



Study Programme	: Bachelor of Technology Honours in Engineering
Name of the Examination	: Final Examination
Course Code and Title	: DMX3305 – Introduction to Engineering Design Graphics
Academic Year	: 2020/21
Date	: January 22, 2022
Time	: 09.30 – 12.30
Duration	: 3 hours

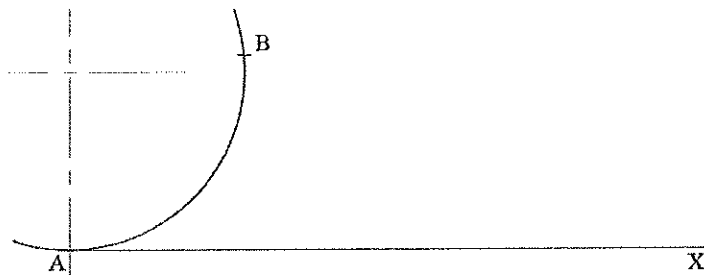
General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists 2 parts, **Part – A** and **Part - B**.
3. Answer **all** questions within the space provided.
4. Drawing Instruments can be used. Use an **Hb** pencil to sketch the drawings.

PART-A

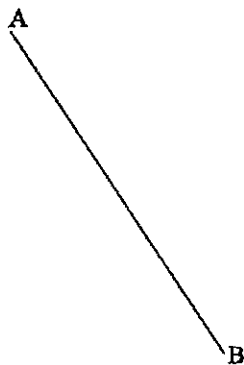
AQ1. Convert the AB arc length to the straight length on the line AX.

5 Marks



AQ2. Divide the given line AB in to 5 equal parts.

5 Marks



AQ3. Construct the circle with 50mm radius that is externally tangent to the given circle and the straight line in *Figure-AQ3*.

5 Marks

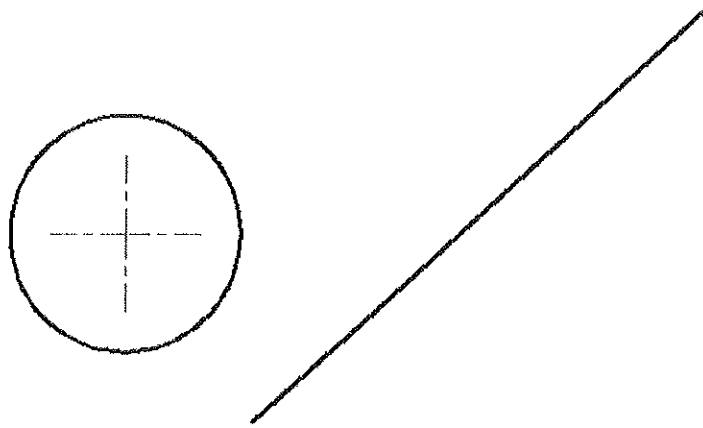
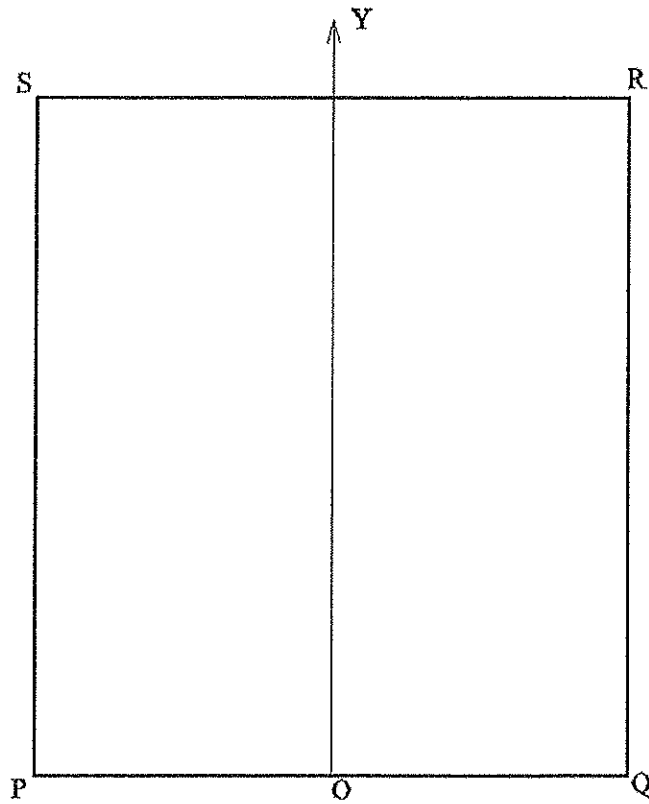


Figure-AQ3

AQ4. Construct the parabola enclosed within the given *PQRS* rectangle with *OY* as the axis of symmetry.

10 Marks



AQ5. *Figure AQ5*, shows a pictorial view of solid object. Draw the following orthographic views to a scale of full size in first angle projection within the space provided.

30 Marks

- i. Front Elevation looking in the direction of arrow "X"
- ii. End Elevation looking in the direction of arrow "Y"
- iii. Plan looking in the direction of arrow "Z"

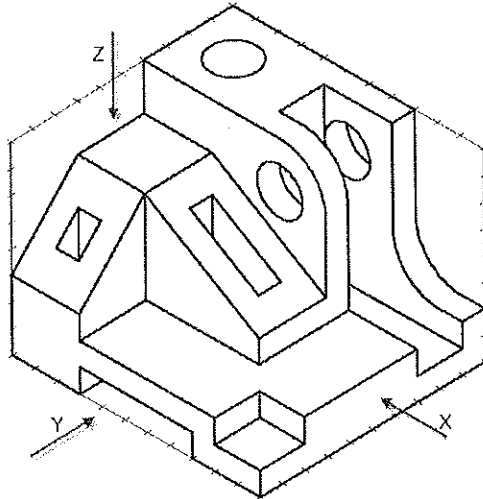
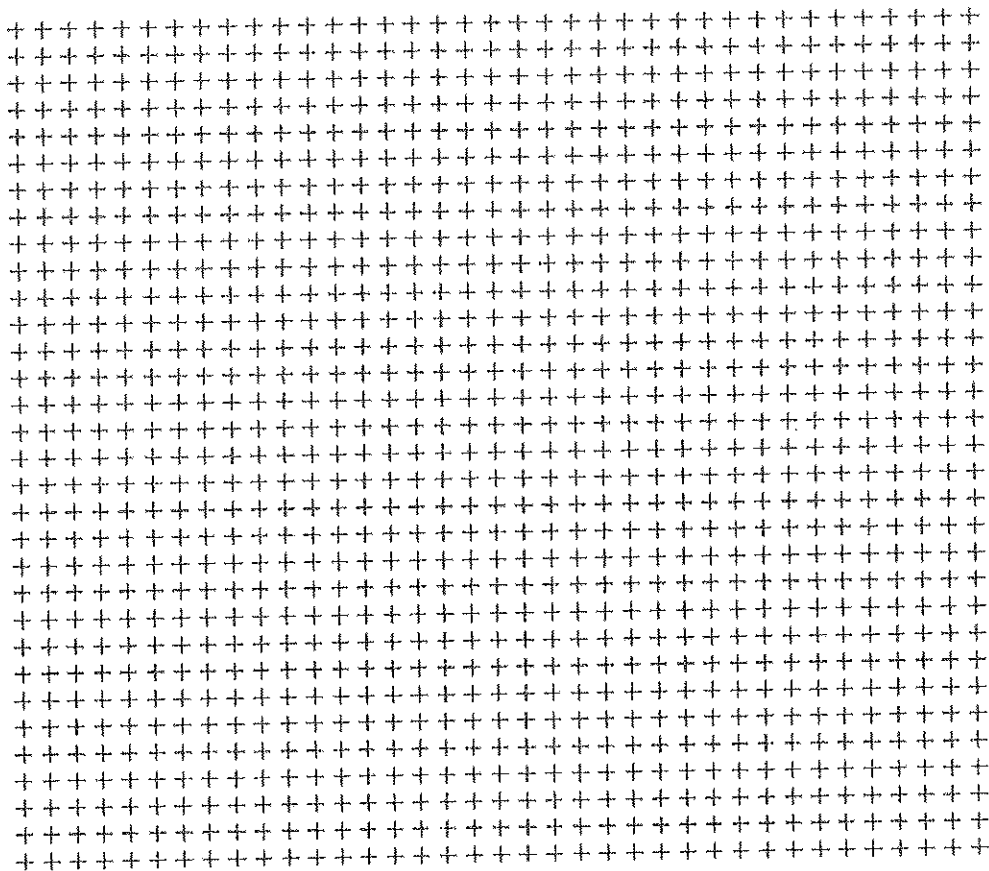


Figure AQ5



AQ8. *Figure-AQ8-(a)*, describes an object in first angle projection. Complete the Sectional Front Elevation on X-X in *Figure-AQ8-(b)*.

10 Marks

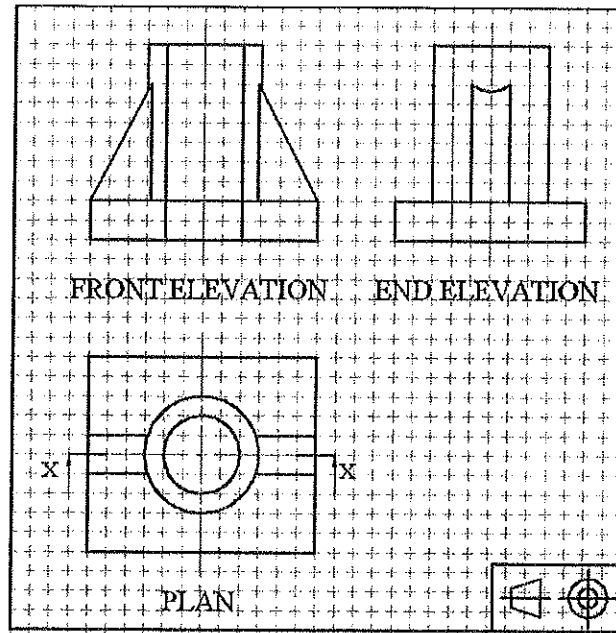


Figure-AQ8-(a)

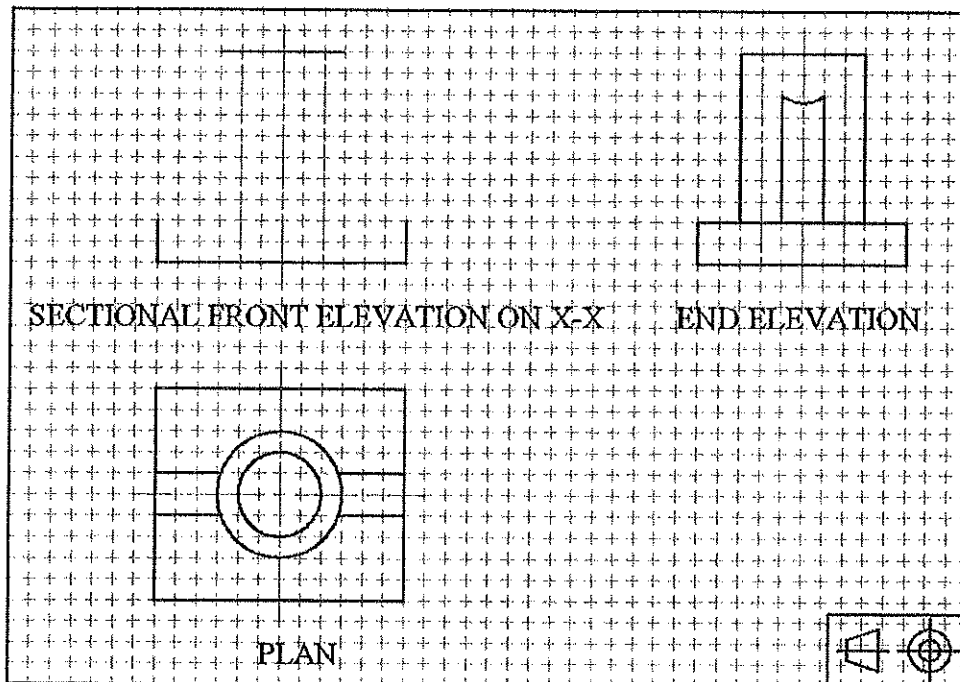


Figure-AQ8-(b)

The Open University of Sri Lanka

Faculty of Engineering Technology

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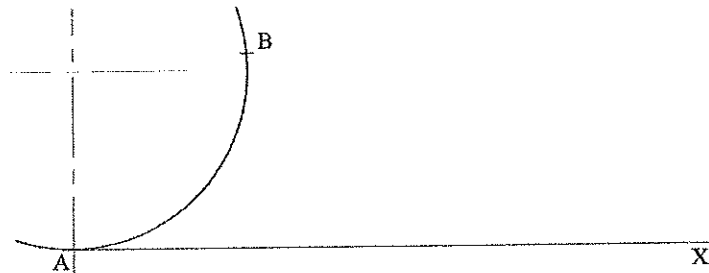
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PART-A

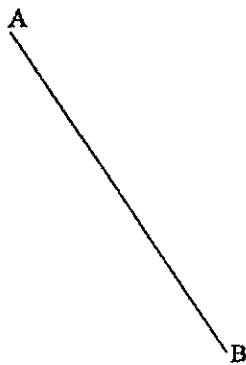
AQ1. Convert the AB arc length to the straight length on the line AX.

5 Marks



AQ2. Divide the given line AB in to 5 equal parts.

5 Marks



AQ3. Construct the circle with 50mm radius that is externally tangent to the given circle and the straight line in *Figure-AQ3*.

5 Marks

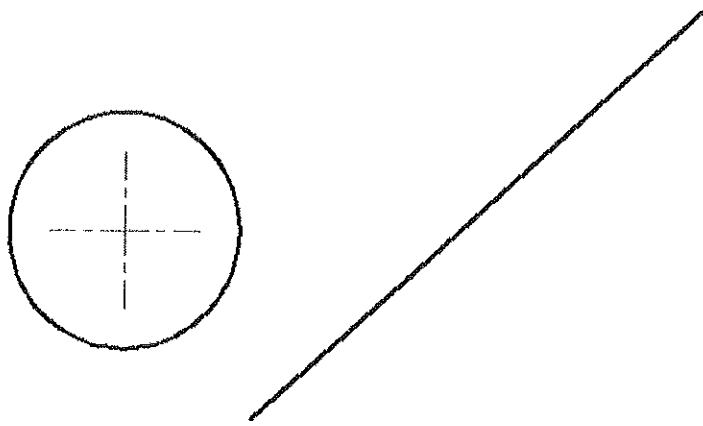
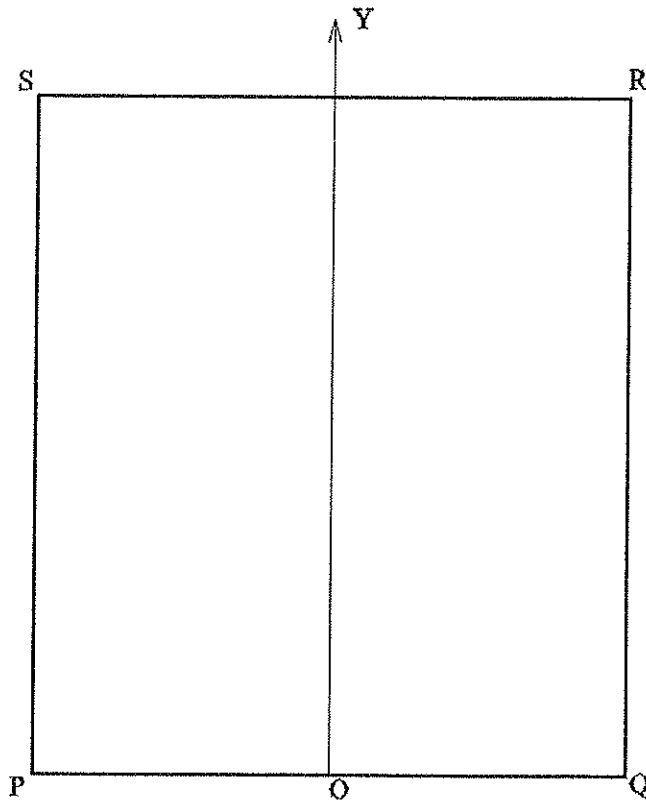


Figure-AQ3

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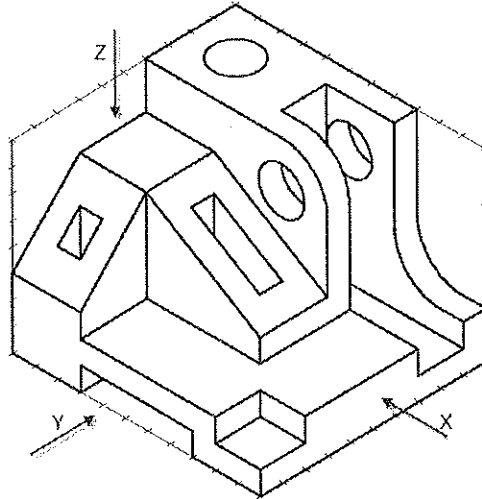
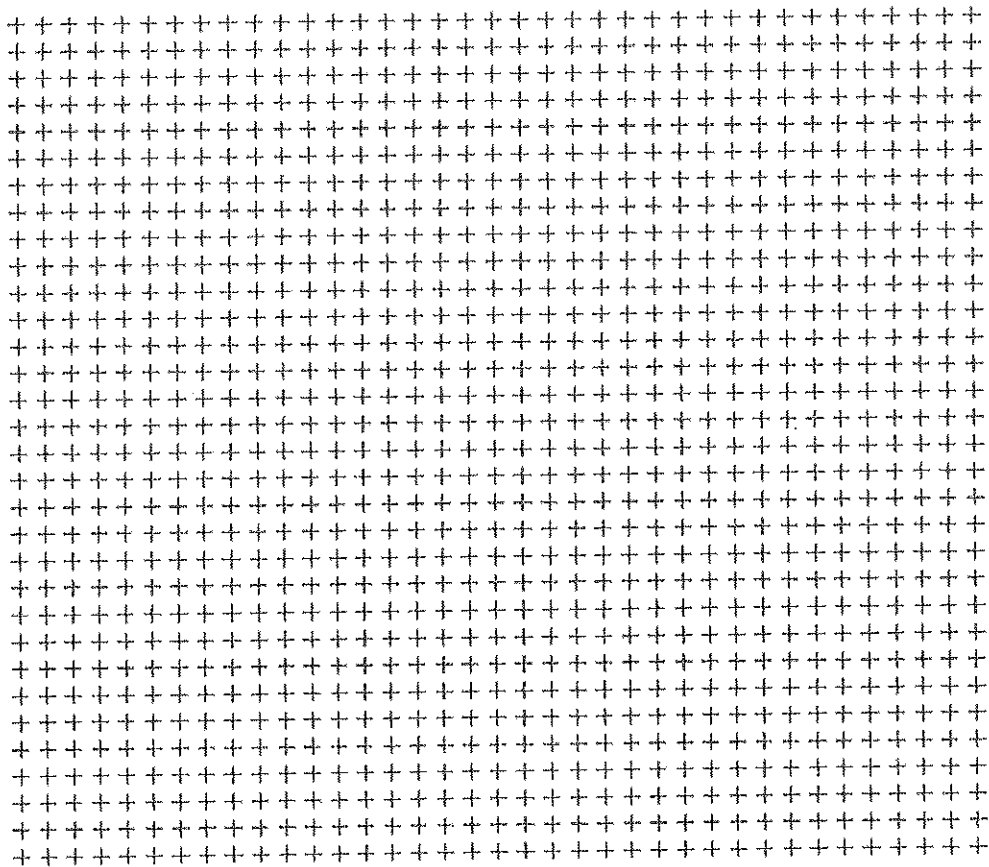


Figure AQ5



AQ6. Sketch the isometric view of the object shown in *Figure AQ6*, in the space provided.

10 Marks

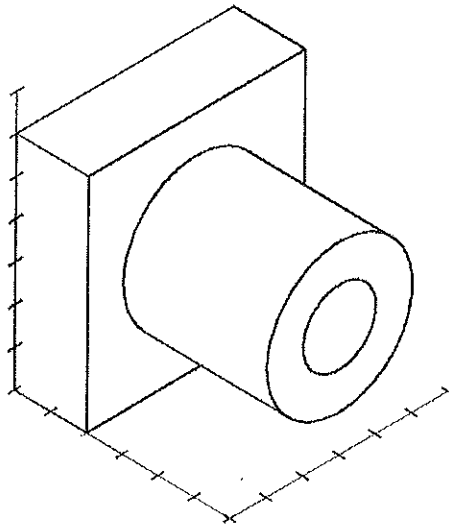
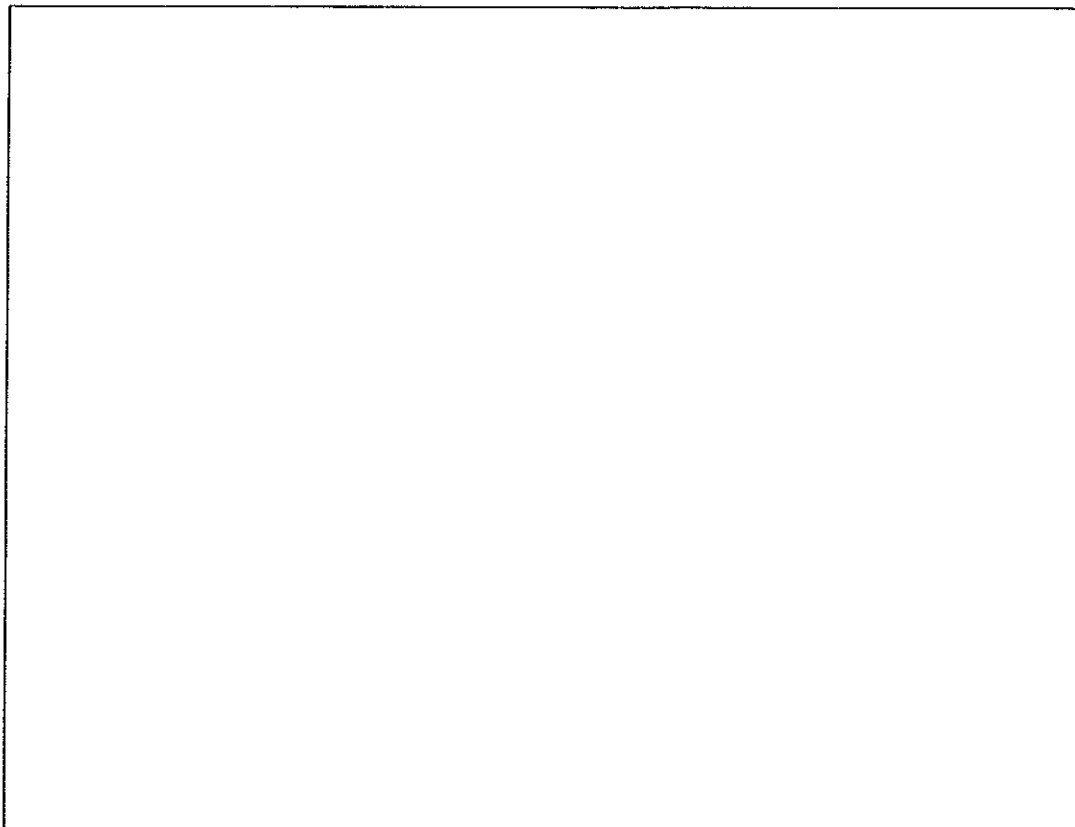
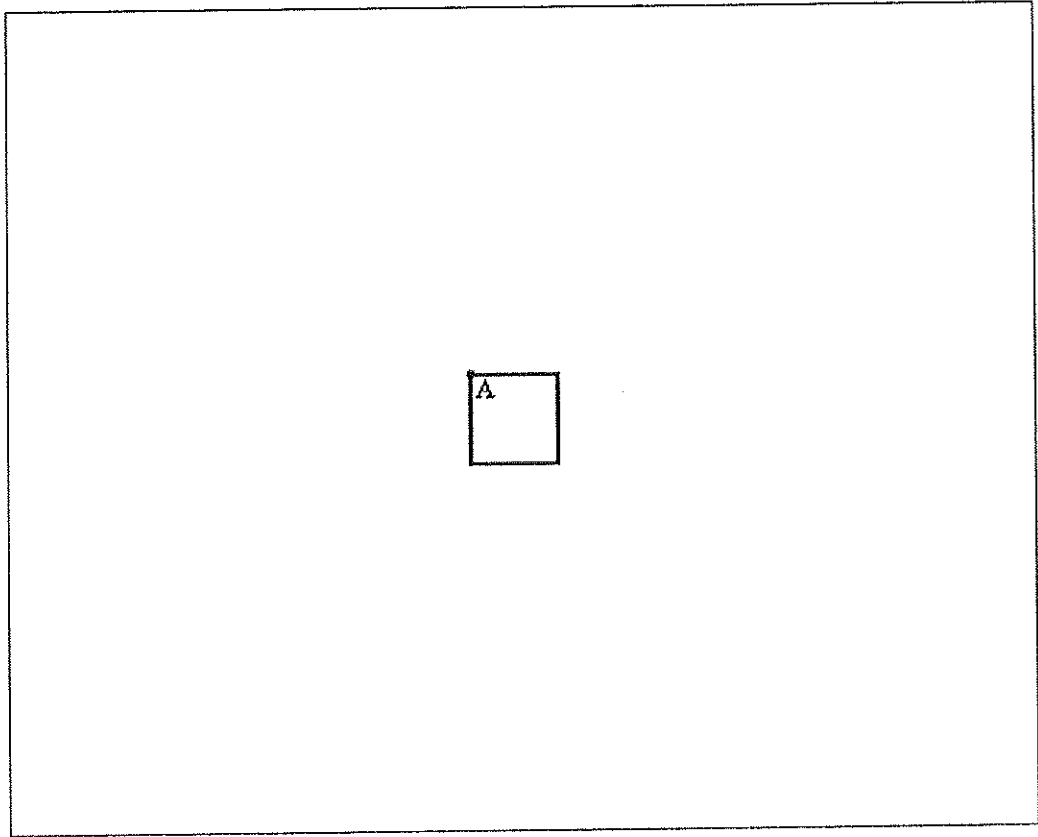


Figure AQ6



AQ7. Draw the **involute** of the given square starting from point A.

15 Marks



AQ8. *Figure-AQ8-(a)*, describes an object in first angle projection. Complete the Sectional Front Elevation on X-X in *Figure-AQ8-(b)*.

10 Marks

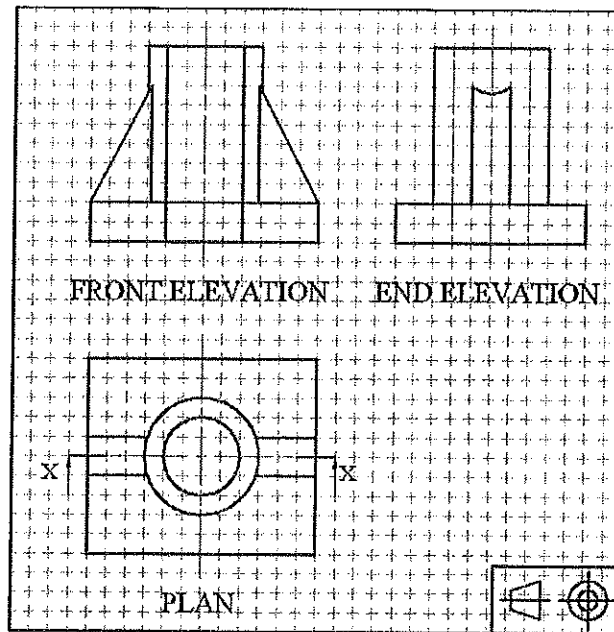


Figure-AQ8-(a)

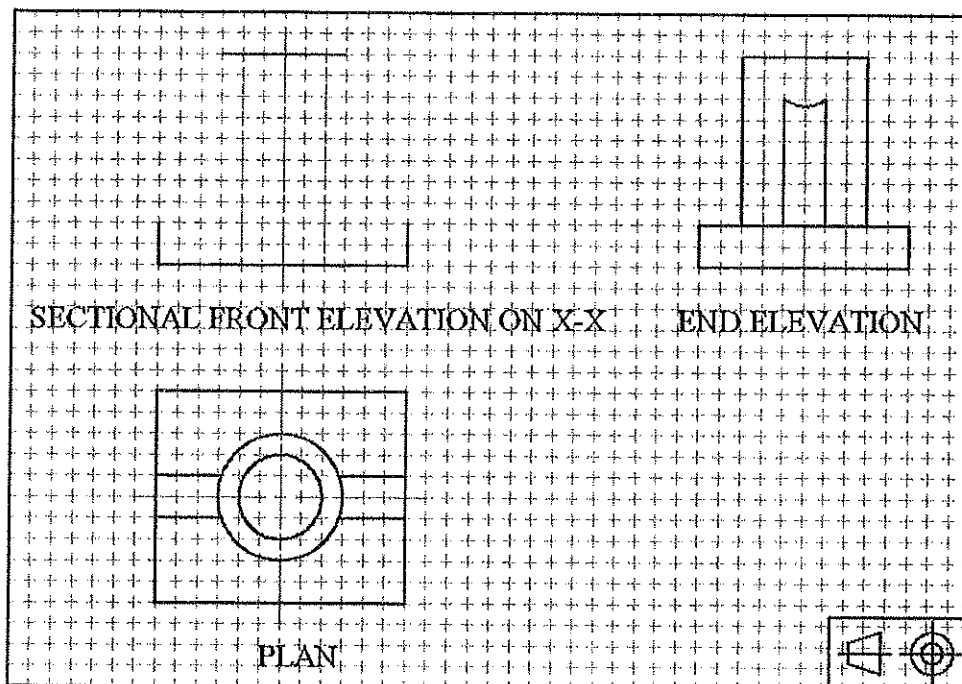


Figure-AQ8-(b)

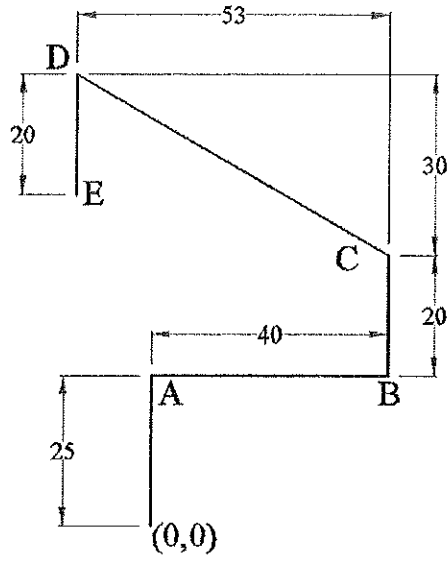
AQ9. What do you understand by orthographic projection?

5 Marks

AQ10. Explain the advantages of CAD over manual drafting.

5 Marks

Part B : Computer Aided Drafting using AutoCAD

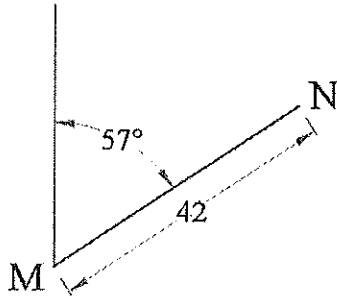


BQ1. What are the absolute coordinates of point C? -----

Marks - 5

BQ2. What are the relative coordinates of point E with respect to point A? -----

Marks - 5

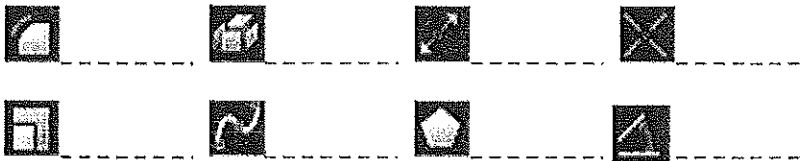


BQ3. What are the relative-polar coordinates of point N with respect to point M?

Marks - 6

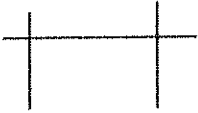

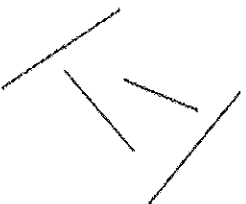
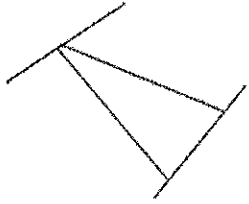



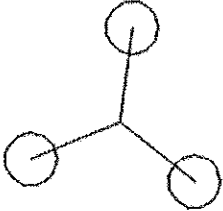



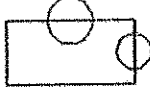
BQ4. Write down the names of the commands associated with the following icons.

Marks - 24



BQ5. Write down the AutoCAD command used to obtain the *required figure* from the *given figure*.

Marks - 18

Given Figure	Command	Required Figure
	<p>-----</p>	
	<p>-----</p>	
	<p>-----</p>	
	<p>-----</p>	
	<p>-----</p>	
	<p>-----</p>	

BQ6. Write down the names of the properties of the dimension object in AutoCAD shown in *Figure-BQ6*.

Marks - 12

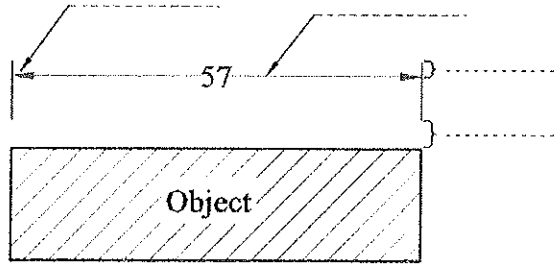


Figure-BQ6

BQ7. What are the **object snaps** that should be used to draw the line AB, in *Figure-BQ7*?

.....

Marks - 6

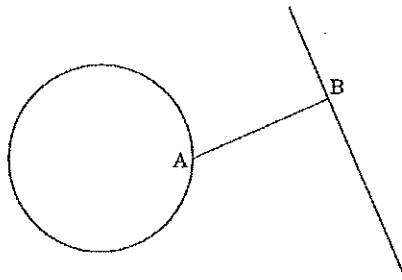


Figure-BQ7

BQ8. What is the **option of the circle command** used to draw the circle C1, shown in *Figure QB8*. ?

Marks - 5

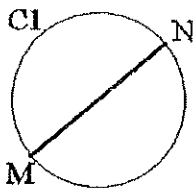


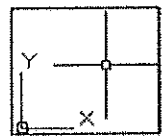
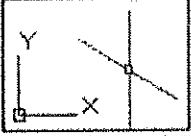
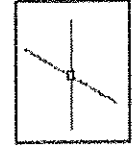
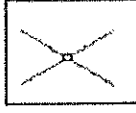

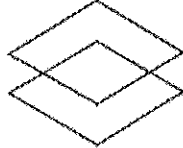
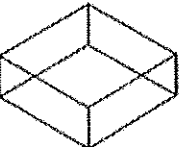
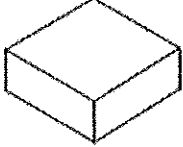

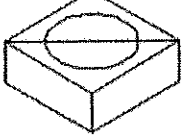
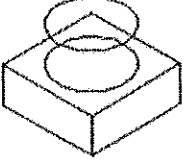
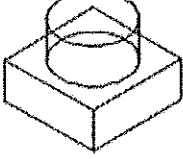
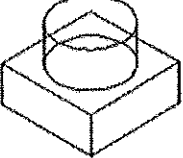
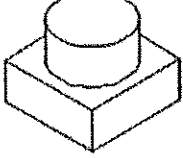
Figure-BQ8

BQ9. What is the layer control operation which allows you to make a layer **visible but not editable**?

Marks - 5

BQ10. Write down the AutoCAD commands / settings in relation to isometric drawings to obtain *State-02* from *State-01*.

Marks - 14

State - 01	Commands / Settings	State - 02
	<p>-----</p> <p>-----</p>	
	<p>-----</p> <p>-----</p>	
	<p>-----</p> <p>-----</p>	
	<p>-----</p> <p>-----</p>	
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	<p>-----</p> <p>-----</p>	
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-----End of Paper-----

