OR i. Draw the isometric projection for the given orthogonal views as shown in the figure 2. **6**

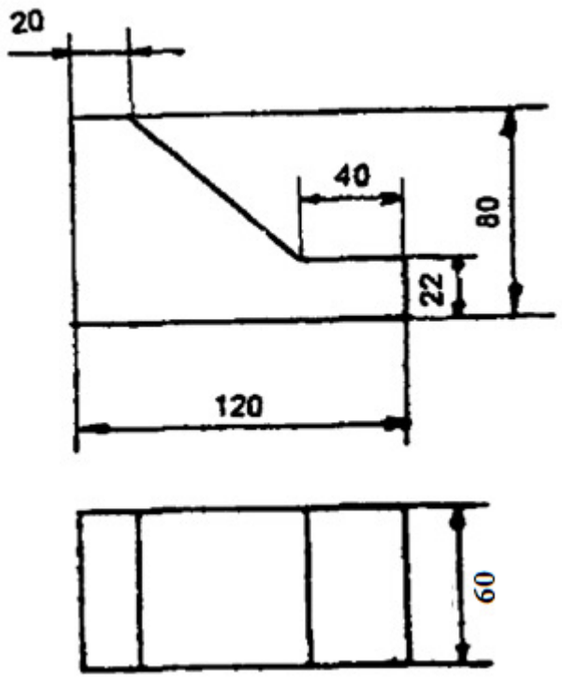

Figure 2

Q.6 Attempt any two:

i. What is CAD? What are its advantages? **5**

ii. Explain any five DRAW commands used in CAD. **5**

iii. Explain any five EDIT commands used in CAD. **5**

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Total No. of Questions: 6 *Total No. of Printed Pages:4*

Enrollment No.....

Faculty of Engineering

End Sem (Odd) Examination Dec-2018

EN3ES02 Engineering Graphics

Programme: B.Tech. Branch/Specialisation: All

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. _____scale should be used in the preparation of building drawing. **1**

(a) Enlarging (b) Reducing (c) Full size (d) Any of these

ii. When the diameter of the directing circle is _____ the diameter of the rolling circle, the hypocycloid obtained is a straight line. **1**

(a) Equal (b) Twice (c) Thrice (d) Four times

iii. In orthographic projection, visual rays or lines of sight for a given view are _____ to each other. **1**

(a) Parallel (b) Orthogonal(c) Inclined (d) Any of the above

iv. Horizontal trace of a line exists when the line is **1**

(a) Parallel to horizontal plane

(b) Inclined to horizontal plane

(c) Perpendicular to vertical plane

(d) Perpendicular to profile plane

v. If both front and top views of a plane are straight lines, the true shape will lie on **1**

(a) Horizontal plane (b) Vertical plane

(c) Profile plane (d) None of these

vi. The following are the Polyhedron except **1**

(a) Prism (b) Pyramid (c) Cube (d) Cone

vii. On isometric plane, a circle appears as **1**

(a) An ellipse (b) A square (c) A cycloid (d) A circle

viii. Isometric projection is a type of **1**
(a) Orthographic projection (b) Axonometric Projection
(c) Perspective projection (d) None of these

ix. The UCS icon represents the intersection of the **1**
(a) X axis (b) Y axis (c) Z axis (d) All of these

x. When drawing a line using the relative coordinate system a line is created from **1**
(a) Origin
(b) The ending point of the last line
(c) The beginning point of the last line
(d) None of these

Q.2 Attempt any two:

i. Construct a Diagonal scale of R.F. = 1 : 32,00,000 to show kilometres and long enough to measure up to 400 km. Show distances of 257 km and 333 km on the scale. **5**

ii. A ball thrown up in the air reaches a maximum height of 50 m. The horizontal distance travelled by the ball is 80 m. Trace the path of the ball and name it. **5**

iii. Draw an epicycloid having a generating circle of diameter 50 mm and a directing circle of radius 100 mm. Also draw a normal and a tangent at any point M on the curve. **5**

Q.3 i. A line AB of length 60 mm is perpendicular to the VP. End A of a line is at a distance of 20 mm in front of the V.P. and 40 mm above the H.P. Draw its projections and locate its traces. **4**

ii. The top view of a line PQ makes an angle of 30^0 with the horizontal and has a length of 100 mm. The end Q is in the H.P and P is in the VP and 65 mm above HP. Draw the projections of the line and find its true length and true inclinations with the reference planes. Also show its traces. **6**

OR iii. Convert the isometric view of the picture shown in the figure 1 in to orthogonal projection. Draw front and top view. **6**

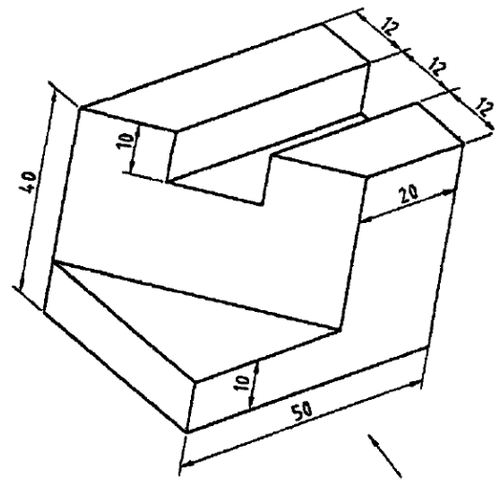

Figure 1

Q.4 i. A thin rectangular plate of sides 40 mm x 20 mm has its shorter side in the HP. Project its front view when its top view is a perfect square of 20 mm side. Also find the inclination of the surface with the HP. **4**

ii. A pentagonal pyramid of base side 40 mm and axis length 80 mm is lying on the HP on one of its triangular faces with its axis parallel to the VP. Draw its projections when the plane containing the axis is inclined at 30^0 to the VP. **6**

OR iii. A cylinder of diameter of base 60 mm & altitude 80 mm stands on its base. It is cut into two equal halves by a plane perpendicular to the VP and inclined at 30^0 to HP. Draw the development of the lower half. Also draw true shape of section. **6**

Q.5 i. Show a common method of drawing a polygon with any number of sides using freehand sketch. Give an example also. **4**

ii. Draw the isometric projection of a square prism side of base 60 mm height 50 mm surmounted by a cone having base diameter 60 mm is on the top of the prism and whose height is 60 mm. **6**

Marking Scheme
EN3ES02 Engineering Graphics

Q.1	i.	_____scale should be used in the preparation of building drawing. (b) Reducing		**1**
	ii.	When the diameter of the directing circle is _____ the diameter of the rolling circle, the hypocycloid obtained is a straight line. (b) Twice		**1**
	iii.	In orthographic projection, visual rays or lines of sight for a given view are _____ to each other. (a) Parallel		**1**
	iv.	Horizontal trace of a line exists when the line is (b) Inclined to horizontal plane		**1**
	v.	If both front and top views of a plane are straight lines, the true shape will lie on (c) Profile plane		**1**
	vi.	The following are the Polyhedron except (d) Cone		**1**
	vii.	On isometric plane, a circle appears as (a) An ellipse		**1**
	viii.	Isometric projection is a type of (b) Axonometric Projection		**1**
	ix.	The UCS icon represents the intersection of the (d) All of these		**1**
	x.	When drawing a line using the relative coordinate system a line is created from (b) The ending point of the last line		**1**
Q.2	i.	Calculations	1 marks	**5**
		Scale Construction	3 marks	
		Distances shown	1 marks	
	ii.	Construction of curve (Any method)	3 marks	**5**
		Dimensioning & scale	1 mark	
		Name of Curve	1 mark	
OR	iii.	Epicycloid construction	3 marks	**5**
		Tangent & Normal	2 marks	
Q.3	i.	Projections of line	2 marks	**4**
		Traces	1 mark	
		Dimensioning	1 mark	
	ii.	Projections of line (any method)	2 marks	**6**
		True length	2 marks	
		True inclinations	1 mark	
		Traces	1 mark	
OR	iii.	Front View with dimension	3 marks	**6**
		Top View with dimension	3 marks	
Q.4	i.	FV & TV of plate in initial condition with dimensioning	1 mark	**4**
		FV & TV of plate in final position	2 marks	
		Inclination with HP	1 marks	
	ii.	Pentagonal pyramid with axis parallel to VP & perpendicular to HP & dimension	2 marks	**6**
		Pentagonal pyramid with axis parallel to VP & one of its triangular face on HP	2 marks	
		Final projections the axis is inclined at 30^0 to the VP.	2 marks	
OR	iii.	FV & TV of cylinder with section plane & dimension	2 marks	**6**
		True shape of section	2 marks	
		Development	2 marks	
Q.5	i.	Triangle & arc construction	2 marks	**4**
		Centres & circle construction	1 mark	
		Example	1 mark	
	ii.	Isometric projection of square prism	2 marks	**6**
		Isometric projection of cone	2 marks	
		Isometric scale	1 mark	
		Dimensioning	1 mark	
OR	iii.	Isometric axes	1 mark	**6**
		Isometric scale	1 mark	
		Dimensioning	1 mark	
		Isometric projection	3 marks	
Q.6	i.	CAD definition	2 marks	**5**
		Advantages	3 marks	
	ii.	Five DRAW 1 mark for each	(1 mark *5)	**5**
OR	iii.	Five EDIT 1 mark for each	(1 mark *5)	**5**

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