Q.6 Attempt any two:

i. What is CAD? Give two limitations of manual drawing and three advantages of computer aided drawing and drafting. **5**

ii. Name any five tools with their corresponding icons available with draw panel. Also write the purpose for which they are used for. **5**

iii. Explain any five methods of drawing an arc in AutoCAD. **5**

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

Enrollment No.....

Faculty of Engineering / Science

End Sem (Odd) Examination Dec-2022

EN3ES19 / BC3ES02 / SC3ES05

Engineering Graphics

Programme: B.Tech. /B.Sc.(CS) Branch/Specialisation: All/ Computer Science

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. The scale of chord is used to measure- **1**

(a) Angle (b) Arc length

(c) Chord length (d) All of these

ii. Which of the following describes the theory of orthographic projections? **1**

(a) Projectors are parallel to each other and perpendicular to the plane of projection

(b) Projectors are parallel to each other and parallel to the plane of projection

(c) Projectors are parallel to each other and oblique to the plane of projection

(d) Projectors are perpendicular to each other and parallel to the plane of projection

iii. If top view of a point is situated 60 mm below the reference line and its front view is 20 mm above the top view, the point lies in- **1**

(a) First angle (b) Second angle

(c) Third angle (d) Fourth angle

iv. A line is inclined to the VP and parallel to the HP, has plan- **1**

(a) Equal to elevation (b) Smaller than elevation

(c) Equal to true length (d) Smaller than true length

v. In multi-view orthographic projection, the front view of a circular plane may be- **1**

(a) Circle (b) Ellipse

(c) Straight line (d) All of these

vi. Number of faces in a dodecahedron are- **1**
(a) 4 (b) 8 (c) 12 (d) 20

vii. An Auxiliary Vertical Plane (AVP) is- **1**
(a) Perpendicular to both HP or VP
(b) Inclined to both HP and VP
(c) Inclined to VP and perpendicular to HP
(d) Inclined to HP and perpendicular to VP

viii. If an isometric projection is drawn with true measurements but not with isometric scale then the drawings are called- **1**
(a) Isometric projection (b) Isometric view
(c) Isometric perception (d) Orthographic view

ix. How will you create a line representing length 15 units at an angle of 30 degrees with respect to the positive direction of the X-axis and the first point of the line is not at the origin? **1**
(a) 30<15 (b) 15<30
(c) @30<15 (d) @15<30

x. The function of a polar array is to create object, **1**
(a) In a grid pattern (b) In a circular pattern
(c) In a straight line (d) All of these

Q.2 i. Write down different types of scales. **2**

ii. An area of 400 square centimetres on a map represents an area of 25 square kilometres on a field. Construct a scale to measure up to 5 kilometres and capable to show a distance of 3.56 km. Indicate this distance on the scale. **8**

OR iii. Pictorial view of an object is shown in Fig. 1. Using first angle projection, draw its **8**
(a) Front view in the direction of arrow and
(b) Top view

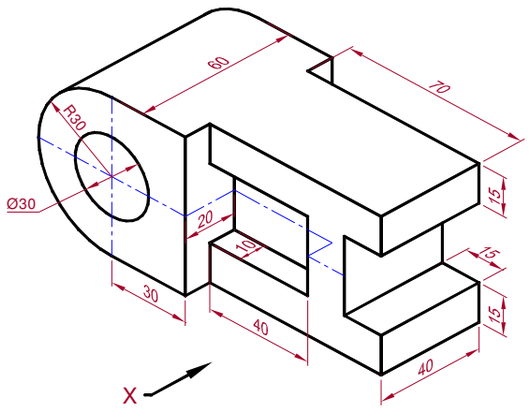

Fig. 1

Q.3 i. Define traces. **2**

ii. A line PQ has its end projectors 50 mm apart. The end P is 20 mm above the H.P. and 15 mm in front of the V.P. while the end Q is 60 mm above the H.P. and 70 mm in front of the V.P. Draw the projections of the line and determine its true length and inclinations with the principal planes. **8**

OR iii. The front and top views of a straight-line PQ measures 50 mm and 65 mm, respectively. The point P is on the H.P. and 20 mm in front of the V.P. The front view of the line is inclined at 45º to the reference line. Determine the true length of PQ and its true inclinations with the reference planes. **8**

Q.4 i. What are different types of solids. **2**

ii. A circular plane of diameter 70 mm has one of the ends of the diameter in the H.P. while the other end is in the V.P. The plane is inclined at 30º to the H.P. and 60º to the V.P. Draw its projections. **8**

OR iii. A hexagonal pyramid of base side 30 mm and axis 60 mm has one of its slant edges on the H.P. and inclined at 45º to the V.P. Draw its projections. **8**

Q.5 i. What is the difference between isometric view & isometric projection. **2**

ii. A pentagonal prism of base side 30 mm and axis 70 mm has an edge of its base on the H.P. The axis is parallel to the V.P. and inclined at 60º to the H.P. It is cut by an A.I.P. inclined at 60º to the H.P. and passing through the highest corner of the prism. Draw its sectional top view and true shape of the section. **8**

OR iii. The front and the top views of an object are shown in Fig. 2. Draw its isometric view. **8**

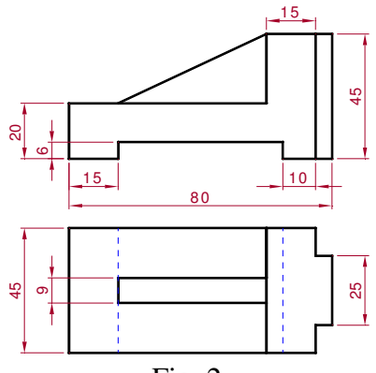

Fig. 2

Marking Scheme

EN3ES19 / BC3ES02 / SC3ES05 Engineering Graphics

Q.1	i.	The scale of chord is used to measure- (a) Angle		**1**
	ii.	Which of the following describes the theory of orthographic projections? (a) Projectors are parallel to each other and perpendicular to the plane of projection		**1**
	iii.	If top view of a point is situated 60 mm below the reference line and its front view is 20 mm above the top view, the point lies in- (d) Fourth angle		**1**
	iv.	A line is inclined to the VP and parallel to the HP, has plan- (c) Equal to true length		**1**
	v.	In multi-view orthographic projection, the front view of a circular plane may be- (d) All of these		**1**
	vi.	Number of faces in a dodecahedron are- (c) 12		**1**
	vii.	An Auxiliary Vertical Plane (AVP) is- (c) Inclined to VP and perpendicular to HP		**1**
	viii.	If an isometric projection is drawn with true measurements but not with isometric scale then the drawings are called- (b) Isometric view		**1**
	ix.	How will you create a line representing length 15 units at an angle of 30 degrees with respect to the positive direction of the X-axis and the first point of the line is not at the origin? (d) @15<30		**1**
	x.	The function of a polar array is to create object, (b) In a circular pattern		**1**
Q.2	i.	Different types of scales.		**2**
	ii.	RF and length of scale calculation Construction of scale Marking distance	2 marks 5 marks 1 mark	**8**
OR	iii.	Front view and dimensioning Top view and dimensioning	4 marks 4 marks	**8**
Q.3	i.	Definition of traces.		**2**
	ii.	Marking of projectors of points and dimensioning	4 marks	**8**
		true length and inclinations	4 marks	
OR	iii.	front and top views true length and inclinations	4 marks 4 marks	**8**
Q.4	i.	Types of solids.		**2**
	ii.	First stage Second stage Third stage and dimensioning	3 marks 3 marks 2 marks	**8**
OR	iii.	First stage Second stage Third stage and dimensioning	3 marks 3 marks 2 marks	**8**
Q.5	i.	Any two difference between isometric view & isometric projection.		**2**
	ii.	First stage Second stage Locate cutting plane, true shape and dimensioning	2 marks 3 marks 3 marks	**8**
OR	iii.	Isometric view taking length on right side Dimensioning	6 marks 2 marks	**8**
Q.6		Attempt any two:		
	i.	Definition of CAD Any two limitations of manual drawing Three advantages of computer aided drawing and drafting	1 marks 2 marks 2 marks	**5**
	ii.	Any five tools with their corresponding icons 1 mark for each tool	 (1 mark * 5)	**5**
	iii.	Any five methods of drawing an arc in AutoCAD. 1 mark for each method	 (1 mark * 5)	**5**