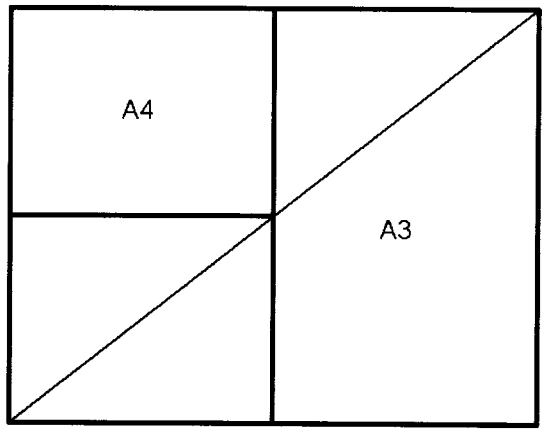
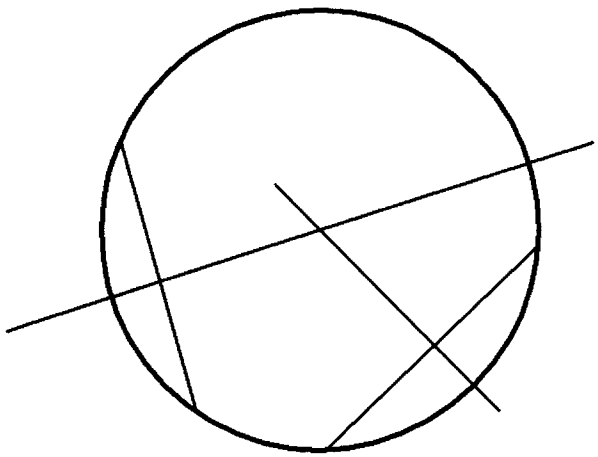
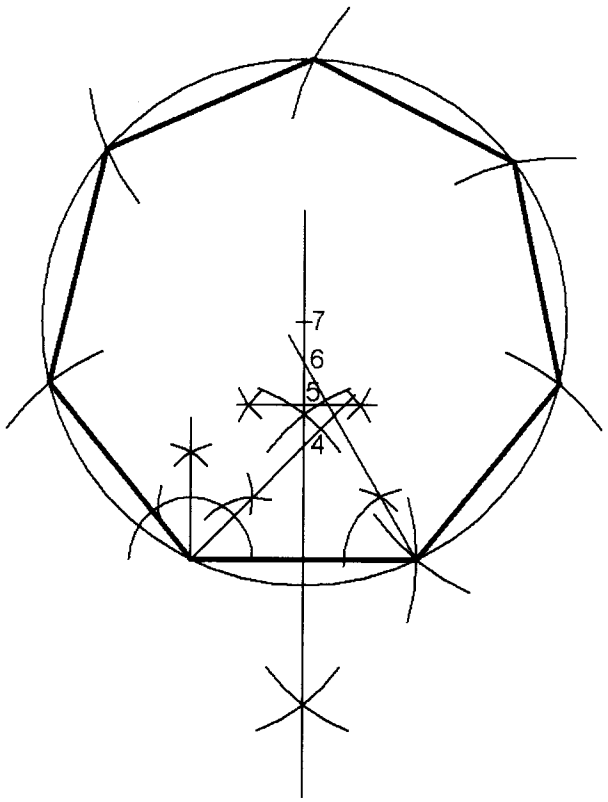
4.21 DRAWING AND DESIGN (449)

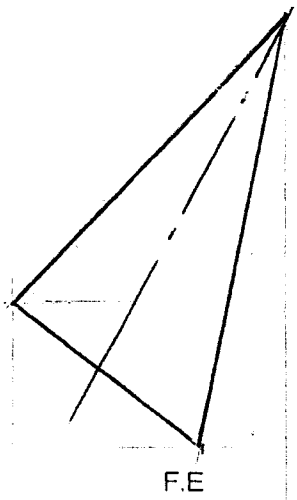
4.21.1 Drawing and Design Paper 1 (449/1)

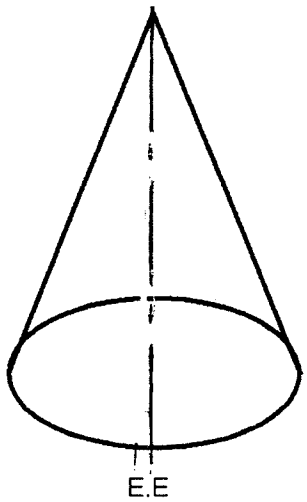
1. (a)	(i)	In artistic drawing, the originator of a new invention or development puts down the ideas in form of sketches describing the philosophical or emotional aspect of the object In technical drawing, the draughtsman makes accurate working drawing and details to be used in the workshop or on a construction site. 2 x 1	**(2 marks)**
	(ii)	Change is issuance of equal amount or value for a given currency, while balance is amount due after payment of goods or services 2 x 1	**(2 marks)**
(b)	(i)	Malleability – property of a material to be shaped into thin sheets without breaking or cracking	
	(ii)	Toughness – is the ability of a material to resist fracture or deformation when subjected to blows It is the ability to resist impact of loads or hammering	
	(iii)	Brittleness – is the property of a material to break easily when subjected to sharp blows **(Any 3 x 1)**	**(3 marks)**
2.	**Advantages of electronic storage**		
	(i)	Drawings not affected by adverse weather conditions	
	(ii)	Drawings not affected by tear and wear	
	(iii)	Easy to share/disseminate information	
	(iv)	Portability enhanced	
	(v)	Easy to retrieve	
	(vi)	Not bulky thus saves on space	
	(vii)	Maintenance **(Any 3 x 1)**	**(3 marks)**
3. (a)	(i)	Using a set square edge to test the squareness of a tee square	
	(ii)	Use of the second T-square	
	(iii)	Conical shape **2 x ½**	**(1 mark)**
(b)	(i)	Design brief is the brief description of the problem to be solved by the design	
	(ii)	Design model is the mock-up of how the final design should look like when implemented.	
	(iii)	Possible solution is the solution which is possible to solve the design problem. **(Any 3 x 1)**	**(3 marks)**

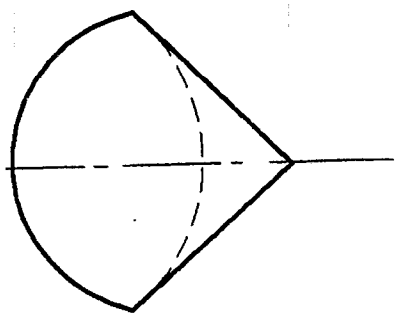
4. (a)	**Factors to consider in order to ensure legibility of inclined lettering** – Use uniform height – Use uniform spacing of letters – Maintain uniform intensity of letters – Maintain uniformity in font type **Accept any other correct response** **(4 x 1/2= 2 marks)**	**(2 marks)**
b	 A2 -½ A3 -½ A4-1 Total =2 marks  Chords 2 x ½ - ½ Bisecting 2 x ½-½ Centre – 1 mark Total= 2 marks	

5. (a)	 Side 30 - ½ Bisecting side½ < 60 - ½ < 45 - ½ Pentagon pt - ½ Heptagon pt - ½ Circle - ½ Stepping sides - ½ Joining sides - ½ Accuracy ½	**(5 marks)**

6.







Copying - ½

End

Base shape - 1

Cone shape - ½

Plan

Base shape - ½

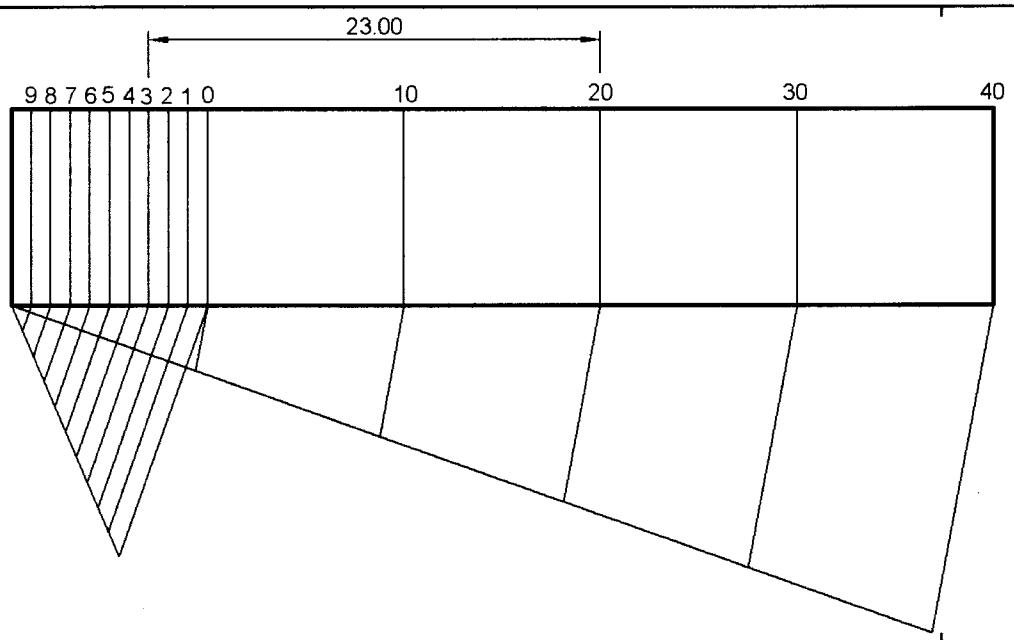
Cone shape - ½

Hidden detail – 1

Proportionally - ½

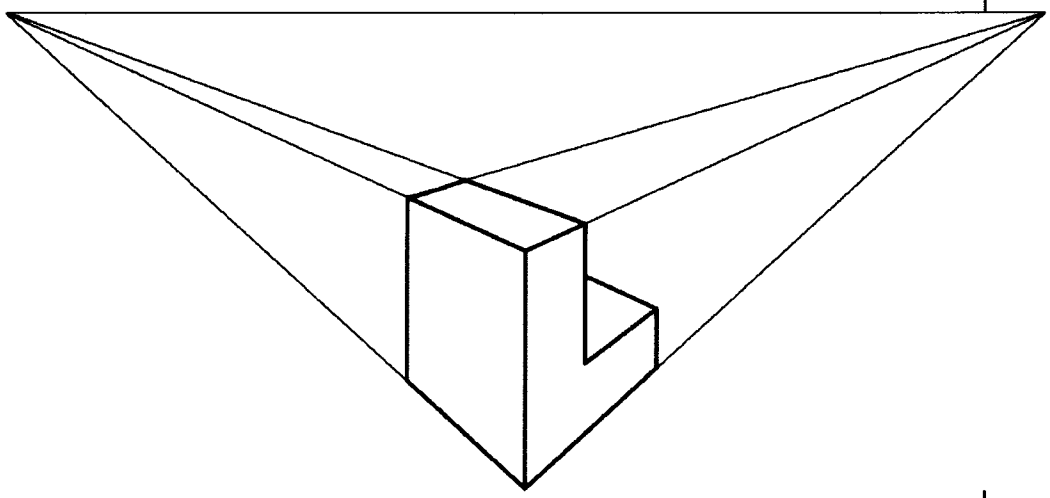
(5 marks)

7. (a)



Scale length - 1
Division - ½
RF - ½
Accuracy division – 1
Reading - 1

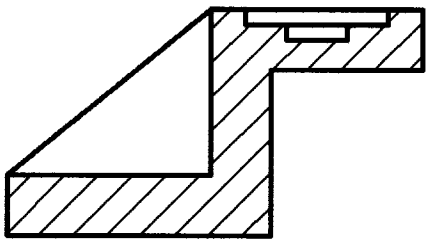
8.



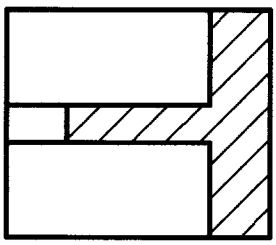
Horizon - ½
v.p - 2 x ½ - 1
projections - 1½
faces 4 x ½ - 2

(5 marks)

9.



SECTION Y-Y



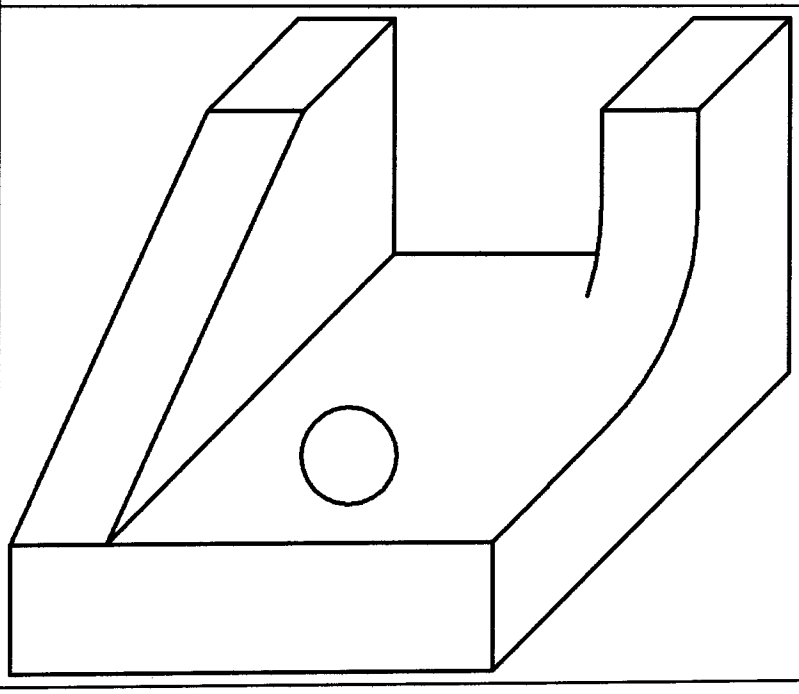
SECTION X-X

Front
Faces – 4e½ - 2
Hatching - ½
2½

Plan
Faces 3e½ - 1½
Hatching - ½
2
Line work - ½
Total - 5 marks

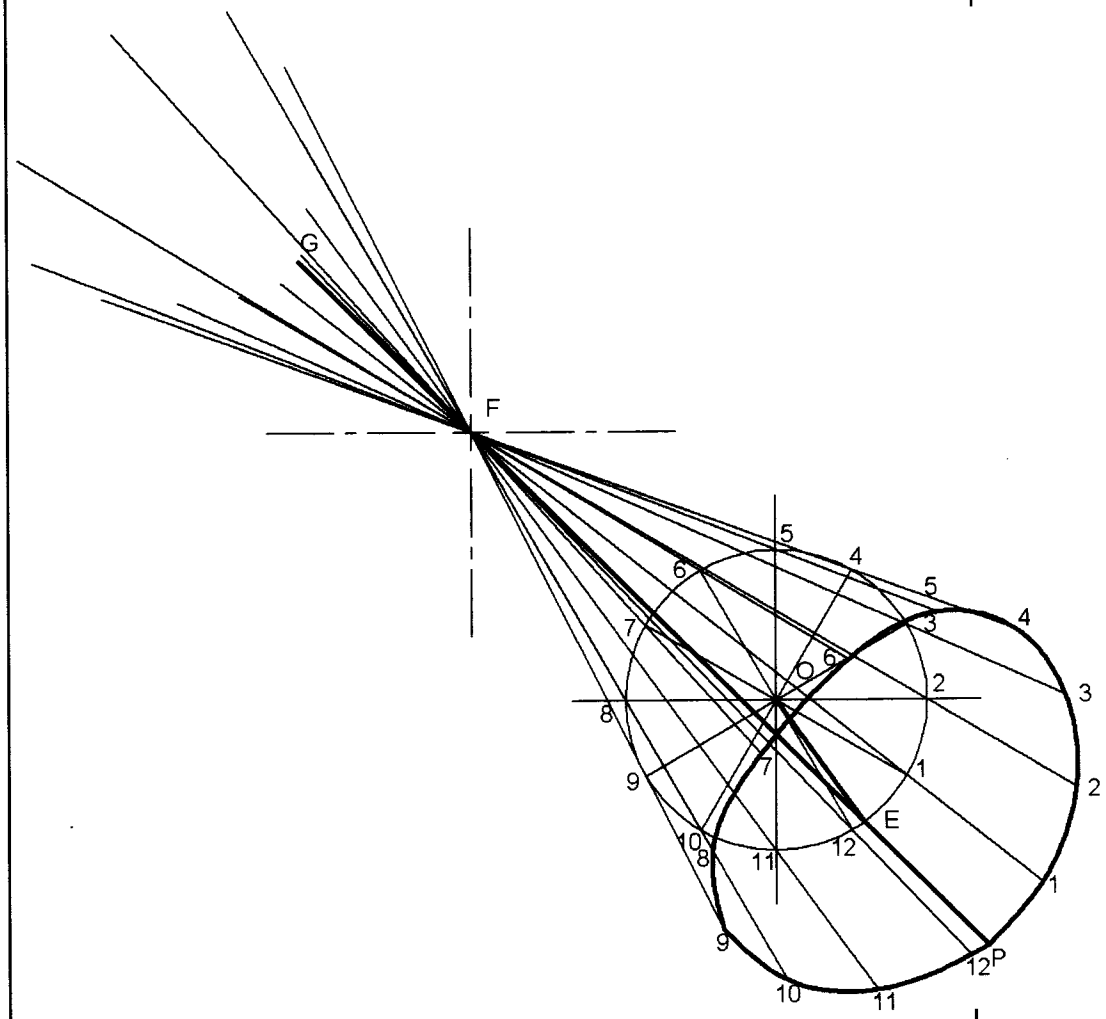
(5 marks)

10.



(6 marks)

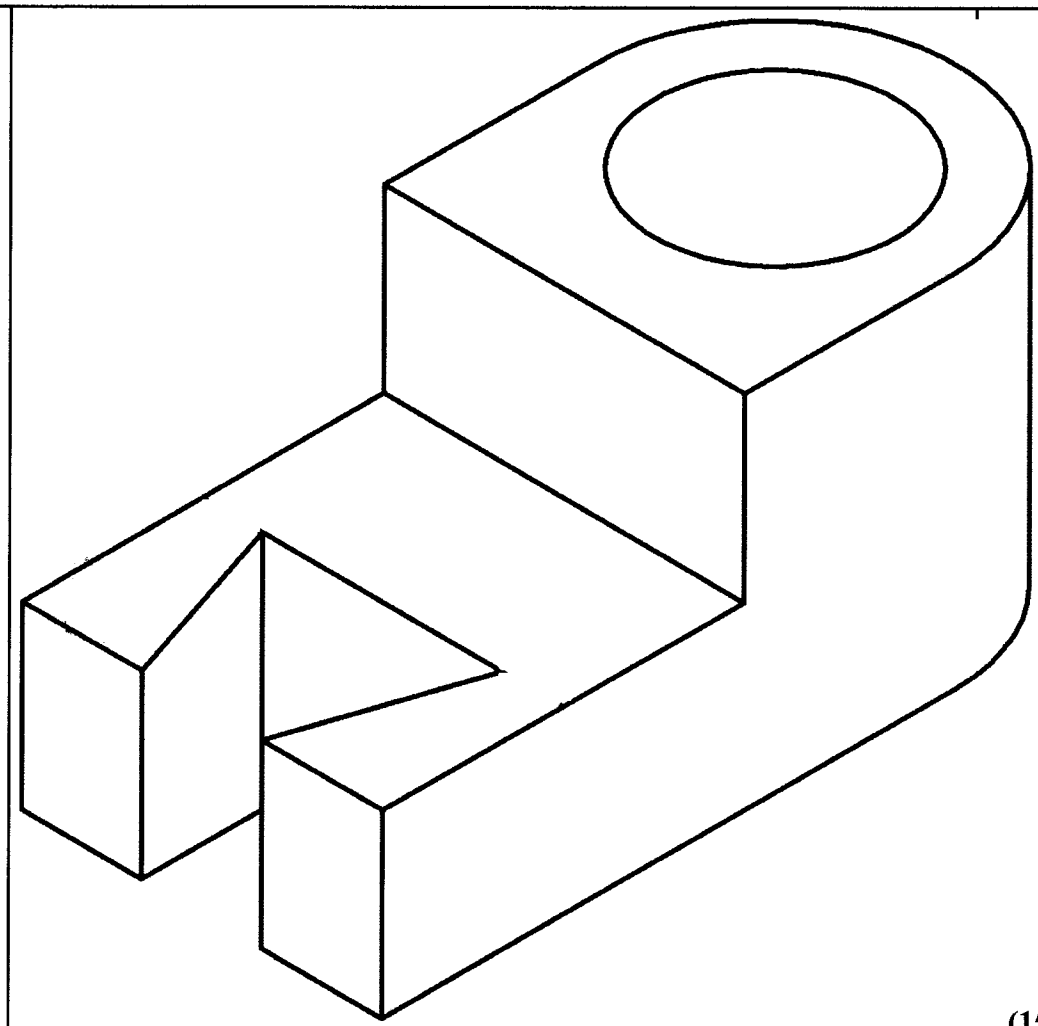
13.



15 marks

Copying figure – 2
Path of OE – 2
Dividing OE-2
Path of PG -2
Points of P – 3
Locus of P – 2
Line work - 2

14.



(15 marks)

Correct isometric projection = 1 mark

9 Faces x 1 = 9 marks

Isometric circle drawn correctly = 2 marks

Curved part drawn correctly = 2 marks

Correct lowest point = 1 mark

Total = 15 marks