**Guru Nanak Dev Engineering College, Ludhiana**

**Department of Mechanical and Production Engineering**

| | | | |
|---|---|---|---|
| **Program** | B.Tech.(ECE) | **Semester** | 1st |
| **Subject Code** | ESC-103 | **Subject Title** | Engineering Graphics and Design |
| **Mid Semester Test (MST) No.** | 2 | **Course Coordinator(s)** | Dr. Amrinder Singh Pannu |
| **Max. Marks** | 24 | **Time Duration** | 1 hour 30 minutes |
| **Date of MST** | 9th Nov. 2023 | **Roll Number** | |

**Note:** Attempt all questions

| Q. No. | Question | COs, RBT level | Marks |
|---|---|---|---|
| Q1 | Give classification of solids. | CO1, L1, L2 | 2 |
| Q2 | What are the benefits of CAD? Also discuss array command. | CO6, L2, L5 | 2 |
| Q3 | A pentagonal prism of base side 30 mm and axis 60 mm has one of its rectangular faces on the H.P. and the axis inclined at 60° to the V.P. Draw its projections. | CO2, CO3, CO4, L3, L4, L6 | 4 |
| Q4 | A sphere of diameter 50 mm is surmounted centrally on the top of a square block of side 60 mm and thickness 20 mm. Draw the isometric view of the arrangement. | CO2, CO3, CO4, L3, L4, L6 | 4 |
| Q5 | A square pyramid of base side 40 mm and axis 60 mm is resting on its base on the H.P. such that a side of the base is parallel to the V.P. It is cut by a section plane perpendicular to the V.P. and inclined at 45° to the H.P., bisecting the axis. Draw the development of its lateral surface. | CO2, CO3, CO4, L3, L4, L6 | 4 |
| Q6 | A hexagonal prism of base side 30 mm and axis 70 mm is resting on a face on the H.P. with axis parallel to the V.P. It is cut by a plane whose V.T. is inclined at 30° to the reference line and passes through a point on the axis 20 mm from one of its ends. Draw its sectional top view and obtain true shape of the section. | CO2, CO3, CO4, L3, L4, L6 | 8 |

**Course Outcomes (CO)**

*Students will be able to*

| | |
|---|---|
| 1 | Understand various terms used in engineering drawing and Interpret the drawing in terms of engineering requirement. |
| 2 | Conceptualize, and deliver the fundamentals of engineering drawing for any given application. |
| 3 | Apply rules and conventions as per International Standards for engineering drawing. |
| 4 | Leam and apply orthographic as well as isometric projections as per engineering requirement. |
| 5 | Integrate ideas for offering efficient and effective solutions to the engineering problems. |
| 6 | Use computer to draw engineering drawings (2D) and basic 3D models. |

| **RBT Classification** | **Lower Order Thinking Levels (LOTS)** | | **Higher Order Thinking Levels (HOTS)** | | | |
|---|---|---|---|---|---|---|
| **RBT Level Number** | L1 | L2 | L3 | L4 | L5 | L6 |
| **RBT Level Name** | Remembering | Understanding | Applying | Analyzing | Evaluating | Creating |

# Guru Nanak Dev Engineering College, Ludhiana

## Department of Mechanical & Production Engineering

| | | | |
|---|---|---|---|
| **Programme** | B. Tech. | **Semester:** | 1st (ECE) |
| **Subject code:** | ESC -103 | **Subject Title:** | Engineering Graphics & Design |
| **MST No. - 1** | 1st | **Course Coordinator(S)** | Er. Lakhveer Singh Khan |
| **Max. Marks:** | 24 | **Time Duration** | 1 hour 30mins |
| **Date of MST** | 29.09.2023 | **Roll Number** | |

**Note: Attempt All Questions** (Assume suitable data if missing)

| Q.No. | | CO's,RBT Level | Marks |
|---|---|---|---|
| Q1. | Why it is always preferred to have 1st and 3rd angle projections in drawing? | CO1, L2 | 2 |
| Q2. | What are the different types of Dimensioning? | CO2, L3 | 2 |
| Q3. | Draw the conventional representation of any four type of lines used in engineering practice. Also mention its uses or applications. | CO2, L1 | 4 |
| Q4. | A Point P is 25 mm above the HP and 30 mm in front of the VP. Determine its least distance from XY line. | CO2,CO3, CO4 L5 | 4 |
| Q5. | Print "DHAN GURU NANAK" in single stroke uppercase vertical letters by using suitable scale. | CO2.CO3, CO4 L5 | 4 |
| Q6. | A straight line AB 70 mm long makes an angle of 40°to HP and 30°to the VP. The end A is 15 mm in front of VP and 25 mm above HP. Draw the plan and elevation of the line AB. | CO2,CO3, CO4 L5 | 8 |

**Course Outcomes (CO)** *Students will be able to*

| | |
|---|---|
| 1 | Understand various terms used in engineering drawing and interpret the drawing in terms of engineering requirement. |
| 2 | Conceptualize and deliver the fundamentals of engineering drawing for any given application. |
| 3 | Apply rules and conventions as per International Standards for engineering drawing. |
| 4 | Learn and apply orthographic as well as isometric projections as per engineering requirement. |
| 5 | Integrate ideas for offering efficient and effective solutions to the engineering problems. |
| 6 | Use computer to draw engineering drawing (2D) and basic 3D models. |

| **RBT Classification** | **Lower Order Thinking Levels (LOTS)** | | | **Higher Order Thinking Levels (HOTS)** | | |
|---|---|---|---|---|---|---|
| **RBT Level Number** | L1 | L2 | L3 | L4 | L5 | L6 |
| **RBT Level Name** | Remembering | Understanding | Applying | Analyzing | Evaluating | Creating |

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**Department of Mechanical & Production Engineering**

| | | | |
|---|---|---|---|
| **Programme** | B.Tech. | **Semester:** | 2nd |
| **Subject code:** | ESC -103 | **Subject Title:** | Engineering Graphics & Design |
| **Mid Sem. Test (MST No:)** | 1ST | **Course Coordinator(S)** | |
| **Max. Marks:** | 24 | **Time Duration** | 1 hour 30mins |
| **Date Of MST** | 25th Mar. 2023 | **Roll Number** | |

**Note: Attempt All Questions** (Assume suitable data if missing)

| Q.No. | | CO's,RBT Level | Marks |
|---|---|---|---|
| Q1 | What is the difference between first and third angle projections? | CO1, L2 | 2 |
| Q2. | Define the trace of a straight line. | CO2, L3 | 2 |
| Q3. | Draw the conventional representation of any four type of lines used in engineering practice. Also mention its uses or applications. | CO2, L3 | 4 |
| Q4. | A Point A is 30 mm above HP and 20 mm infront of the VP. Another point B is 40 mm below HP and 25 mm behind the VP. The distance between the end projectors is 40 mm. Draw the projections of the points. Also draw straight lines joining their front and top views. | CO2,CO3, CO4,L3 | 4 |
| Q5. | A line AB, 60 mm long, makes an angle of $30^0$ to the HP and $45^0$ to the VP. Its end A is 30 mm above the HP and 40 mm infront of the VP. Draw its projections and locate its traces. | CO2,CO3, CO4,L4 | 4 |
| Q6. | A regular hexagonal lamina of side 25 mm is parallel to HP and 15 mm from it. Draw its projections when a). a side is perpendicular to the VP; b). a side is inclined at $45^0$ to the VP. Locate its traces too. | CO2,CO3, CO4,L4 | 8 |

**Course Outcomes (CO)** *Students will be able to*

| | |
|---|---|
| 1 | Understand various terms used in engineering drawing and interpret the drawing in terms of engineering requirement. |
| 2 | Conceptualize and deliver the fundamentals of engineering drawing for any given application. |
| 3 | Apply rules and conventions as per International Standards for engineering drawing. |
| 4 | Learn and apply orthographic as well as isometric projections as per engineering requirement. |
| 5 | Integrate ideas for offering efficient and effective solutions to the engineering problems. |
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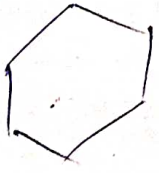
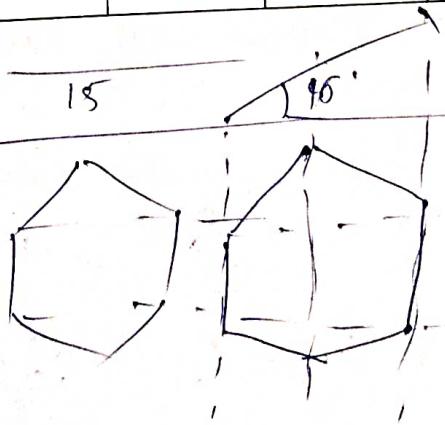
|---|---|---|---|---|---|---|
| **RBT Level Number** | L1 | L2 | L3 | L4 | L5 | L6 |
| **RBT Level Name** | Remembering | Understanding | Applying | Analyzing | Evaluating | Creating |

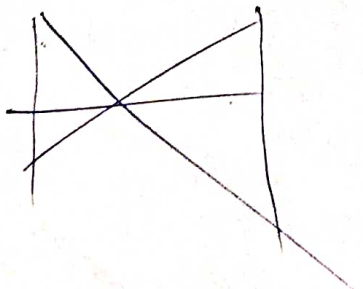
Q6 (a) 15



(b) 15 45°



Q5 (a)



| Guru Nanak Dev Engineering College, Ludhiana | | | |
|---|---|---|---|
| **Department of Applied Science** | | | |
| **Program** | B.Tech.(IT) | **Semester** | 2 |
| **Subject Code** | ESC-103 | **Subject Title** | Engineering Graphics and Design |
| **Mid Semester Test (MST) No.** | 1 | **Course Coordinator(s)** | Pf. Gurmeet Kaur |
| **Max. Marks** | 24 | **Time Duration** | 1 hour 30 minutes |
| **Date of MST** | 25th March, 2023 (10:45-12:15) | **Roll Number** | |

**Note:** Attempt all questions

| Q. No. | Question | COs, RBT level | Marks |
|---|---|---|---|
| Q1 | Draw different elements of dimensioning with neat sketch. | CO1, L2 | 2 |
| Q2 | Why projections in 2nd and 4th quadrants are not drawn in engineering drawing. | CO2, L3 | 2 |
| Q3 | Draw and enlist applications of following line-types: Hidden Line (ii) Continuous thin line thick at Ends | CO2, L3 | 4 |
| Q4 | A regular pentagonal plane having edge 30 mm long has its surface parallel to HP. Draw its projections if one of its edge (a) is parallel to VP (b) Perpendicular to VP | CO2,CO3, CO4, L3 | 4 |
| Q5 | A point Q lies 30 mm above HP and 45 mm in front of VP. Draw its projections and also find its shortest distance from origin. | CO2,CO3, CO4, L3 | 4 |
| Q6 | A line segment AB 70 mm long has its end A 15 mm above HP and 20 mm in front of VP, makes an angle of $30^0$ to HP and $45^0$ to VP. Draw its projections and locate its traces. | CO2,CO3, CO4, L4 | 8 |

**Course Outcomes (CO)**

*Students will be able to*

| | |
|---|---|
| 1 | Understand various terms used in engineering drawing and Interpret the drawing in terms of engineering requirement. |
| 2 | Conceptualize, and deliver the fundamentals of engineering drawing for any given application. |
| 3 | Apply rules and conventions as per International Standards for engineering drawing. |
| 4 | Learn and apply orthographic as well as isometric projections as per engineering requirement. |
| 5 | Integrate ideas for offering efficient and effective solutions to the engineering problems. |
| 6 | Use computer to draw engineering drawings (2D) and basic 3D models. |

| **RBT Classification** | **Lower Order Thinking Levels (LOTS)** | | | **Higher Order Thinking Levels (HOTS)** | | |
|---|---|---|---|---|---|---|
| **RBT Level Number** | L1 | L2 | L3 | L4 | L5 | L6 |
| **RBT Level Name** | Remembering | Understanding | Applying | Analyzing | Evaluating | Creating |

**Guru Nanak Dev Engineering College, Ludhiana**

**Department of Mechanical & Production Engineering**

| | | | |
|---|---|---|---|
| **Program** | B. Tech.(ECE) | **Semester** | 2nd |
| **Subject Code** | ESC-103 | **Subject Title** | Engineering Graphics & Design |
| **Mid Semester Test (MST) No.** | 2 | **Course Coordinator(s)** | Prof Shehbaaz Singh, Prof Satwant Singh, Prof Ramandeep Singh |
| **Max. Marks** | 24 | **Time Duration** | 1 hour 30 minutes |
| **Date of MST** | 25 May, 2023 | **Roll Number** | |

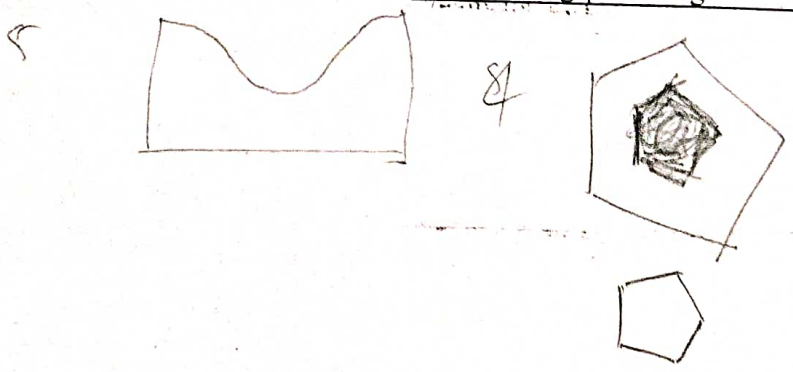
**Note:** Attempt all questions

| Q. No. | Question | COs, RBT level | Marks |
|---|---|---|---|
| Q1 | What is a sectional view? Why sectional views are used in drawing? | CO3, L1 | 2 |
| Q2 | Distinguish between frustum of a solid and truncated of a solid? | CO2, L1,L2 | 2 |
| Q3 | Write a short note on absolute and polar coordinate system. | CO4, L3 | 4 |
| Q4 | A right regular pentagonal pyramid, edge of base 30 mm and height 50 mm, rests on its base on HP with one of its base edge perpendicular to VP. A section plane parallel to the HP cuts the pyramid bisecting its axis. Draw its front view and sectional top view. | CO2, L6 | 4 |
| Q5 | A cylinder of base 40 mm and height 50 mm is cut by a section plane which makes $45^0$ with the HP at a distance of 40 mm from lower base. Draw the development for the lower part of the cylinder. | CO2, L6 | 4 |
| Q6 | A sphere of diameter 45 mm rests centrally over a frustum of cone of base diameter 60 mm, top diameter 40 mm and height 60 mm. Draw isometric projections of the combination of solids. | CO4, CO5, L6 | 8 |

**Course Outcomes (CO)** *Students will be able to*

| | |
|---|---|
| 1 | Understand various terms used in engineering drawing and interpret the drawing in terms of engineering requirement. |
| 2 | Conceptualize and deliver the fundamentals of engineering drawing for any given application. |
| 3 | Apply rules and conventions as per International Standards for engineering drawing. |
| 4 | Learn and apply orthographic as well as isometric projections as per engineering requirement. |
| 5 | Integrate ideas for offering efficient and effective solutions to the engineering problems. |
| 6 | Use computer to draw engineering drawing (2D) and basic 3D models. |

| **RBT Classification** | **Lower Order Thinking Levels (LOTS)** | | | **Higher Order Thinking Levels (HOTS)** | | |
|---|---|---|---|---|---|---|
| **RBT Level Number** | L1 | L2 | L3 | L4 | L5 | L6 |
| **RBT Level Name** | Remembering | Understanding | Applying | Analyzing | Evaluating | Creating |



ECD CSE EGD (1)

| Guru Nanak Dev Engineering College, Ludhiana | | | |
|---|---|---|---|
| **Department of Mechanical & Production Engineering** | | | |
| **Program** | B.Tech. | **Semester** | 1st |
| **Subject Code** | ESC -103 | **Subject Title** | Engineering Graphics & Design |
| **Mid Semester Test (MST) No.** | 1 | **Course Coordinator(s)** | Prof. Gurpreet Singh |
| **Max. Marks** | 24 | **Time Duration** | 1 hour 30 minutes |
| **Date of MST** | 18 Nov., 2022 | **Roll Number** | 2215019 |

**Note:** Attempt all questions

| Q. No. | Question | COs, RBT level | Marks |
|---|---|---|---|
| Q1 | Differentiate between first angle and third angle. | CO1, L2 | 2 |
| Q2 | Draw the conventional representation of long chain thick line and its application. | CO1, L1 | 2 |
| Q3 | A Point C is in the HP and 40 mm infront of the VP. Another point D is 30 mm below HP and 25 mm behind the VP. The distance between the end projector is 40 mm. Draw the projection of points. Also draw the straight lines joining their front and top views. | CO2, CO3, L3 | 4 |
| Q4 | A Line AB, 50 mm long has its end A 30 mm away from the HP and 20 mm away from the VP. The line is parallel to both HP and VP. Draw its Projections in all the four quadrants. | CO2, CO3, L3 | 4 |
| Q5 | A regular pentagonal lamina ABCDE of 25 mm side has one side on HP. Its surface is inclined at 45° to the HP and perpendicular to the VP. Draw its projections and show its traces. | CO3, CO5, L6 | 4 |
| Q6 | A Line AB 60 mm long has its end A 15 mm above the HP and 20 mm infront of VP. The front and top views of the line AB are inclined 45° and 30° respectively. Draw its projections and find the true angles of inclination with HP and VP. | CO3, CO5, L6 | 8 |

**Course Outcomes (CO)** *Students will be able to*

| | |
|---|---|
| 1 | Understand various terms used in engineering drawing and interpret the drawing in terms of engineering requirement. |
| 2 | Conceptualize and deliver the fundamentals of engineering drawing for any given application. |
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| 4 | Learn and apply orthographic as well as isometric projections as per engineering requirement. |
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| 6 | Use computer to draw engineering drawing (2D) and basic 3D models. |

| **RBT Classification** | **Lower Order Thinking Levels (LOTS)** | | | **Higher Order Thinking Levels (HOTS)** | | |
|---|---|---|---|---|---|---|
| **RBT Level Number** | L1 | L2 | L3 | L4 | L5 | L6 |
| **RBT Level Name** | Remembering | Understanding | Applying | Analyzing | Evaluating | Creating |

Q6 $\theta = 45°$

$\phi = 30°$

30

20

**Guru Nanak Dev Engineering College, Ludhiana**

**Department of Mechanical & Production Engineering**

| | | | |
|---|---|---|---|
| **Program** | B. Tech. | **Semester** | 1st |
| **Subject Code** | ESC -103 | **Subject Title** | Engineering Graphics & Design |
| **Mid Semester Test (MST) No.** | 1 | **Course Coordinator(s)** | Dr. Deepinder Singh |
| **Max. Marks** | 24 | **Time Duration** | 1 hour 30 minutes |
| **Date of MST** | 18 Nov., 2022 | **Roll Number** | |

**Note:** Attempt all questions

| Q. No. | Question | COs, RBT level | Marks |
|---|---|---|---|
| Q1 | Differentiate between aligned and uni-directional method of dimensioning using a suitable example. | CO1, L2 | 2 |
| Q2 | Sketch the hidden line and centre line. | CO1, L1 | 2 |
| Q3 | Draw the projections of points in third quadrant, when the<br>(i) Point B lies 35 mm from the HP and 22 mm from the VP.<br>(ii) Point C lies in the VP and 32 mm away from the HP. | CO2, CO3, L3 | 4 |
| Q4 | A Point P is 30 mm below the HP and 35 mm behind the VP. Determine its least distance from xy line. | CO2, CO3, L3 | 4 |
| Q5 | A straight line AB 60 mm long makes an angle of 45° to HP and 30° to the VP. The end A is 15 mm in front of VP and 25 mm above HP. Draw the projections of the line AB. | CO3, CO5, L6 | 4 |
| Q6 | A regular pentagonal lamina ABCDE of 30 mm side, rests on HP on one of its sides such that it is inclined to the HP at $45^0$ and the side on which it rests, inclined at $30^0$ to the VP. Draw its projections. | CO3, CO5, L6 | 8 |

**Course Outcomes (CO)** *Students will be able to*

| | |
|---|---|
| 1 | Understand various terms used in engineering drawing and interpret the drawing in terms of engineering requirement. |
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| **RBT Classification** | **Lower Order Thinking Levels (LOTS)** | | | **Higher Order Thinking Levels (HOTS)** | | |
|---|---|---|---|---|---|---|
| **RBT Level Number** | L1 | L2 | L3 | L4 | L5 | L6 |
| **RBT Level Name** | Remembering | Understanding | Applying | Analyzing | Evaluating | Creating |

EGD

(3)

**Guru Nanak Dev Engineering College, Ludhiana**

**Department of Mechanical & Production Engineering**

| | | | |
|---|---|---|---|
| **Program** | B. Tech. | **Semester** | 1st |
| **Subject Code** | ESC-103 | **Subject Title** | Engineering Graphics & Design |
| **Mid Semester Test (MST) No.** | 2 | **Course Coordinator(s)** | Dr. Deepinder Singh |
| **Max. Marks** | 24 | **Time Duration** | 1 hour 30 minutes |
| **Date of MST** | 15 Dec., 2022 | **Roll Number** | 2214053 |

**Note:** Attempt all questions

| Q. No. | Question | COs, RBT level | Marks |
|---|---|---|---|
| Q1 | What is a sectional view? Why sectional views are used in drawing? | CO3, L1 | 2 |
| Q2 | Distinguish between frustum of a solid and truncated of a solid? | CO2, L1,L2 | 2 |
| Q3 | A right regular hexagonal prism, side of base 25 mm and axis 50 mm long, having one of its base edges parallel to the VP with its axis perpendicular to the HP. Draw its front, top and side views. | CO4, L3 | 4 |
| Q4 | A right regular pentagonal pyramid, edge of base 30 mm and height 50 mm, rests on its base on HP with one of its base edge perpendicular to VP. A section plane parallel to the HP cuts the pyramid bisecting its axis. Draw its front view and sectional top view. | CO2, L6 | 4 |
| Q5 | A cylinder of base 40 mm and height 60 mm is cut by a section plane which makes $45^0$ with the HP at a distance of 40 mm from lower base. Draw the development for the lower part of the cylinder. | CO2, L6 | 4 |
| Q6 | A square pyramid, edge of base 30 mm and height 50 mm, rests on its base in HP such that one of its base edges is parallel to the VP. A section plane perpendicular to the VP and inclined to the HP at $30^0$ cuts the pyramid bisecting its axis. Draw its front view, sectional top view and develop the lateral surface of the truncated pyramid. | CO4, CO5, L6 | 8 |

**Course Outcomes (CO)** *Students will be able to*

| | |
|---|---|
| 1 | Understand various terms used in engineering drawing and interpret the drawing in terms of engineering requirement. |
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|---|---|---|---|---|---|---|
| **RBT Level Number** | L1 | L2 | L3 | L4 | L5 | L6 |
| **RBT Level Name** | Remembering | Understanding | Applying | Analyzing | Evaluating | Creating |

(4)

| Guru Nanak Dev Engineering College, Ludhiana | | | |
|---|---|---|---|
| Department of Mechanical & Production Engineering | | | |
| **Program** | B.Tech. | **Semester** | 1st |
| **Subject Code** | ESC -103 | **Subject Title** | Engineering Graphics & Design |
| **Mid Semester Test (MST) No.** | 2nd | **Course Coordinator(s)** | |
| **Max. Marks** | 24 | **Time Duration** | 1 hour 30 minutes |
| **Date of MST** | 15 Dec, 2022 | **Roll Number** | |

**Note:** Attempt all questions

| Q. No. | Question | COs, RBT level | Marks |
|---|---|---|---|
| Q1 | Differentiate between the Prism and Pyramid. | CO1, L2 | 2 |
| Q2 | What do you mean by section plane? | CO2, L1 | 2 |
| Q3 | A triangular prism side of base 30 mm and axis 55 mm long, lies on one of its rectangular faces in HP, with its axis perpendicular to VP. Draw its front and top view. | CO2, CO3, L3 | 4 |
| Q4 | A right circular cone, diameter of base 50 mm and height 60 mm, rests on its base in HP. A section plane perpendicular the VP and parallel to the HP cuts the cone, bisecting its axis. Draw its front view and sectional top view. | CO2, CO4, L3 | 4 |
| Q5 | A cylinder of base 40 mm and height 60 is cut by a section plane which makes 45° with the HP at a distance of 40 mm from lower base. Draw the development for the lower part of the cylinder. | CO4, CO5, L6 | 4 |
| Q6 | A right regular pentagonal prism, edge of base 25 mm and height 60 mm, is resting on one of its base edges in HP, such that its axis is inclined at 45° to the HP and parallel to the VP. Draw three views of the pentagonal prism. | CO2, CO4, L6 | 8 |

**Course Outcomes (CO)** *Students will be able to*

| | |
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|---|---|---|---|---|---|---|
| **RBT Level Number** | L1 | L2 | L3 | L4 | L5 | L6 |
| **RBT Level Name** | Remembering | Understanding | Applying | Analyzing | Evaluating | Creating |

X Same page (5)

**Guru Nanak Dev Engineering College, Ludhiana**

**Department of Mechanical & Production Engineering**

| | | | |
|---|---|---|---|
| **Program** | B. Tech. | **Semester** | 1st |
| **Subject Code** | ESC-103 | **Subject Title** | Engineering Graphics & Design |
| **Mid Semester Test (MST) No.** | 2 | **Course Coordinator(s)** | Dr. Deepinder Singh |
| **Max. Marks** | 24 | **Time Duration** | 1 hour 30 minutes |
| **Date of MST** | 15 Dec., 2022 | **Roll Number** | 2216062 |

**Note:** Attempt all questions

| Q. No. | Question | COs, RBT level | Marks |
|---|---|---|---|
| Q1 | What is a sectional view? Why sectional views are used in drawing? | CO3, L1 | 2 |
| Q2 | Distinguish between frustum of a solid and truncated of a solid? | CO2, L1,L2 | 2 |
| Q3 | A right regular hexagonal prism, side of base 25 mm and axis 50 mm long, having one of its base edges parallel to the VP with its axis perpendicular to the HP. Draw its front, top and side views. | CO4, L3 | 4 |
| Q4 | A right regular pentagonal pyramid, edge of base 30 mm and height 50 mm, rests on its base on HP with one of its base edge perpendicular to VP. A section plane parallel to the HP cuts the pyramid bisecting its axis. Draw its front view and sectional top view. | CO2, L6 | 4 |
| Q5 | A cylinder of base 40 mm and height 60 mm is cut by a section plane which makes $45^0$ with the HP at a distance of 40 mm from lower base. Draw the development for the lower part of the cylinder. | CO2, L6 | 4 |
| Q6 | A square pyramid, edge of base 30 mm and height 50 mm, rests on its base in HP such that one of its base edges is parallel to the VP. A section plane perpendicular to the VP and inclined to the HP at $30^0$ cuts the pyramid bisecting its axis. Draw its front view, sectional top view and develop the lateral surface of the truncated pyramid. | CO4, CO5, L6 | 8 |

**Course Outcomes (CO)** *Students will be able to*

| | |
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| 1 | Understand various terms used in engineering drawing and interpret the drawing in terms of engineering requirement. |
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| 5 | Integrate ideas for offering efficient and effective solutions to the engineering problems. |
| 6 | Use computer to draw engineering drawing (2D) and basic 3D models. |

| **RBT Classification** | **Lower Order Thinking Levels (LOTS)** | | | **Higher Order Thinking Levels (HOTS)** | | |
|---|---|---|---|---|---|---|
| **RBT Level Number** | L1 | L2 | L3 | L4 | L5 | L6 |
| **RBT Level Name** | Remembering | Understanding | Applying | Analyzing | Evaluating | Creating |

**Guru Nanak Dev Engineering College, Ludhiana**

**Department of Mechanical & Production Engineering**

| | | | |
|---|---|---|---|
| **Program** | B. Tech. | **Semester** | 1st |
| **Subject Code** | ESC -103 | **Subject Title** | Engineering Graphics & Design |
| **Mid Semester Test (MST) No.** | 1 | **Course Coordinator(s)** | Dr. Deepinder Singh |
| **Max. Marks** | 24 | **Time Duration** | 1 hour 30 minutes |
| **Date of MST** | 18 Nov., 2022 | **Roll Number** | 2216062 |

**Note:** Attempt all questions

| Q. No. | Question | COs, RBT level | Marks |
|---|---|---|---|
| Q1 | Differentiate between aligned and uni-directional method of dimensioning using a suitable example. | CO1, L2 | 2 |
| Q2 | Sketch the hidden line and centre line. | CO1, L1 | 2 |
| Q3 | Draw the projections of points in third quadrant, when the<br>(i) Point B lies 35 mm from the HP and 22 mm from the VP.<br>(ii) Point C lies in the VP and 32 mm away from the HP. | CO2, CO3, L3 | 4 |
| Q4 | A Point P is 30 mm below the HP and 35 mm behind the VP. Determine its least distance from xy line. | CO2, CO3, L3 | 4 |
| Q5 | A straight line AB 60 mm long makes an angle of 45° to HP and 30° to the VP. The end A is 15 mm in front of VP and 25 mm above HP. Draw the projections of the line AB. | CO3, CO5, L6 | 4 |
| Q6 | A regular pentagonal lamina ABCDE of 30 mm side, rests on HP on one of its sides such that it is inclined to the HP at $45^0$ and the side on which it rests, inclined at $30^0$ to the VP. Draw its projections. | CO3, CO5, L6 | 8 |

**Course Outcomes (CO)** *Students will be able to*

| | |
|---|---|
| 1 | Understand various terms used in engineering drawing and interpret the drawing in terms of engineering requirement. |
| 2 | Conceptualize and deliver the fundamentals of engineering drawing for any given application. |
| 3 | Apply rules and conventions as per International Standards for engineering drawing. |
| 4 | Learn and apply orthographic as well as isometric projections as per engineering requirement. |
| 5 | Integrate ideas for offering efficient and effective solutions to the engineering problems. |
| 6 | Use computer to draw engineering drawing (2D) and basic 3D models. |

| **RBT Classification** | **Lower Order Thinking Levels (LOTS)** | | | **Higher Order Thinking Levels (HOTS)** | | |
|---|---|---|---|---|---|---|
| **RBT Level Number** | L1 | L2 | L3 | L4 | L5 | L6 |
| **RBT Level Name** | Remembering | Understanding | Applying | Analyzing | Evaluating | Creating |

(1)

EGD

MORNING
06 JUL 2018

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. .....

Program/ Course: B.Tech. (Sem. 1st/2nd)
Name of Subject: **Engineering Graphics and Design**
Subject Code: ESC-103
Paper ID: 15931

**Time Allowed: 03 Hours** **Max. Marks: 60**

NOTE:

1) All sections are compulsory
2) Section- A and Section-B are based on Part-I (Theory) of syllabus [both Traditional Engineering Graphics (TEG) and Computer Graphics (CG)
3) Section-C is out of Part-II [**Practice (Drawing)**] portion of syllabus (Traditional Engineering Graphics ONLY).
4) Any missing data may be assumed appropriately.

**Section – A** (From Part - I (Theory) both TEG and CG)

**[Marks: 02 each]**

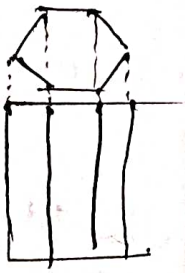
Q1.

a) Define Trace of a Line.
b) Differentiate between first angle projections and third angle projections.
c) Give application of development of solids?
d) Enlist methods of dimensioning with neat sketch of each.
e) What are oblique planes?
f) What is the utility of extrude command?

**Section – B** (From Part - I (Theory) both TEG and CG)

**[Marks: 04 each]**

**Section-B1** (TEG ONLY)



Q2. A right regular hexagonal prism with base edge 25 mm and axis 70 mm long is resting on one of its vertical edge on HP such that its axis is parallel to both HP and VP. Draw its projections.

Q3. A point P is 25 mm above HP and 40 mm in front of VP. Draw its projections and determine shortest distance of point from origin.

**Section-B2** (CG ONLY)

Q4. Enlist the advantages of computer aided drafting over manual drafting.

Q5. Enlist different types of array command. Discuss in detail stepwise procedure of Polar array along with its use.



P.T.O.

## Section – C (From Part - II [Practice (Drawing)] TEG only)

[Marks: 08 each]

Q6. A right regular circular cone having diameter of base 50 mm and height 60 mm, lies one of its elements in HP with axis parallel to VP. Draw its projections.

**Or**

Draw the projections of the rhombus having diagonals 100 mm and 50 mm long resting on one of its corner in HP. The bigger diagonal is inclined at $45^0$ to HP and smaller diagonal is parallel to both the planes.

Q7. A right regular square pyramid of 35 mm base edge and axis 60 mm long is resting on its base on HP with one of its base edge parallel to VP. A section plane perpendicular to the VP and inclined to HP at $30^0$ cuts the pyramid bisecting its axis. Draw its front view, sectional top view and develop the lateral surface of truncated pyramid.

**Or**

A right regular pentagonal pyramid, edge of base 25 mm and height 70 mm resting on its base on HP with one of its base edge parallel to VP. It is cut by a section plane inclined at $30^0$ to the VP at a distance of 10 mm away from its axis. Draw its top view, sectional front view and true shape of the section.

Q8. A line CD 70 mm long is inclined at $45^0$ to HP and $30^0$ to VP, such that point C lies on both HP and VP. Draw its projections.

**Or**

A line AB has its end A 25 mm above HP and 20 mm in front of VP while its end B is 55 mm above HP and 65 mm in front of VP. Draw its true length of AB, $\beta$, $\theta$ and locate its traces, if end projectors are 60 mm apart.

Q9. A right circular cone of base radius 20 mm and axis 30 mm long rest centrally on a right regular hexagonal prism having base edge 30 mm and axis 50 mm long. Draw its isometric projections.

**Or**

Draw the isometric projections of a sphere of diameter 30 mm resting centrally on top of square block having side 60 mm and thickness 15 mm.

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EGD S-210 S-02 M

B

[Total No. of Questions: 09] [Total No. of Pages: 2.]

Uni. Roll No. 2203347

Program/ Course: **B.Tech. (Sem. 1st/2nd)**
Name of Subject: **Engineering Graphics and Design**
Subject Code: **ESC-103**
Paper ID: **15931**
Scientific calculator and Drafter is allowed

**Time Allowed: 03 Hours** **Max. Marks: 60**

**NOTE:**

1) **All sections are compulsory**
2) **Section- A** and **Section-B** are based on Part-I (Theory) of syllabus [both Traditional Engineering Graphics (TEG) and Computer Graphics (CG)
3) **Section-C** is out of Part-II **[Practice (Drawing)]** portion of syllabus (Traditional Engineering Graphics ONLY).
4) Any missing data may be assumed appropriately

**Section – A** (From Part - I (Theory) both TEG and CG) **[Marks: 02 each]**

**Q1.**

(a) Difference between 'fillet' and 'chamfer' command.
(b) Classify various types of Polyhedra.
(c) Which types of solid surfaces are developed by radial line method? — Cylinder, Pyramid
(d) Differentiate between frustum and truncated solid with neat sketch.
(e) Give relation between isometric and true length.
(f) What is orthographic projection and why they are named so?

**Section – B** (From Part - I (Theory) both TEG and CG) **[Marks: 04 each]**

**Section-B1** (TEG ONLY)

**Q2.** A point 'Q' lies 40 mm above HP and 60 mm in front of VP. Draw its projection and find its shortest distance from origin.

**Q3.** Draw and enlist applications of zig-zag line; dotted line; long chain thin but thick at ends and continuous thin line.

**Section-B2** (CG ONLY)

**Q4** What is User-coordinate system? Discuss its various types by considering an example for construction of rectangle with dimensions 60mm x 40mm.

**Q5.** Discuss different types of 'Array' commands.



P.T.O.

## Section – C (From Part - II [Practice (Drawing)] TEG only)

**[Marks: 08 each]**

**Q6.** A 70 mm long line PQ is inclined at 30° to the H.P. The end P is 15 mm in front of the V.P. and 25 mm above the H.P. The front view of the line measures 45 mm. Draw the projections of the line PQ and determine its true angle of inclination with the V.P.

**Or**

A 100 mm long line PQ is inclined at 30° to the H.P. and 45° to the V.P. Its mid-point is 35 mm above the H.P. and 50 mm in front of the V.P. Draw its projections.

**Q7.** PQRS is a rhombus having diagonal PR = 60 mm and QS = 40 mm and they are perpendicular to each other. The plane of the rhombus is inclined with H.P. such that its top view appears to be square. The top view of PR makes 30° with the V.P. Draw its projections and determine inclination of the plane with the H.P.

**Or**

An equilateral triangular prism 20 mm side of base and 50 mm long rests with one of its base edge on HP such that the rectangular face containing that edge on which the prism rests is inclined at 30° to HP. The edge on which prism rests is inclined at 60° to VP. Draw its projections.

**Q8.** A square pyramid of base side 40 mm and axis 60 mm is resting on its base on the H.P. with all the sides of the base equally inclined to the V.P. Draw its sectional views and true shape of the section, if it is cut by a section plane perpendicular to the V.P., bisecting the axis and is inclined at 45° to the H.P.

**Or**

Draw the development of the lateral surface of the cylinder having base diameter 40 mm and axis 60 mm long. A square hole of 20 mm side is drilled centrally through its axis such that edges of square hole are equally inclined to HP.

**Q9.** A square pyramid of base side 25 mm and axis 40 mm rests centrally over a cylindrical block of base diameter 50 mm and thickness 20 mm. Draw the isometric projection of the arrangement.

**Or**

Draw the isometric projection of the frustum of a hexagonal pyramid of base side 40 mm, top side 25 mm and height 70 mm. The frustum rests on the base on the H.P.

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MORNING

05 MAR 2021

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. .....

Program/ Course: B.Tech. (Sem. 1st)
Name of Subject: **Engineering Graphics and Design**
Subject Code: **ESC-103**
Paper ID: 15931

**Time Allowed: 03 Hours** **Max. Marks: 60**

NOTE:

1) All sections are compulsory
2) Section- A and Section-B are based on Part-I (Theory) of syllabus [both Traditional Engineering Graphics (TEG) and Computer Graphics (CG)
3) Section-C is out of Part-II [Practice (Drawing)] portion of syllabus (Traditional Engineering Graphics ONLY).
4) Any missing data may be assumed appropriately

## Section – A

**[Marks: 02 each]**

Q1.

a) Why the projections of an object not drawn in 2nd and 4th quadrants?
b) Name the various dimensioning techniques.
c) What is the trace of a straight line?
d) Draw the trace of a line when it is kept parallel to HP and inclined to VP.
e) What are oblique solids?
f) What do you mean by development of surfaces?

## Section – B

**[Marks: 04 each]**

### Section-B1

Q2. Write "HEALTH IS WEALTH" using 7:5 in single stroke vertical capital letters.
Q3. A point A is 30mm above the HP and 25mm infront of the VP. Determine its least distance from xy-line.

### Section-B2

Q4. What is the difference between absolute and incremental mode of drawing?
Q5. What is the use of fillet, chamfer, array and trim in computer graphics?

## Section – C

**[Marks: 08 each]**



P.T.O

Q6. Draw the projection of a pentagonal pyramid base 30 mm edge and axis 40 mm long is resting on HP with one of its base edge inclined at angle of 30° with VP.

Or

Plan and elevation of a line AB, 60mm long, measure 50mm and 40mm respectively. End A is 15 mm above HP and 20mm in front of the VP. Draw its projections and determine the true inclination with HP and VP respectively.

A right regular pentagonal pyramid, edge of base 30mm and height 55mm, rests on its base on HP, such that one of its base edges is perpendicular to the VP. A section plane parallel to the VP cuts the pyramid at a distance of 10mm from the axis. Draw its top view and sectional front view.

Or

A pentagonal prism of 25mm base edge and 50mm long is resting on its base with an edge of base at 45° to VP. The prism is cut by a sectional plane inclined at 30° to HP and passes through a point 25mm from the base along its axis. Develop the truncated prism.

A cube of 30mm side rests on the top of a cylindrical slab of 60mm diameter and 25mm thick. The axis of the solids are in the same straight line. Draw an isometric projection of the solid.

Or

A regular hexagonal lamina ABCDEF 25mm side is normal to both HP and VP. It is lying with one of its edges(say AB) parallel to HP and perpendicular to VP. Draw its projections and locate its traces.

Q9. A right circular cone, diameter of base 60mm and height 70mm, lies on HP on one of its elements, such that its axis is parallel to VP. Draw its projections.

Or

A square pyramid edge of base 35mm, height 50mm and rests on its base on HP with its base edges equally inclined to VP. A section plane perpendicular to the VP and inclined to the HP at 30°, cuts the pyramid bisecting its axis. Draw its front view, sectional top view and true shape of the section.

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[Total No. of Questions: 09] MORNING [Total No. of Pages: 02]

30 MAY 2019

Uni. Roll No. .....

Program/ Course: B. Tech. (Sem. 1st/2nd)

Name of Subject: **ENGINEERING GRAPHICS AND DESIGN**

Subject Code: **ESC-103**

Paper ID: **15931**

**Max. Marks: 60**

Time Allowed: 03hrs

Note:

1. All sections are compulsory.
2. Section- A and Section – B are based on Part – I (Theory) of syllabus [both Traditional Engineering Graphics (TEG) and Computer Graphics (CG)
3. Section – C is out of part II [**Practice Drawing**] portion of syllabus (Traditional Engineering Graphics ONLY).
4. Any missing data may be assumed appropriately.

Section – A (From Part – I (Theory) both TEG and CG) **[Marks: 02 each]**

**Q1.**

a) Name the various dimensioning techniques.
b) What do you mean by single stroke letters?
c) What is the trace of a straight line?
d) Draw the symbol to represent 1st angle projection?
e) Describe the extrusion command.
f) What is the purpose of developing a surface?

Section – B (From Part – I (Theory) both TEG and CG) **[Marks: 04 each]**

**Section – B1** (TEG ONLY)

Q2. Write "DHAN GURU NANAK" in height 10 mm.

Q3. A regular pentagonal lamina having base edge 30 mm is resting on one of its corner in HP with its surface inclined at $45^0$ to HP. Draw its Projection.

**Section – B2** (CG ONLY)

Q4. Enumerate the types of array along with its applications.



P.T.O

MORNING

30 MAY 2019

Q5 Describe the methods to draw a circle. (Any four). [Marks: 02 each]

Section – C (From Part – II [Practice (Drawing) TEO ONLY]

Q6 Plan and elevation of a line AB, 60mm long, measure 50mm and 40mm respectively. End A is 15mm above HP and 20mm in front of the VP. Draw its projections and determine the true inclination with HP and VP respectively

Or

Q7 A line PQ 60 mm long having its end P 15 mm above HP and 25mm in front of VP is inclined to HP at $45^0$ and $30^0$ to VP. Draw its projections and locate its traces

Q8 A pentagonal pyramid of 30mm base edges and axis 70mm long, resting on its base on the HP having a side of base perpendicular to VP. It is cut by a section plane parallel to VP and 16mm away from the axis. Draw its sectional plane and elevation.

Or

Q8 A right regular pentagon prism of side 30 mm and 60 mm height is resting on its base on HP having one of its base edges perpendicular to the VP. A section plane inclined to HP at 30° and perpendicular to the VP cuts its axis at a distance of 36 mm from the base. Develop the lateral surface of the truncated prism.

Q8 A cube of 30mm side rests on the top of a cylindrical slab of 60mm diameter and 25mm thick. The axis of the solids are in the same straight line. Draw an isometric projection of the solid.

Or

Q8 A square prism of side 40mm and height 65mm is resting on ground. A vertical hole of diameter 20mm is cut through from the top face reaching bottom face of the prism. Draw the isometric projection of the prism.

Q9 A cylinder of diameter 50mm and height 60mm has a hole of diameter 30mm drilled in it such that its axis intersects that of the cylinder at the middle at right angle. Draw the development of the lateral surface.

**Or**

Q9 A right regular hexagonal pyramid having edge of base as 25 mm and height 70 mm is resting on one of its triangular face on HP, Draw its projections

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*Please check that this question paper contains 09 questions and 03 printed pages within first ten minutes.*

[Total No. of Questions: 09] [Total No. of Pages: 3]

MORNING

Uni. Roll No. .....

14 DEC 2018

Program/ Course: B.Tech. (Sem. 1st/2nd)
Name of Subject: **Engineering Graphics and Design**
Subject Code: **ESC-18103**
Paper ID: 15931

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) All sections are compulsory
2) Section- A and Section-B are based on Part-I (Theory) of syllabus [both Traditional Engineering Graphics (TEG) and Computer Graphics (CG)
3) Section-C is out of Part-II [**Practice (Drawing)**] portion of syllabus (Traditional Engineering Graphics ONLY).
4) Any missing data may be assumed appropriately

## Section – A (From Part – I (Theory) both TEG and CG)

**[Marks: 02 each]**

Q1.

a) Describe the line which will be used to show the cutting planes.

b) Distinguish between Aligned and Unidirectional systems of dimensioning.

c) Explain the differences between cylinder and cone.

d) Elaborate the function of array command in computer graphics.

e) Draw the side view of a cylinder if its axis is parallel to both HP and VP?

f) How extrude and revolve commands are used as constructional tool?

## Section – B (From Part – I (Theory) both TEG and CG)

**[Marks: 04 each]**

### Section-B1 (TEG ONLY)

Q2. A point P is 25 mm below the HP and 30 mm behind the VP. Interpret its least distance from x-y line.

Q3. A straight line AB 60 mm long makes an angle of 45° to HP and 30° to the VP. The end A is 15 mm in front of VP and 25 mm above HP. Draw and evaluate the projections of the AB.

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d, p - 9.16

### Section-B2 (CG ONLY)

Q4. Describe the various methods of drawing line in computer graphics.

Q5 How rotation is done in 3D objects? Explain in detail with help of example.

## Section – C (From Part - II [Practice (Drawing)] TEG only)

[Marks: 08 each]

Nb-93 Q6. A right regular pentagonal pyramid, edge of base 30 mm and height 55 mm, rests on its base on HP, such that one of its base edges is perpendicular to the VP. A section plane is parallel to the VP cuts the pyramid at a distance of 10 mm from the axis. Draw its view and sectional front view.

**Or**

Fig. 01 shows isometric projection of an object. Draw its Front view, Top View, Left side view and Right side View. All dimensions are in mm.

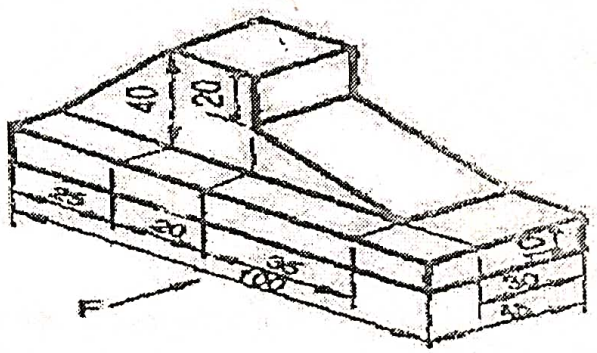


Fig. 01

Pr-10.34 Q7. A square lamina ABCD of 25 mm side rests on its corner C in HP. Its plane is inclined at 45° to the HP and diagonal DB inclined at 30o to the VP. Draw its projections.

**Or**

Pr-12.7 * Draw the projections of a square pyramid of base edges 30mm and axis 54mm resting on its base on HP with one of the base edge parallel to VP and axis perpendicular to the HP.

Pr-12.35 Q8. A right circular cylinder, diameter of base 50 mm and height 65 mm rests on HP on its base rim such that its axis is inclined at 45° ~~450~~ to the HF and parallel to the VP. Draw its projections.

**Or**

* Develop the lateral surface of a funnel as shown in fig.02. All dimensions are in mm.

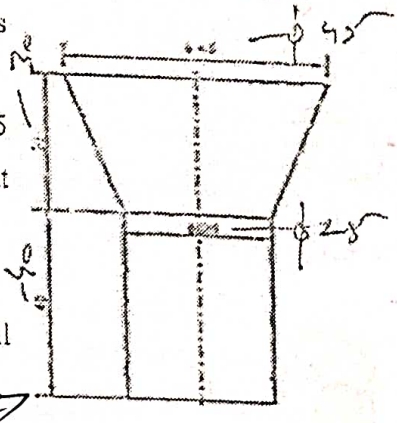

Fig. 02

Note-M-1 Q9

A line AB 50 mm long, has its end A is 25 mm away from the HP and 15mm away from the VP. The line is inclined to the VP at 30° and is parallel to the HP. Draw its projections in all the four quadrants. Assume that the whole of the line lies in the same quadrant.

**Or**

Pr 16.24

A right circular cone of diameter 20 mm base and height 30 mm rests centrally on the top of a cube of 40 mm side. Draw the isometric projection of the two solids.

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*Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes.*

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. .....

MORNING

Program/ Course: B.Tech. (Sem. 1st/2nd)

Name of Subject: **Engineering Graphics and Design** 17 DEC 2015

Subject Code: **ESC-18103**

Paper ID: 15-931

**Time Allowed: 03 Hours** **Max. Marks: 60**

**NOTE:**

1) **All sections arecompulsory**
2) **Section-** A and **Section-B** are based on Part-I (Theory) of syllabus [both Traditional Engineering Graphics (TEG) and Computer Graphics (CG)
3) **Section-C** is out of Part-II [**Practice (Drawing)**] portion of syllabus (Traditional Engineering Graphics ONLY).
4) Any missing data may be assumed appropriately.

**Section – A** (From Part - I (Theory) both TEG and CG)

[Marks: 02 each]

Q1.

a) What are orthographic projections?
b) Differentiate between frustum and truncated.
c) Define the term trace of a straight line.
d) List any three types of lines used in engineering drawing along with neat sketch and their applications.
e) A point 20 mm below the HP and 45 mm behind the VP. Draw its projections.
f) Distinguish between manual drafting and computer aided drafting.

**Section – B** (From Part - I (Theory) both TEG and CG)

[Marks: 04 each]

**Section-B1** (TEG ONLY)

Q2. A line CD 60 mm long has its end C lies 25 mm above the HP and 30 mm in front of VP. Draw the projection of line when it is inclined to VP at 40° and parallel to HP.

Q3. A thin circular plate of diameter 50 mm and negligible thickness rest on HP on its rim and makes an angle of 45° to HP. Draw its projection when surface is perpendicular to VP.

**Section-B2** (CG ONLY)

Q4. Explain any four modify commands along with suitable sketches used in computer graphics.

Q5. Explain the different co-ordinate system used in computer graphics with suitable examples.

P.T.O.

MORNING

17 DEC 2018

Section – C (From Part - II [Practice (Drawing)] TEG only)

**[Marks: 08 each]**

Q6. A right regular pentagonal pyramid, edge of base 30 mm and height 55 mm lies on HP on one of its triangular face and has its axis parallel to VP. Draw its projection.

**Or**

A right regular pentagonal prism having a base 30 mm side and 60 mm long axis is resting on one of its rectangular face on HP with axis parallel to both the reference planes. Draw its projections.

Q7. A square prism of base edge 35mm is resting on the HP on one of its base with one of its vertical face inclined at 30° to the VP. It is cut by a section plane parallel to the VP and 10 mm away from the axis. Draw its sectional front view and top view.

**Or**

A square pyramid, edge of base 30 mm and height 50 mm, rest on its base on HP such that one of its base edges is parallel to the VP. Draw its projections and develop the lateral surface of the pyramid.

Q8. A line AB has its end A 20 mm in front of VP and end B 55 mm above the HP. The line is inclined at 30° to HP while its front view makes an angle of 45° to the XY line. Draw its projections, when its top view is 50 mm long. Find the true length of true angle of inclination with the VP.

**Or**

A rectangular lamina ABCD of 60 mm x 30 mm has its smaller side on ground plane and the surface is inclined at 60° to ground and the side on which it rest is inclined at 45° to VP. Draw its projection in third quadrant.

Q9. A right circular cone of diameter 40 mm and height 60 mm rest centrally on the top of a square block 70 mm side and 25 mm thick. Draw the isometric projections of the solids.

**Or**

A right regular pentagonal prism, edge of base 30mm and height 60 mm, has a circular hole of diameter 25 mm drilled centrally through it, along its axis. Draw its isometric drawing.

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*Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes.*

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. 2203296

Program/ Course: B.Tech. (Sem. 1st/2nd)
Name of Subject: **Engineering Graphics and Design**
Subject Code: **ESC-103**
Paper ID: 15931
Scientific calculator is not Allowed

**Time Allowed: 03 Hours** **Max. Marks: 60**

**NOTE:**

1) **All sections are compulsory**
2) **Section- A** and **Section-B** are based on Part-I (Theory) of syllabus [both Traditional Engineering Graphics (TEG) and Computer Graphics (CG)
3) **Section-C** is out of Part-II [**Practice (Drawing)**] portion of syllabus (Traditional Engineering Graphics ONLY).
4) Any missing data may be assumed appropriately

**Section – A** (From Part - I (Theory) both TEG and CG)

**[Marks: 02 each]**

**Q1.**

a) Enlist various types of Projections.
b) Explain the purpose of development of surface by citing an example.
c) Mention atleast two principles of dimensioning with neat and clean sketches.
d) Distinguish between projector and projection with suitable sketches.
e) Create a solid model by using Extrusion command.
f) Mention the steps required to draw a circle with the help of any graphics software.

**Section – B** (From Part - I (Theory) both TEG and CG)

**[Marks: 04 each]**

**Section-B1** (TEG ONLY)

Q2. Differentiate between frustum and truncated of a solid with neat sketch.
Q3. A point Q is 25 mm above HP and 30 mm infront of VP. Determine its least distance from xy line.

**Section-B2** (CG ONLY)

Q4. Mention and explain the different types of modify commands.
Q5. Distinguish between User coordinate system(UCS) and World coordinate system (WCS)? Discuss its various types by considering an example for construction of rectangle with dimensions 50mm x 50mm.

## Section – C (From Part - II [Practice (Drawing)] TEG only)

**[Marks: 08 each]**

Q6. A straight line AB 50 mm long makes an angle of 30° to HP and 45° to the VP. The end A is 15 mm behind the VP and 25 mm below the HP. Draw the projections of the line AB.

**Or**

End C is 25mm above HP and 45mm infront of VP. End D is 45mm above HP and 60mm infront of VP. The distance between end projectors is 40mm. Draw the projections of line and find out true length, true angle of inclination with HP, true angle of inclination with HP, horizontal trace and vertical trace with any of the method.

Q7. A regular hexagonal lamina ABCDEF of 25mm side, rests on one of its sides on HP. Its surface is inclined at 45° to the HP and perpendicular to the VP. Draw its projections and locate its traces.

**Or**

A regular pentagonal prism base 25 mm and axis 50 mm long lies on one of its rectangular faces on HP with axis parallel to VP. Draw its front, top and side views.

Q8. A right circular cone, diameter of base 50mm, height 60mm, rests on its base on HP. A section plane perpendicular to VP and inclined to HP at 30°, cuts the cone bisecting its axis. Draw its front view, sectional top view and true shape of the section.

**Or**

A right regular hexagonal prism, side of base 30mm and height 60mm, rests on its base on HP with one its base side parallel to VP. A horizontal circular hole of diameter 40mm drilled centrally through it, such that the axis of the hole is perpendicular to it. Develop its lateral surface.

Q9. Three cubes of 40mm, 30mm and 20mm are placed centrally such that the biggest cube at the bottom whereas the smallest on the top. Draw the isometric drawing of the solids.

**Or**

A cylindrical block of 45mm diameter and 25mm height is placed centrally on a cube of 45mm side. The axes of the two solids are in the same straight line. Draw the isometric drawing of the solids.

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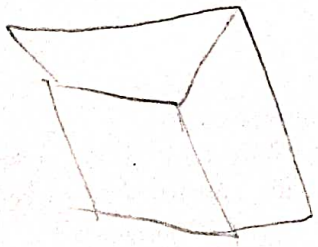

*Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes.*

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .....

Program/ Course: B.Tech. (Sem. 1st/2nd)
Name of Subject: **Engineering Graphics and Design**
Subject Code: **ESC-103**
Paper ID: 15931
Scientific calculator and Drafter is Allowed

**Time Allowed: 03 Hours** **Max. Marks: 60**

**NOTE:**

1) **All sections are compulsory**
2) **Section- A** and **Section-B** are based on Part-I (Theory) of syllabus [both Traditional Engineering Graphics (TEG) and Computer Graphics (CG)
3) **Section-C** is out of Part-II [**Practice (Drawing)**] portion of syllabus (Traditional Engineering Graphics ONLY).
4) Any missing data may be assumed appropriately

**Section – A** (From Part - I (Theory) both TEG and CG)

***[Marks: 02 each]***

**Q1.**

a) Classify the different methods of dimensioning.
b) Why the projections of an object not drawn in 2nd and 4th quadrant?
c) What are oblique solids?
d) Differentiate between frustum and truncated solid with neat sketch.
e) Describe the four centre method of drawing in isometric projection of a circle?
f) Differentiate between fillet and chamfer command.

**Section – B** (From Part - I (Theory) both TEG and CG)

**[Marks: 04 each]**

**Section-B1** (TEG ONLY)

Q2. Draw and enlist applications of ; continuous thick line; continuous thin with zig-zag and long chain thin but thick at ends.

Q3. A point A is 30 mm above the HP and 40 mm infront of the VP. Determine its least distance from xy line.

**Section-B2** (CG ONLY)

Q4. Differentiate absolute and incremental modes of drawing used in AutoCAD.

Q5. Enlist the advantages of computer aided drafting over manual drafting.



**P.T.O.**

## Section – C (From Part - II [Practice (Drawing)] TEG only)

**[Marks: 08 each]**

Q6. A straight line AB 50 mm long has its end A 15mm away from HP and 20 mm away from the VP. It is inclined at 30° to the HP and 45° to the VP. Draw its projections in first quadrant.

**Or**

The end point A of a straight line AB=36 mm long is 12 mm away from HP and VP and another point B is 24 mm away from HP and VP respectively. Draw the top view and front view of the straight line AB and determine the true inclination with the HP and VP respectively.

Q7. A rectangular lamina ABCD of 60 mm × 30 mm, has its side AB in HP and inclined at 45° to the VP and the plane of the lamina is inclined at 60° to the HP. Draw its projections.

**Or**

A right circular cone, diameter of base 60 mm and height 70 mm, lies on HP on one of its elements, such that its axis is parallel to VP. Draw its projections.

Q8. A right regular hexagonal prism, side of base 20 mm and length of axis 55 mm, is lying on one of its rectangular faces in HP. Its axis is parallel to both HP and VP. It is cut by a section plane parallel to and at a distance of 20 mm from the HP. Draw its front view and sectional top view.

**Or**

A square pyramid, edge of base 30 mm and height 50 mm, resting on its base in HP such that all of its base edges are equally inclined to the VP. A section plane perpendicular to the VP and inclined to the HP at 30° cuts the pyramid, bisecting its axis. Draw its front view, sectional top view and develop the lateral surface of the truncated pyramid

Q9. A cube of 40 mm edge is placed centrally on the top of a square block of 60 mm edge and 20 mm thick. Draw the isometric projections of the two solids with the edges of the two block mutually parallel to each other.

**Or**

Draw the isometric projection of a sphere of radius 30 mm resting centrally on the top of a square block of 60 mm edge and 15 mm thick.

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[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .....

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**[Marks: 02 each]**

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e) Describe the four centre method of drawing in isometric projection of a circle?
f) Differentiate between fillet and chamfer command.

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**[Marks: 04 each]**

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**P.T.O.**

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**Or**

OR A right circular cone, diameter of base 60 mm and height 70 mm, lies on HP on one of its elements, such that its axis is parallel to VP. Draw its projections.

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**Or**

OR A square pyramid, edge of base 30 mm and height 50 mm, resting on its base in HP such that all of its base edges are equally inclined to the VP. A section plane perpendicular to the VP and inclined to the HP at 30° cuts the pyramid, bisecting its axis. Draw its front view, sectional top view and develop the lateral surface of the truncated pyramid

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**Or**

OR Draw the isometric projection of a sphere of radius 30 mm resting centrally on the top of a square block of 60 mm edge and 15 mm thick.

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