Roll No. | | | | | | | | | | |

Total No. of Questions : 09

Total No. of Pages : 02

**B.Tech.(AI & DS/ AI&ML/ Block Chain/CE/CSE/CS/CSD/EE/ECE /ETE/FT/IT/ME/ Robotics & Artificial Intelligence/nternet of Things and Cyber Security including Block Chain Technology) (Sem.–1,2)**

# ENGINEERING GRAPHICS & DESIGN

**Subject Code : BTME101/21**

**M.Code : 93799**

**Date of Examination : 02-01-2025**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

## SECTION-A

1. **Write short notes on:**

   a) Explain with the help of an example the Unidirectional system of placement of dimensions.

   b) Show by means of traces, a plane perpendicular to both HP and VP.

   c) What do you mean by Representative Fraction (RF)?

   d) Explain Frustum and Truncated Solids with a suitable drawing.

   e) Explain the difference between 1st Angle Projection and 3rd Angle Projection.

   f) Draw projections of a line inclined to HP and parallel to VP with a suitable freehand drawing. Assume suitable dimensions. Also, show traces.

   g) How will you represent Glass and Wood on a drawing sheet?

   h) What are right solids and oblique solids? Explain with a suitable freehand drawing.

   i) Print the following statement with single stroke capital vertical letters of height 10mm:
   **"EXCUSES ARE THE NAILS THAT BUILD THE HOUSE OF FAILURE"**

   j) Draw a regular Hexagonal Lamina of side 55mm.



## SECTION-B

2. Draw a Diagonal Scale of R.F=1/40 to read meters, decimeters and centimeters and long enough to measure up to 8m.

3. A point "E" is 62 mm in front of VP and 49 mm above HP. Draw its projections and find out its shortest distance from the reference line.

4. Plan and elevation of a line "AB" 60mm long, measure 54mm and 45 mm respectively. End A is 15mm from HP and 10mm from VP. Draw its projections and determine its inclinations to the reference planes when the line lies in First quadrant.

5. End "C" of line' CD is 13 mm above HP and 51 mm in front of VP and end "D" 12 mm behind the VP and 35 mm below the HP. The end projectors are 52 mm apart. Draw the projections and find TL, θ, ϕ, HT and VT.

## SECTION-C

6. A regular hexagonal thin plate of 45mm side is resting on one of its corners in HP. Draw its projections when the plate surface is vertical and inclined to VP at 30°. Also show traces. Assume the said plate lying in first quadrant.

7. A right regular triangular prism of base edge 42mm, axis 62mm long is resting on its rectangular face on HP, with axis parallel to both HP and VP. Draw its projections.

8. A right regular square pyramid of base edge 45 mm and axis 52 mm long; rests on its base on HP with one of its base edges parallel to VP. Draw its projections assuming the pyramid in 1st quadrant.

9. Draw isometric drawing of a pentagonal prism of base edge 45mm and axis 65mm long.

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Total No. of Questions : 09

Total No. of Pages : 02

**B. Tech. (AE/AI&ML/AI&DS/IOT/A&R/CE/CSE/DS/EEE/EE/ECE/FT/IT/ ME/Internet of Things and Cyber Security Including Block Chain Technology)(Sem.–1,2)**

# ENGINEERING GRAPHICS & DESIGN

**Subject Code : BTME101-21**

**M.Code : 91335**

**Date of Examination : 14-01-2025**

**Time : 3 Hrs.** **Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select at least TWO questions from SECTION - B & C.**

## SECTION-A

1. **Write short notes on :**

   a) Write the following statement using single stroke capital vertical letters of 12 mm size: ***"WHOEVER IS HAPPY WILL MAKE OTHERS HAPPY TOO".***

   b) Explain any two types Lines used in Engineering Drawing.

   c) Explain with the help of an example the unidirectional system of placement of dimensions.

   d) What is difference between plane scale and diagonal scale?

   e) Draw a regular Hexagonal Lamina of side 65mm.

   f) How will you represent Metals and Glass on a drawing sheet?

   g) Draw projections of a line inclined to HP and parallel to VP with a suitable freehand drawing. Assume suitable dimensions. Also, show traces.

   h) Show by means of traces, a plane perpendicular to HP and inclined to VP.

   i) Differentiate between Frustum and Truncated solid.

   j) Differentiate Isometric Projections and Isometric Drawing.



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## SECTION-B

2. Line "KL" 68mm long; has its end "K" both in HP and VP. It is inclined at 42° to the "HP" and 33° to the "VP". Draw its projections when the line is lying in first quadrant.

3. A line CD has its end "C" 10 mm above HP and 15 mm in front of VP. End "D" 42 mm above HP and 58 mm in front of VP. The distance between the end projectors, is 48 mm. Draw the projections of the line and find out its true length, true inclinations with principle planes, HT and VT.

4. A point "M" is 39mm behind VP and 32mm below HP. Draw its projections and find out its shortest distance from the reference line.

5. Construct a Plane Scale of R.F= 1:40 to read meters and decimeters and long enough to measure up to 6m. Indicate 4.4m on the scale.

## SECTION-C

6. A hexagonal prism of side of base 28mm and length of axis 65mm lies on one of its rectangular faces on HP with axis Perpendicular to VP and parallel to HP. Draw its projections.

7. A circular lamina of diameter 42mm is inclined to VP at 44° and perpendicular to HP and it is resting on VP on a point on its circumference. Draw its projections. Also show traces.

8. A cone of base rim diameter 45mm and axis 65 mm lying on HP on a point of its circumference such that the generator is perpendicular to HP. Draw its projections assuming the cone lying in first quadrant.

9. Draw the isometric drawing of the Frustum of a right regular hexagonal pyramid, side of the base hexagon is 20 mm, side of top hexagon is 10 mm, and the height of the frustum is 40 mm.

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Total No. of Questions : 09

Total No. of Pages : 02

**B. Tech. (AE/AI & ML/ AI & DS / A&R/CE/CSE/DS/EE/ECE/ FT/IT/ME/Internet of Things and Cyber Security Including Block Chain Technology)(Sem.–1,2)**

# ENGINEERING GRAPHICS & DESIGN

**Subject Code : BTME101-21**

**M.Code : 91335**

**Date of Examination : 06-05-2025**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C. have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select at least TWO questions from SECTION - B & C.**

## SECTION - A

1. **Write a short notes on :**

   a) How will you represent Glass and Wood on a drawing sheet?

   b) Show by the means of traces, a plane perpendicular to both HP and VP.

   c) Explain with the help of an example the Aligned system of placement of dimensions.

   d) Draw a regular Pentagonal Lamina of side 55mm.

   e) Explain the types of methods of Dimensioning with a suitable drawing.

   f) Draw the projections of a line inclined to VP and parallel to HP with a suitable freehand drawing. Assume suitable dimensions. Also, show traces.

   g) Draw the projections of a line lying on a Profile Plane whose top view is larger than its front view. Which angle is bigger " θ" or "ϕ"? Show with the help of a suitable free hand drawing.

   h) Explain Frustum and Truncated Solids with a suitable drawing.

   i) Print the following statement with single stroke capital vertical letters of height 10mm :

   ***IT'S SIMPLE TO BE HAPPY, IT'S VERY DIFFICULT TO BE SIMPLE***

   j) Explain the importance of a title block.



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## SECTION - B

2. Construct a Diagonal Scale of R. F= 1:5000 to read up to single meter and long enough to measure up to 600m. Assume suitably any missing data.

3. A point "M" is 65 mm in front of VP and 52 mm above HP. Draw its projections and find out its shortest distance from the reference line.

4. Plan and elevation of a line "AB" 60mm long, measure 54mm and 45 mm respectively. End A is 15mm from HP and 10mm from VP. Draw its projections and determine its inclinations to the reference planes when the line lies in First quadrant.

5. End "A" of line AB is 15 mm above HP and 48 mm in front of VP and end "B" 13 mm behind the VP and 28 mm below the HP. The end projectors are 52 mm apart. Draw the projections and find TL, θ, Φ, HT and VT.

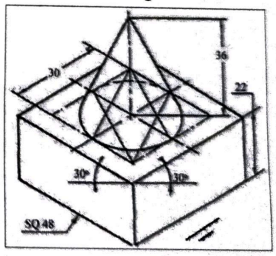
## SECTION - C

6. A regular hexagonal lamina of side 45 mm having a central circular hole of diameter 45 mm is resting on one of its corners on VP such that one of its base edges is perpendicular to VP. Draw its projections when the said lamina is parallel to HP.

7. A right regular triangular prism of base edge 40mm, axis 65mm long is resting on its rectangular face on HP, with axis parallel to both HP and VP. Draw its projections.

8. A right regular square pyramid of base edge 45 mm and axis 52 mm long, rests on its base on HP with its base edges equally inclined to VP. Draw its projections assuming the pyramid in 1st quadrant.

9. Draw isometric Projections of the following :




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Total No. of Questions : 09 Total No. of Pages : 03

**B.Tech.(AI & DS/ AI&ML/ Block Chain/ CE/CSE/CS/IOT/DS/CSD/EE/EEE/ECE/ETE/FT/IT/ME/Robotics & Artificial Intelligence/Internet of Things and Cyber Security including Block Chain Technology) (Sem.–1,2)**

# ENGINEERING GRAPHICS & DESIGN

**Subject Code : BTME101-21**

**M.Code : 93799**

**Date of Examination : 31-05-2025**

**Time : 3 Hrs.** **Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C. have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select at least TWO questions from SECTION - B & C.**

## SECTION - A

1. **Write short notes on :**

   a) Explain the terms isometric drawing and isometric projection.

   b) Show by means of traces, a plane inclined to HP and perpendicular to VP.

   c) Draw projections of a line lying on HP and inclined to VP with the help of a suitable free hand drawing. Also, show traces.

   d) How will you represent Liquid and Wood on a drawing sheet?

   e) Name the methods to determine the true length and true inclinations of a straight line.

   f) What is the difference between plain scale and diagonal scale?

   g) What are the standard sizes of drawing sheets?

   h) Explain with the help of a simple sketch (i) size dimensions (ii) location dimensions.

   i) **Write the following statement using single stroke capital vertical letters of 12 mm size :**

   "BE THE CHANGE THAT YOU WISH TO SEE IN THE WORLD".

   j) Explain the following terms with a suitable freehand drawing: Apex, Slant Height, Base Rim and Generator.

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## SECTION - B

2. On a plan, a line 22cm long represents a distance of 440m. Draw a Diagonal Scale to read up to single meter. Mark 287m on the scale.

3. A point "N" is 68 mm behind VP and 79 mm below HP. Draw its projections and find out its shortest distance from the reference line.

4. Plan and elevation of a line "AB" 75mm long, measure 65mm and 50 mm respectively. End A is in HP and 12mm from VP. Draw its projections and determine its inclinations to the reference planes when the line lies in first quadrant.

5. A line "EF" is lying on profile plan. Its end "E" is 45mm in front of VP and 10mm above HP and end "F" is 10mm in front of VP and 50mm above HP. Draw its projections and determine the true length, traces and inclination with the reference planes.

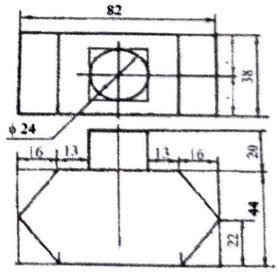
## SECTION - C

6. A Pentagonal plane with a 30mm side has an edge on HP, the surface of the Plane is inclined at 45° to the HP and perpendicular to VP. Draw its Projections assuming the plane in first quadrant.

7. A right regular Hexagonal Prism having a base with a 30 mm side and 75 mm long axis has an edge of its base on HP. Its axis is parallel to VP and inclined at 45° to HP. Draw its projections assuming the prism lying in first quadrant.

8. A right regular pentagonal prism, edge of base 20mm and height 50 mm has a central circular hole of diameter 20 mm drilled centrally through it, along with its axis. Draw its isometric projection.

9. **Draw the isometric drawing with the following orthographic projections :**




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Total No. of Questions : 09

Total No. of Pages : 02

**B.Tech.(AI & DS/ AI&ML/ Block Chain / CE / CSE/CS/CSD/EE/ECE/ETE/FT/IT/ME/Robotics & Artificial Intelligence/Internet of Things and Cyber Security Including Block Chain Technology) (Sem.–1,2)**

# ENGINEERING GRAPHICS & DESIGN

**Subject Code : BTME101/21**

**M.Code : 93799**

**Date of Examination : 28-05-2024**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C. have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

## SECTION-A

1. **Write short notes on :**

   a) Explain right and oblique solids with a free hand drawing.

   b) What are isometric lines and non-isometric lines?

   c) How will you represent Metal and Concrete on a drawing sheet?

   d) Write the following statement using single stroke capital vertical letters of 12 mm size: "YOU ONLY LIVE ONCE, BUT IF YOU DO IT RIGHT, ONCE IS ENOUGH".

   e) Define engineering drawing. Why it is called universal language of engineers?

   f) What is the difference between first angle and third angle projection? Which angle projection is recommended by B.I.S. now a days?

   g) Explain the methods of placement of Dimensions with a suitable freehand drawing.

   h) Show by means of traces, a plane perpendicular to HP and inclined to VP.

   i) Draw projections of a line lying on VP and inclined to HP with the help of a suitable free hand drawing. Also show traces.

   j) Explain Frustum and Truncated Solids with a suitable freehand drawing.



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## SECTION-B

2. A point "W" is 53mm in front of VP and 78mm above HP. Draw its projections and find out its shortest distance from the reference line.

3. A line "AB", 65mm long has its end "A" 20mm above HP and 25mm in front of VP. The end "B" is 40mm above HP and 65mm in front of VP. Draw the projections of "AB" and shows its inclination with the reference planes.

4. The end "P" of a straight-line "PQ" is 20 mm above the HP and 30 mm in front of VP. The end "Q" is 15 mm below the HP and 45mm behind the VP. If the end projectors are 50 mm apart. Draw the projection of "PQ" and determine the true length, traces and inclination with the reference planes.

5. Distance between two railway stations is 600km, which is represented on a railway map by a line 15cm long. Construct a Diagonal Scale to read up to single km and indicate a distance of 346km on the scale.

## SECTION-C

6. A pentagonal Prism having a base with a 30 mm side and 60mm long axis, is resting on one of its rectangular faces on the HP with axis parallel to HP and VP. Draw its projections.

7. A Hexagonal plane with a 30mm side has its surface parallel to and 20mm in front of VP. Draw its Projections, when a side is inclined at 45° to HP.

8. A cube of 30 mm edge is place centrally on top of a cylindrical block of diameter 52 mm and 20 mm height. Draw its isometric projection.

9. Draw isometric view of the cone placed on hexagonal prism with the following orthographic projections:

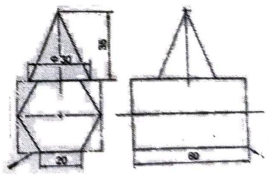



**Fig.1**

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Total No. of Questions : 09 Total No. of Pages : 03

**B. Tech. (AE/AI & ML/ AI & DS/EEE/A&R/CE/CSE/DS/EE/ECE/FT/IT/ME/ Internet of Things and Cyber Security including Block Chain Technology) (Sem.–1,2)**

# ENGINEERING GRAPHICS & DESIGN

**Subject Code : BTME101/21**

**M.Code : 91335**

**Date of Examination : 19-06-2024**

**Time : 3 Hrs.** **Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

## SECTION-A

1. **Write short notes on :**

   a) Draw projections of a line inclined to VP and lying on HP with a suitable freehand drawing. Also, show traces.

   b) What are isometric lines and non-isometric lines?

   c) How will you represent Liquid and Glass on a drawing sheet?

   d) Write the following statement using single stroke capital vertical letters of 12 mm size: "CLEANLINESS IS A SIGN OF OUR TRUE BEAUTY, NOT JUST A DUTY"

   e) What do you mean by representative fraction (RF)?

   f) Draw a regular Pentagonal Lamina of side 52mm.

   g) Explain the methods of placement of Dimensions with a suitable freehand drawing.

   h) Show by means of traces, a plane perpendicular to VP and HP.

   i) Draw projections of a line lying on a Profile Plane whose front view is larger than its top view. Which angle is bigger "θ" or "ϕ"? Show with the help of a suitable free hand drawing.

   j) Explain Frustum and Truncated Solids with a suitable freehand drawing.



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## SECTION-B

2. A point "R" is 49mm behind VP and 65mm below HP. Draw its projections and find out its shortest distance from the reference line.

3. End "P" of line 'PK' is 15 mm above HP and 44 mm in front of VP and end "K" 10 mm behind VP and 29 mm below HP. The end projectors are 58 mm apart. Draw the projections and find TL, θ, ϕ, HT and VT.

4. Line "MK" 68 mm long has its end "M" both in HP and VP. It is inclined at 42° to the "HP" and 37° to the "VP". Draw its projections when the line is lying in first quadrant.

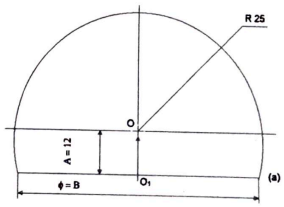
5. The distance between Delhi and Agra is 200 km. In a railway map it is represented by a line 5 cm long. Find its R.F. Draw a diagonal scale to show single km and maximum 600 km.

## SECTION-C

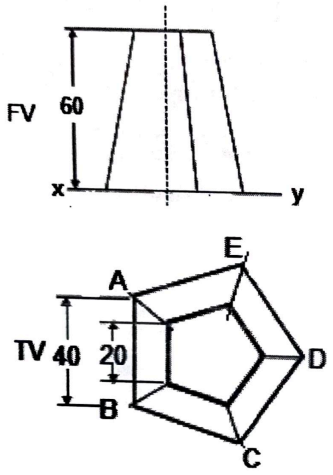
6. A cone of base diameter 48 mm and axis 62 mm long is lying on HP on its generator with axis parallel to VP. Draw its projections assuming the cone lying in first quadrant.

7. A circular lamina of diameter 54mm, having a central square hole of side 25mm, is resting on HP on a point on its circumference. The sides of the square hole are equally inclined to HP. Draw its projections when the said lamina is perpendicular to HP and parallel to and 20 mm from VP.

8. Draw isometric drawing of the following cut sphere:



9. Draw isometric view of the Frustum of a Pentagonal Pyramid whose orthographic projections are given as follows:




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Total No. of Questions : 09

Total No. of Pages : 02

**B.Tech.(AE/AIML/DS/CE/CSE/EEE/ECE/EE/FT/IT/ME/ Robotics & Artificial Intelligence/ Internet of Things and Cyber Security including Block Chain Technology) (Sem.– 1,2)**

# ENGINEERING GRAPHICS & DESIGN

**Subject Code : BTME101-21**

**M.Code : 91335**

**Date of Examination: 15-12-2023**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C. have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

## SECTION-A

1. **Write short notes on :**

   a) Draw projections of a line inclined to HP and parallel to VP with a suitable freehand drawing. Also, show traces.

   b) Explain the following terms with a suitable drawing: Apex, Slant Height, Base Rim and Generator.

   c) How will you represent Liquid and Concrete on a drawing sheet?

   d) Write the following statement using single stroke capital vertical letters of 12 mm size: "IKGPTU KAPURTHALA".

   e) What do you mean by representative fraction (RF)?

   f) What are right solids and oblique solids? Explain with a suitable freehand drawing.

   g) Explain the types of Dimensions with a suitable drawing.

   h) Show by means of traces, a plane perpendicular to VP and inclined to HP.

   i) Explain with the help of an example the Unidirectional system of placement of dimensions.

   j) Explain any two types of Lines used in Engineering Drawing.



## SECTION-B

2. A point "G" is 31mm behind VP and 45mm below HP. Draw its projections and find out its shortest distance from the reference line.

3. A line "AB" is contained by a profile plane. Its end "A" is 49 mm in front of VP and 11 mm above HP and end "B" is 7 mm in front of VP and 59 mm above HP. Draw its projection and find TL, θ, ϕ, HT and VT.

4. Line "CD" 72 mm long, has its end "C" both in HP and VP. It is inclined at 45° to the "HP" and 39° to the "VP". Draw its projections when the line is lying in first quadrant.

5. Distance between two railway stations is 360 km, which is represented on a railway map by a line 12 cm long. Construct a Diagonal Scale to read up to single km and indicate distance of 295 km on the scale.

## SECTION-C

6. A cone of base diameter 50 mm and axis 65 mm long, is lying on HP on a point of its circumference such that its generator is perpendicular to HP. Draw its projections assuming the object lying in first quadrant.

7. A regular pentagonal lamina of side 20 mm, perpendicular to HP and lying on HP on one of its sides. The plane is parallel to VP and 20 mm from VP. Draw its projections and show traces.

8. A right regular hexagonal pyramid side of base 35mm and height 65mm rests on its base on the HP such that one of its base edges is perpendicular to VP. Draw its projections.

9. A cube of 30 mm edge is placed centrally on top of a cylindrical block of diameter 52 mm and 20 mm height. Draw its isometric drawing.

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Total No. of Questions : 09

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**B.Tech.(AE/AIML/DS/CE/CSE/EEE/ECE/EE/FT/IT/ME/ Robotics & Artificial Intelligence/ Internet of Things and Cyber Security including Block Chain Technology) (Sem.– 1,2)**

## ENGINEERING GRAPHICS & DESIGN

**Subject Code : BTME101-21**

**M.Code : 91335**

**Date of Examination: 15-12-2023**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C. have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

### SECTION-A

1. **Write short notes on :**

   a) Draw projections of a line inclined to HP and parallel to VP with a suitable freehand drawing. Also, show traces.

   b) Explain the following terms with a suitable drawing: Apex, Slant Height, Base Rim and Generator.

   c) How will you represent Liquid and Concrete on a drawing sheet?

   d) Write the following statement using single stroke capital vertical letters of 12 mm size: "IKGPTU KAPURTHALA".

   e) What do you mean by representative fraction (RF)?

   f) What are right solids and oblique solids? Explain with a suitable freehand drawing.

   g) Explain the types of Dimensions with a suitable drawing.

   h) Show by means of traces, a plane perpendicular to VP and inclined to HP.

   i) Explain with the help of an example the Unidirectional system of placement of dimensions.

   j) Explain any two types of Lines used in Engineering Drawing.



### SECTION-B

2. A point "G" is 31mm behind VP and 45mm below HP. Draw its projections and find out its shortest distance from the reference line.

3. A line "AB" is contained by a profile plane. Its end "A" is 49 mm in front of VP and 11 mm above HP and end "B" is 7 mm in front of VP and 59 mm above HP. Draw its projection and find TL, $\theta$, $\phi$, HT and VT.

4. Line "CD" 72 mm long, has its end "C" both in HP and VP. It is inclined at 45° to the "HP" and 39° to the "VP". Draw its projections when the line is lying in first quadrant.

5. Distance between two railway stations is 360 km, which is represented on a railway map by a line 12 cm long. Construct a Diagonal Scale to read up to single km and indicate distance of 295 km on the scale.

### SECTION-C

6. A cone of base diameter 50 mm and axis 65 mm long, is lying on HP on a point of its circumference such that its generator is perpendicular to HP. Draw its projections assuming the object lying in first quadrant.

7. A regular pentagonal lamina of side 20 mm, perpendicular to HP and lying on HP on one of its sides. The plane is parallel to VP and 20 mm from VP. Draw its projections and show traces.

8. A right regular hexagonal pyramid side of base 35mm and height 65mm rests on its base on the HP such that one of its base edges is perpendicular to VP. Draw its projections.

9. A cube of 30 mm edge is placed centrally on top of a cylindrical block of diameter 52 mm and 20 mm height. Draw its isometric drawing.

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Total No. of Questions : 09

Total No. of Pages : 02

**B.Tech. (Agriculture Engineering/Artificial Intelligence & Machine Learning/Artificial Intelligence (AI) and Data Science/Artificial Intelligence/Automation & Robotics/Automobile Engineering/Civil Engineering/Computer Science Engg./Data Science/ Electrical & Electronics Engineering/ Electrical Engineering/ Electronics & Communication Engineering/ Electronics & Electrical Engineering/ Food Technology/ Information Technology/ Mechanical Engineering/ CSE (Internet of Things and Cyber Security including Block Chain Technology)/B.Tech. (Computer Science & Engineering/Artificial Intelligence & Machine Learning/Cyber Security Data Science/IOT)**
**(Sem.–1,2)**

## ENGINEERING GRAPHICS & DESIGN

**Subject Code : BTME-101-21**
**M.Code : 91335**
**Date of Examination : 19-07-22**

**Time : 3 Hrs.** **Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

### SECTION-A

**1) Write short notes on :**

a) Explain the following terms with a suitable drawing: Apex, Slant Height, Base Rim and Generator.

b) Draw a regular Pentagonal Lamina of side 55mm.

c) Explain with the help of an example the Aligned system of placement of dimensions.

d) What do you mean by Representative Fraction (RF)?

e) Explain any Two Lines used in Engineering Drawing.

f) How will you represent Metals and Liquid on a drawing sheet?

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g) What are right solids and oblique solids? Explain with a suitable freehand drawing.

h) Show by means of traces, a plane perpendicular to both HP and VP.

i) Write the following statement using single stroke capital vertical letters of 12 mm size : "IKGPTU KAPURTHALA".

j) Differentiate Isometric Projections and Isometric Drawing.

### SECTION-B

2) Construct a Diagonal Scale of R.F = 1:50 to read meters, decimeters and centimeters and long enough to measure up to 6m. Indicate 3.46m on the scale.

3) A point "G" is 22mm in front of VP and 42mm above HP. Draw its projections and find out its shortest distance from the reference line.

4) A line AB has its end "A" 15 mm above HP and 20 mm in front of VP. End "B" 40 mm above HP and 50 mm in front of VP. The distance between the end projectors is 45 mm. Draw the projections of the line and find out its true length, true inclinations with principal planes, HT and VT.

5) Line "AB" 65mm long; has its end "A" both in HP and VP. It is inclined at 45° to the "HP" and 30° to the "VP". Draw its projections when the line is lying in third quadrant.

### SECTION-C

6) A right regular triangular prism of base edge 40 mm, axis 65 mm long is resting on its rectangular face on HP, with axis parallel to both HP and VP. Draw its projections.

7) A regular hexagonal thin plate of 45 mm side is resting on one of its corners in HP. Draw its projections when the plate surface is vertical and inclined to VP at 30°.

8) Draw the projections of a cone of base diameter 42 mm and axis 62 mm; lying on HP on its generator such that the axis is parallel to VP. Assume the cone lying in first quadrant.

9) A right regular hexagonal prism, edge of base 20 mm, and height 50 mm has a central circular hole of diameter 20 mm drilled centrally through it along its axis. Draw its isometric view.

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