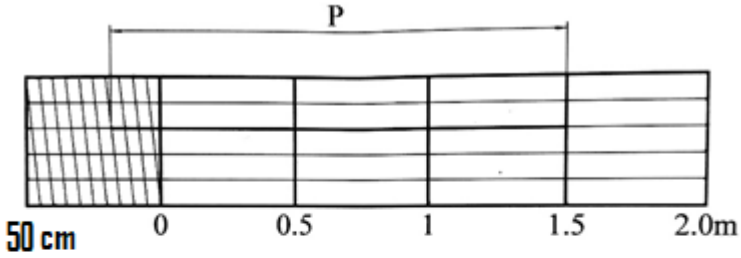


Figure 3

accuracy= 1cm 2mks

1) Read main units to the right of zero = 1 mk

2)Read and add sub units to the left 0.15 =1mk

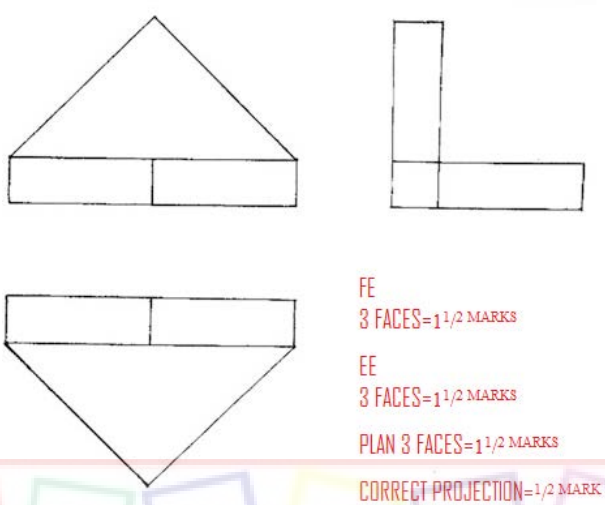
3) Add the diagonal reading of 0.03 = 1mk

4) total= 1.5+0.15+0.03=1.68 metres = 1mk

TOTAL 6 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)

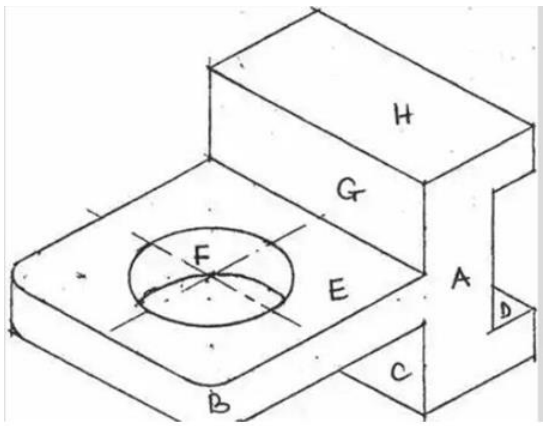
(a) Front elevation in the direction of Arrow A.
(b) End elevation in the direction of Arrow B.
(c) Plan



FE
3 FACES=1 1/2 MARKS
EE
3 FACES=1 1/2 MARKS
PLAN 3 FACES=1 1/2 MARKS
CORRECT PROJECTION=1/2 MARK
TOTAL 5 MARKS

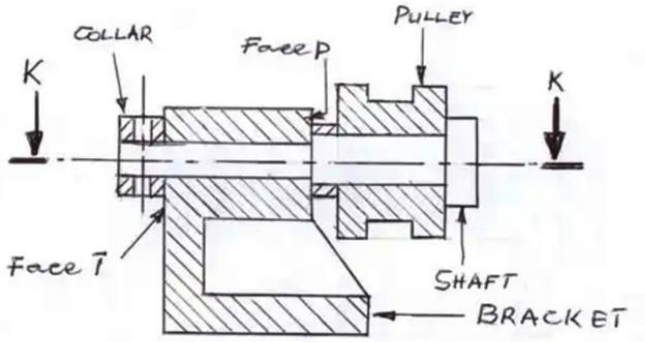
10. **Figure 5** shows two views of a solid block drawn in first angle projection.

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

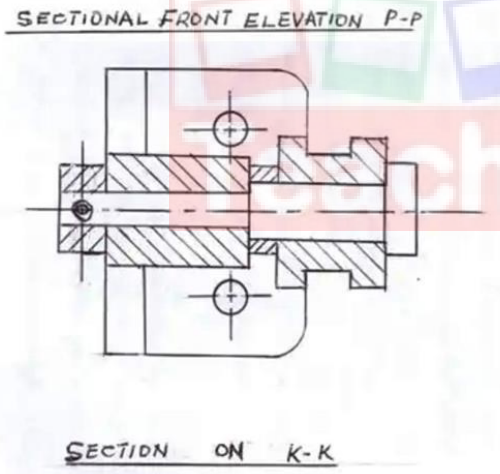


FACES A-H =4 MARKS
2 ISOMETRIC CIRCLES =2
CORRECT PROJECTION =1
TOTAL=7 MKS

-SECTION B (20 marks)



FRONT ELEVATION
3 PARTS CORRECTLY ASSEMBLED= @ 2=6MKS
CENTRELINES=@ 1 =2 MKS
HATCHING @ 1 = 3MKS
CUTTING PLANE INDICATE = 1 MKS
LINE WORK / NEATNESS= 1 MARK
TOTAL=13 MKS



PLAN
3 PARTS CORRECTLY SHOWN =3 MKS
HHATCHING= 3 MKS
TOTAL=6 MKS

SECTION C (30 marks)

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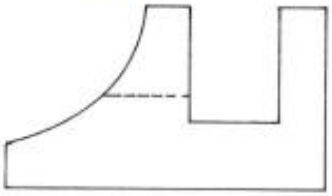
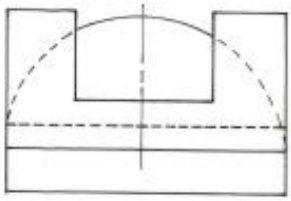
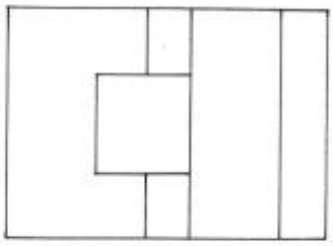






ELE

FRONT
- Face = 1
- Curve = 1
- Hidden detail = ½

PLAN
- Faces 6×1 = 6

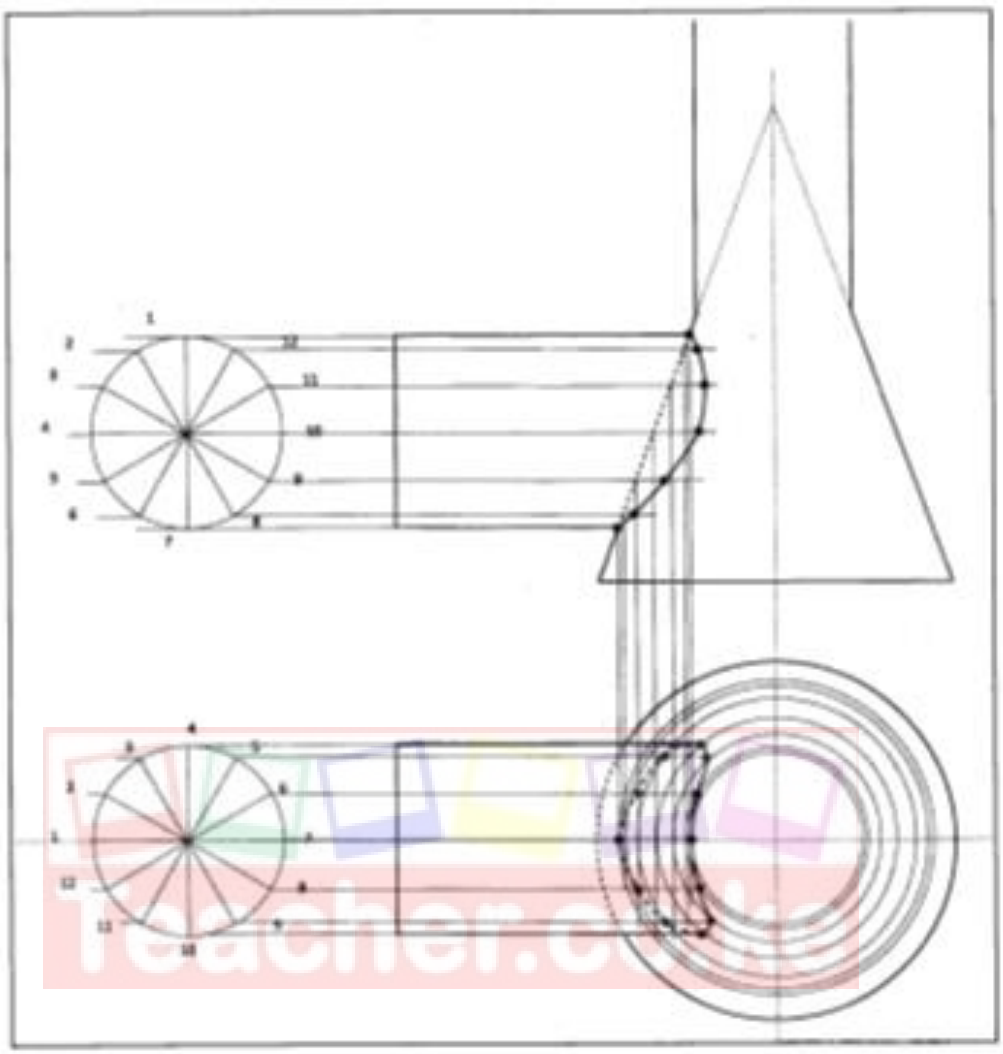
END
- Faces 3×1 = 3
- Hidden details 3×½ = 1½
- 1st Angle = 1
- Linework = 1

TOTAL = 15 marks

13. The **Figure** 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)

a) Front elevation
b) plan

14.



drawn elevation = 1
drawn plan = 2
divide pipe in elevation = 1
plot points at intersection of sloping edges = 1
project elevation points to plan = 1
draw circles at intersection of plan points and elevation points = 1
mark curve of interpenetration points of plan = 2
mark points of interpenetration on elevation = 2
draw smooth curve through points of plan;
part full lines; part hidden details = 1
draw smooth curve through points of elevation = 1
construct lines = 1
outlines = 1

(15 marks)

14. The **Figure** 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)