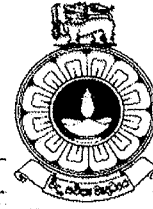


The Open University of Sri Lanka  
Faculty of Engineering Technology  
Department of Mechanical Engineering



Study Programme : Bachelor of Science Honours in Engineer  
Name of the Examination : Final Examination  
**Course Code and Title** : **DMX3305 Introduction to Engineering Design Graphics**  
Academic Year : 2024/25  
Date : 21<sup>th</sup> February 2026  
Time : 9.30hrs -12.30 hrs  
Duration : 3 hours

**REGISTRATION NO:**

.....

**General Instructions**

1. Write down your registration number in the provided space
2. Read all instructions carefully before answering the questions.
3. The paper consists of two parts with a total of 10 questions. **Part-A** is based on manual drafting techniques (5 questions) and **Part-B** is based on CAD (5 questions).
4. Answer **all** questions within the space provided.
5. Drawing Instruments can be used to answer the **Part-A**.

|          | Part -1 |   |   |   |   | Part - 2 |   |   |   |    |       |
|----------|---------|---|---|---|---|----------|---|---|---|----|-------|
| Question | 1       | 2 | 3 | 4 | 5 | 6        | 7 | 8 | 9 | 10 | Total |
| Marks    |         |   |   |   |   |          |   |   |   |    |       |

**Part-A**

**Q1-a.**

Divide line segment AB (**Figure 1-a**) into five equal parts.

5-marks

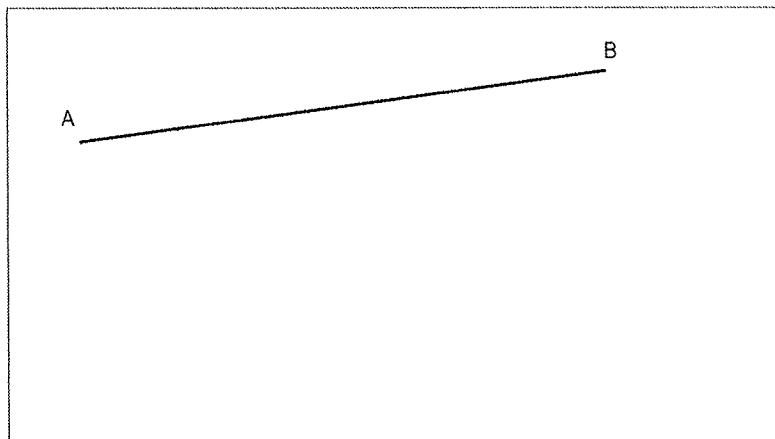
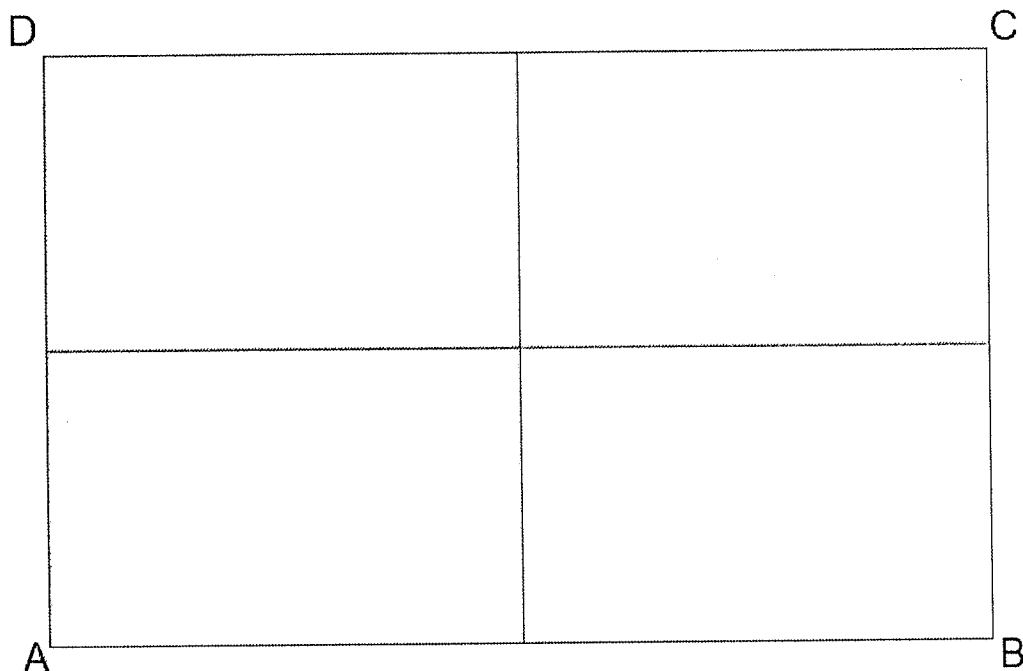


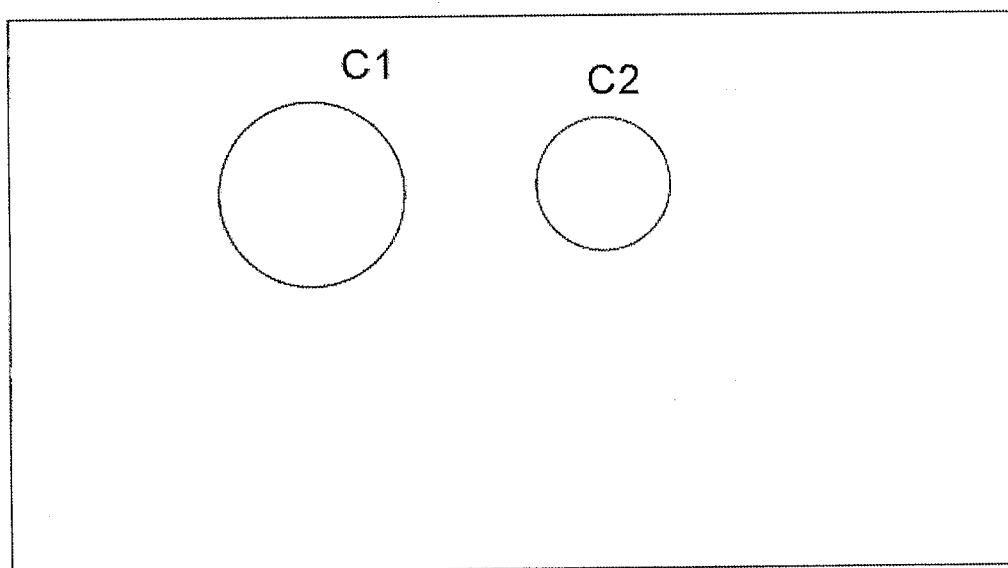
**Figure 1-a**

**Q1-b.**Construct an ellipse inscribed within the rectangle ABCD shown in **Figure Q1-b**.

5-marks

**Figure-Q1-b****Q1-c.**Construct the centers of circles C1 and C2 given in **Figure-Q1-c**. Then, draw an arc of **30mm** radius that is **externally tangent** to C1 and C2.

5-marks

**Figure-Q1-c**

Q2-a.

15-marks

Figure Q2-a shows a pictorial view of a solid object. Draw the following orthographic views to full scale, using first-angle projection, within the space provided.

- i. Front Elevation looking in the direction of arrow "A"
- ii. End Elevation looking in the direction of arrow "B"
- iii. Plan looking in the direction of arrow "C"

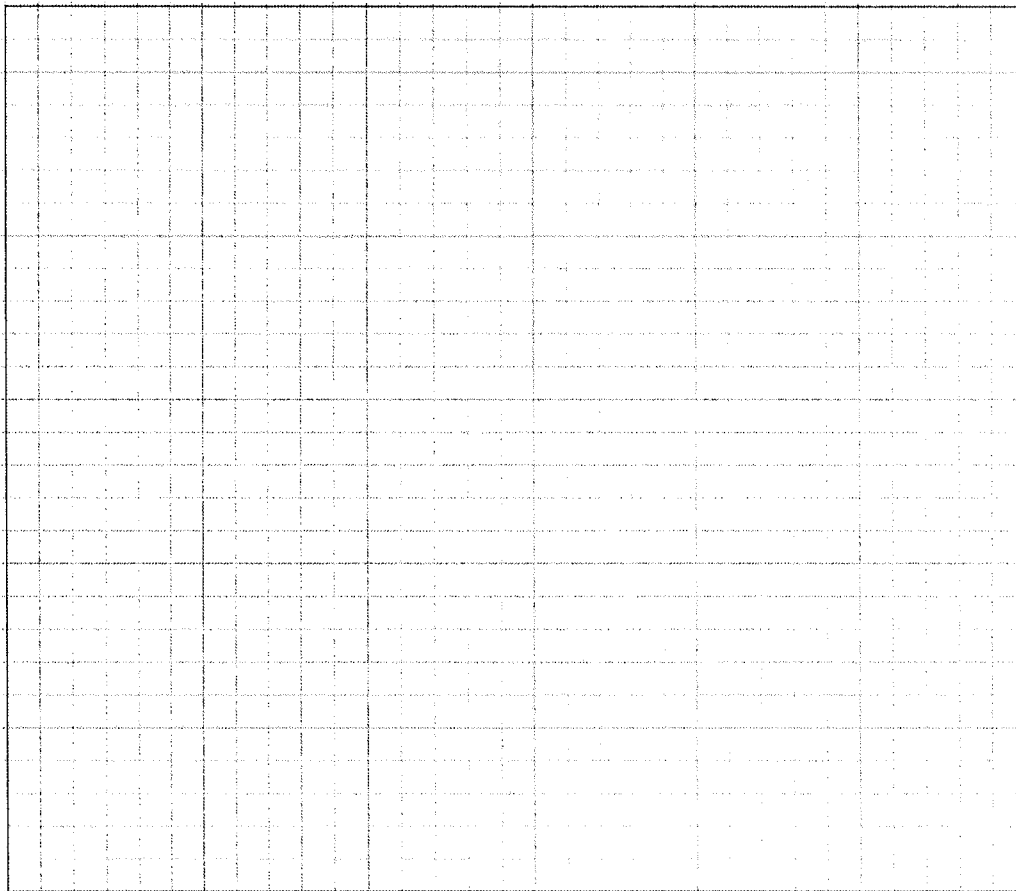
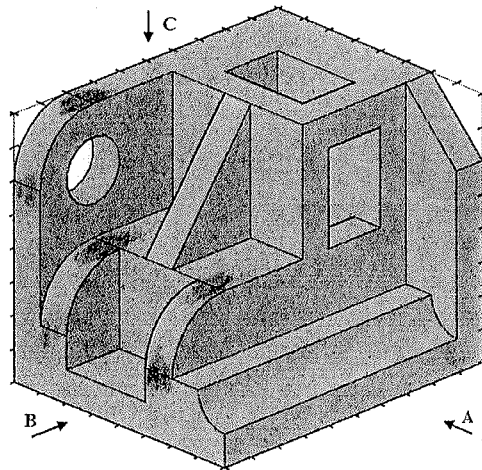


Figure-Q2-a

Q2-b.

5-marks

**Figure Q2-b** describes an object in first-angle projection. Complete the Sectional Front Elevation on X-X.

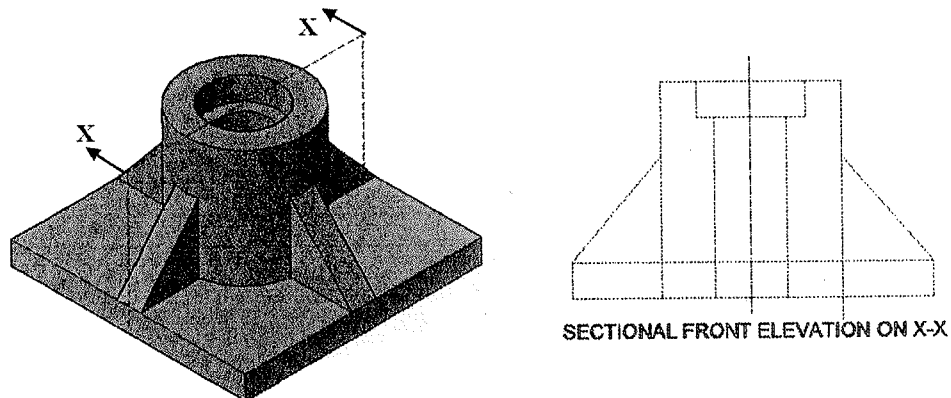


Figure-Q2-b

Q3.

5-marks

A stone (S) is attached to the end of a string which is wound around a regular hexagonal prism, as shown in **Figure Q3**. Draw the locus of the stone (S) for one complete revolution as the string is unwound, while keeping the string fully stretched.

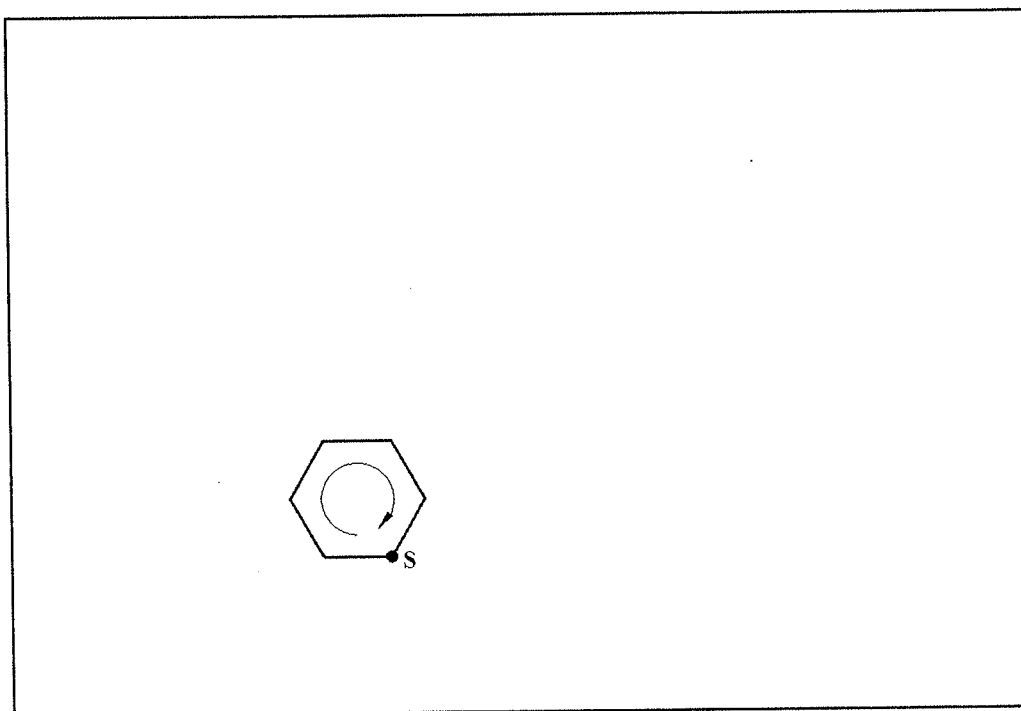


Figure-Q3

**Q4.** Construct the isometric view of the object using the given orthographic views.

10-marks

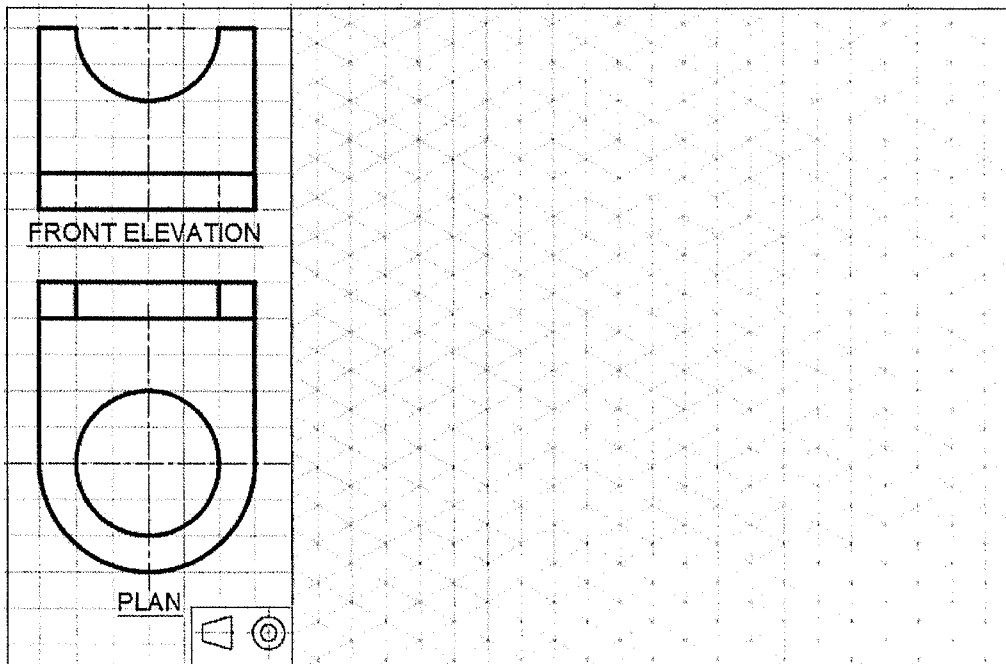


**Figure-Q4**

**Q5.**

**Figure Q5** shows the front and plan views of a truncated rectangular box. Draw the complete lateral surface development of the box. Assume the opening seam is located along the edge AA' as indicated in the figure.

10-marks

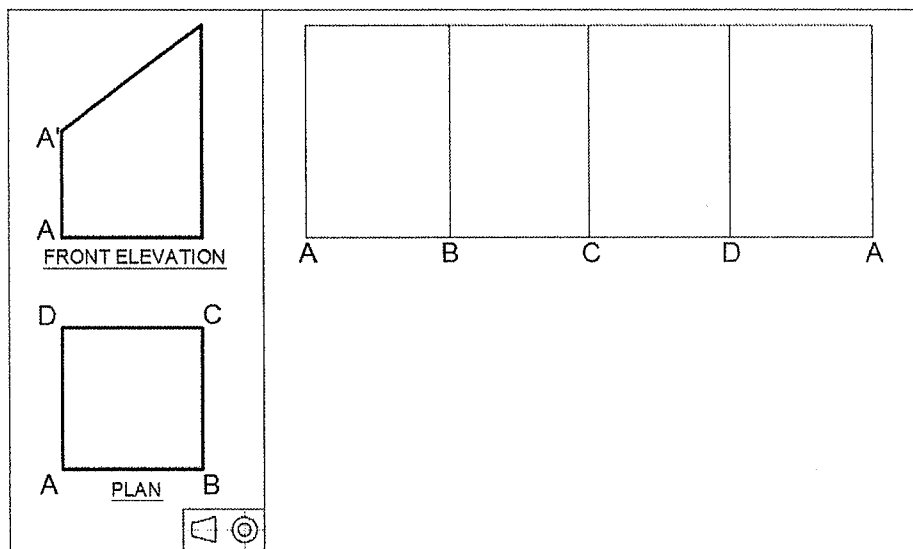
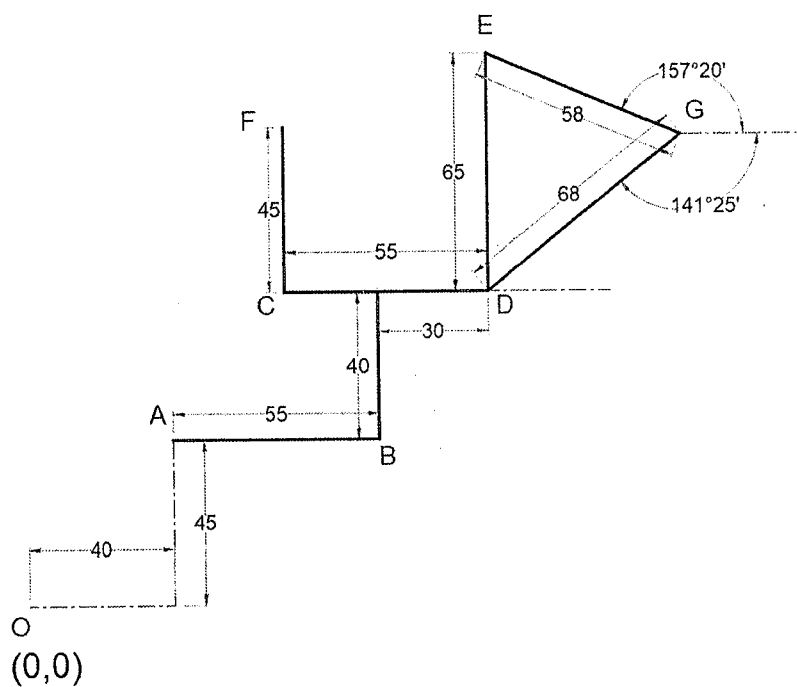


**Figure Q5**

**Part B****Computer Aided Drafting using AutoCAD****Figure-Q6**

*Question Q6 is based on the Figure-Q6*

**Q6-a**

3-marks

What are the absolute coordinates of point **A** and **D**?

A (.....), D (.....)

**Q6-b.**

3-marks

What are the relative coordinates of point **C** and **F** with respect to point **D**?

C (.....), F (.....)

**Q6-c.**

3-marks

What are the relative-polar coordinates of point **E** and **D** with respect to point **G**?

E (.....), D (.....),

Q7.

Write down the AutoCAD command used to obtain the **required figure** from the **given figure** in Table Q7.

21-marks

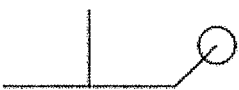
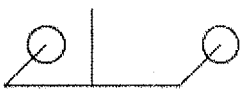
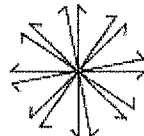
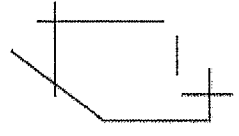
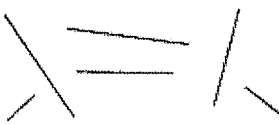
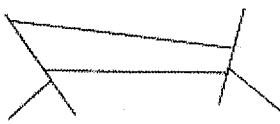
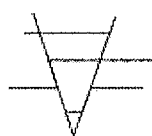
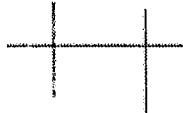
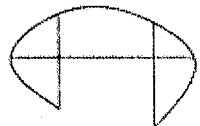
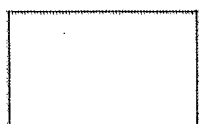
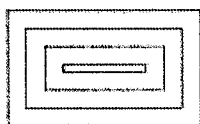
| GIVEN FIGURE                                                                        | COMMAND | REQUIRED FIGURE                                                                      |
|-------------------------------------------------------------------------------------|---------|--------------------------------------------------------------------------------------|
|    | -----   |    |
|    | -----   |    |
|    | -----   |    |
|  | -----   |  |
|  | -----   |  |
|  | -----   |  |
|  | -----   |  |

Table Q7

Q8.

Which the layer control settings should you use if you want to make a layer invisible in the drawing area?

4-marks

.....

Q9.

What are the **object snaps** that should be used to draw the line AB.

4-marks

A: .....

B: .....

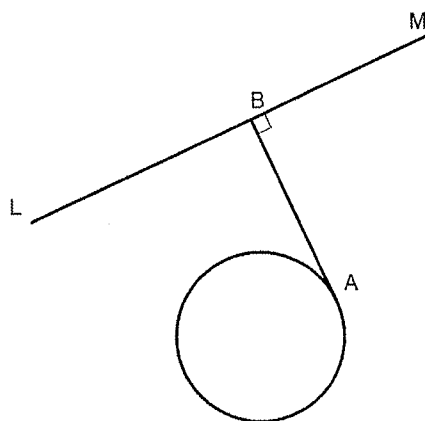


Figure-Q9

Q10.

What is the **option of the circle command** used to draw the circle C2, as shown in Figure-Q10? .....

2-marks

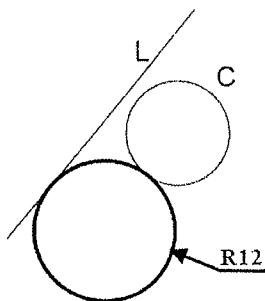


Figure-Q10

-----End of Paper-----