

Indian Institute of Technology (IIT) Guwahati

CE101: Engineering drawing

Assessment-I

Max marks: 110

16th January 2021

Duration: 90 minutes

-
- *This question paper consist of three parts (Part A,B and C). Part A contains 25 questions of one mark each, B contains 5 questions of five marks each and C contains 3 questions of 20 marks each.*
 - *Answer all the questions.*
 - *Assume any missing data and clearly justify the assumption.*
-

Important instructions for the students

- a. **Total time for the examination is 90 minutes. This includes solving and uploading your completed answer book for evaluation.**
- b. You may use paper of any size (for example A4, A3, A2) and any number.
- c. On each paper, write your name, roll number and page number at the top right corner. Take special care in writing the question number in each page.
- d. **No title block**
- e. Part A: Answer with pen. Do not use pencil
- f. Part B and C: Answer with pencil only. Weightage will be given for neatness and usage of drawing conventions (dimensioning and notation).
- g. For part B and C, you are free to use either drafter OR scale and set squares.
- h. You may refer any course material
- i. No clarifications will be provided by the tutors during examination.

Part A

1. The length of scale with R.F. 1/40 to measure up to 6 m will be-----cm
2. The conic section formed by cutting a cone by an inclined plane cutting all the generators is called as _____
3. The eccentricity of a parabola is -----
4. The major and minor axes of an ellipse are 100 mm and 60 mm respectively. What will be the distance of its foci from the end of the minor axis?
5. A coin rolls over a horizontal table without slipping. The path traced by a point on the circumference of the coin is known as

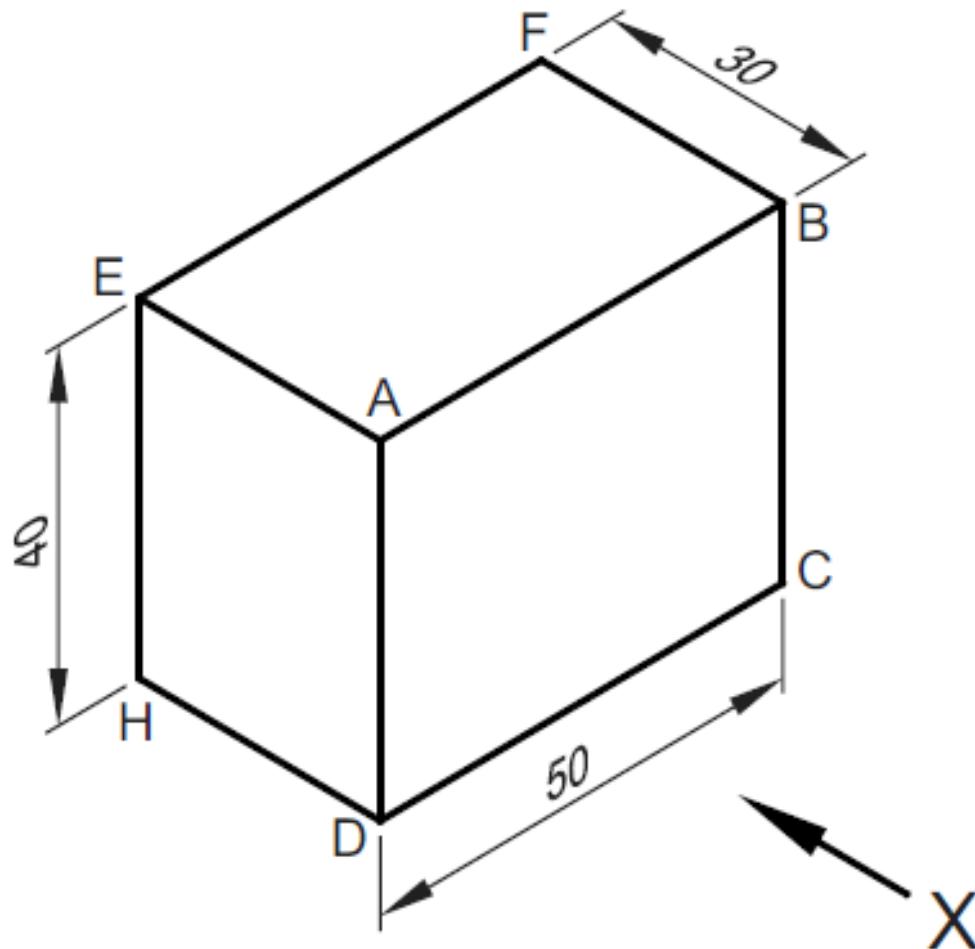
- (a) Cycloid (b) Epicycloid (c) Involute (d) None of the above
6. The line connecting a view to a note is called a
(a) dimension line (b) projection line (c) leader (d) arrowheads
7. An epicycloid was generated by one revolution of a 30 mm circle outside another circle of diameter 100 mm. The included angle of the arc of the directing circle is --- degree
8. In orthographic projection, the line joining the front and top view is named as-----
9. An object is kept in a position such that the principal planes of projection (HP and VP) are in between the observer and the object. The object is in which quadrant?
10. An object shown by more than one views in a drawing is called _____
11. In orthographic projections, the visual rays are assumed to _____ with respect to the observer
12. If the front and top views of an object are seen as circle then identify the object
13. The projection of a point in all quadrants is same. Where is the point located?
14. If a point P is above HP and behind VP, the point belongs to which quadrant?
15. A point is 20 mm below H.P. and 30 mm behind V.P. Its top view is _____
(above/below) from the reference plane
16. If a point lying on the H.P., has its top view above XY. In which quadrant is the point?
17. Draw the projection of a point if it is 20 mm in front of VP and 20 mm below HP
18. When a line is inclined to 50° to HP and parallel to VP _____ view shows true inclination with HP
19. When a line is inclined to horizontal plane and parallel to vertical plane, its plan is _____ to reference line.
20. A line AB of 100 mm is inclined at θ° to HP and ϕ° to VP, the top view ab measures 56.6 mm, If M is midpoint of line AB, distance of this midpoint from one of its end in the top view (am) is ____mm
21. Say True or False. Projection of a straight line is always less than or equal to true length.
22. Say True or False. A line inclined to VP and parallel to HP has vertical trace and no horizontal trace.
23. Say True or False. Elevation/ front view of HT lies on reference line.
24. Say True or False. Plan/top view of a line and plan/top view of its trace lie on a straight line

25. When a line is perpendicular to vertical plane, its VT coincides with _____ view

(25x1=25 marks)

Part B

26. Draw the projection of a point B in all quadrants which is on the HP and 20 mm from the VP.
27. Under which condition, the distance between the end projectors and that between the traces are the same? Justify with schematic figure
28. A steel ladder is to be fixed on a vertical wall of height 3.2 m . One end of the ladder on the floor is 6.5 m away from the vertical wall and the other end is just at the top of the wall. Obtain the length of the ladder required, graphically using the concepts of projection of points and lines.
29. The symbol we use in the title block indicating the angle of projection is of which solid object? Draw this symbol indicating first angle projection system
30. Draw the front view and top view of the given picture using both first angle and third angle projection methods.

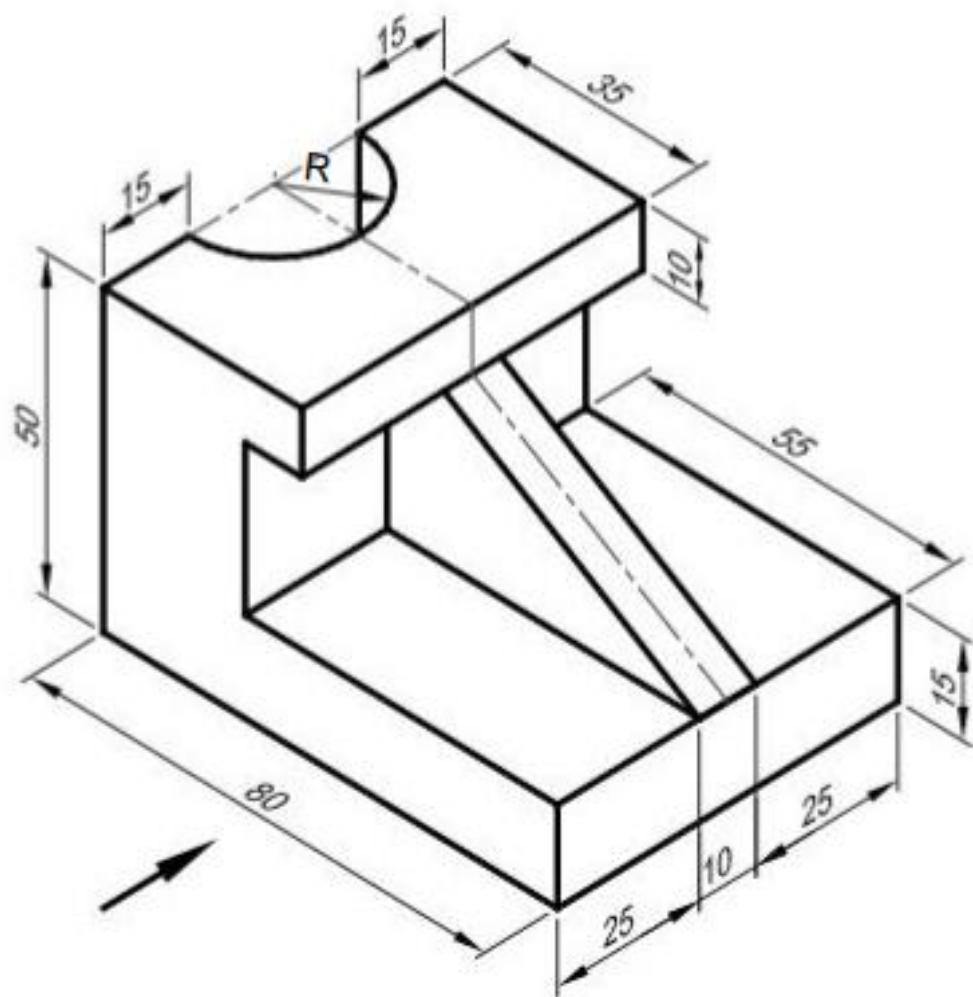


(5x5=25 marks)

Part C

31. A wheel of diameter 60 cm rolls on a straight horizontal road. Draw the locus of a point P on the periphery of the wheel, for one revolution of the wheel, if P is initially on the road.
32. A line RS, 75 mm long, shows its top view 55 mm long. The line is inclined at 28° to the vertical plane. The end R is 80 mm above the horizontal plane whilst the vertical trace (VT) is 10 mm below the horizontal plane. Draw the projections of the line if end S is nearer to both the reference plane (horizontal and vertical) than end R. Locate the horizontal trace (HT). What is the inclination of the line segment with the horizontal plane?

33. Draw the orthographic projection (top and front view) of the given pictorial view



(3x20=60 marks)

A	For evaluation purpose only			
	✓	✗	0	Total
No. of Questions				
Marks Obtained				



ME 111 Engineering Drawing

Mid-semester Examination

Maximum Marks: 35

Maximum Time: 40 minutes

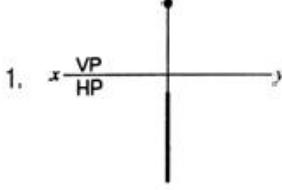
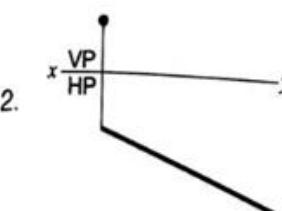
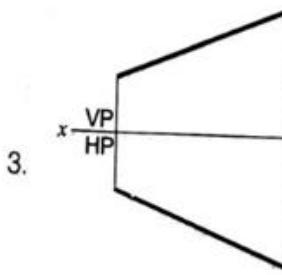
16 September 2017

Instructions:

- Fill-in your necessary information on Page 1 and sign. Also, sign on the attendance sheet.
- This question paper contains 35 questions. Each question carries 1 mark. No negative marking.
- Write your answers in the ANSWER BLOCK ONLY.
- Write your roll no. on all pages.

Name of the student	
Roll No.	
Lab Group No. (e.g. L1, L2, L3-----)	
Lab Hall No. (1205/1206)	
Lab Instructor's name	
Students Signature	
Invigilators Signature	

Qs. No.	Question	Answer
1	The curve traced by a point on the circumference of a circle which is rolling on the interior of another circle is a _____.	Hypocycloid
2	If top view of a line is a point, its front view is (a) Parallel to xy line and of true length (b) Parallel to xy line and of apparent length (c) Perpendicular to xy line and of true length (d) Perpendicular to xy line and of apparent length	c
3	A numerical value expressed in appropriate units of measurement and indicated graphically on technical drawings with lines, symbols & notes is called as _____.	Dimension

4	In _____ system, all dimensions are so placed that they can be read from the bottom edge of the drawing sheet.	Unidirectional
	Consider the following orthographic projections of a line	
5	<p>1.  2. </p> <p>3.  4. </p> <p>Which of the above projections are not possible? (a) 1 & 2 (b) 1 & 4 (c) 2 & 4 (d) 1, 2 & 4</p>	c
6	The FV of a point is 50 mm above the reference line and TV is 20mm below the FV. The point lies in (a) 4th quadrant (b) 3rd quadrant (c) 2nd quadrant (d) 1st quadrant	c
7	A 50 mm dia. thin circular plate is perpendicular to HP. Its front view is an ellipse with minor axis of 25 mm. The plate is inclined to VP at angle of _____ degrees.	60
8	Centre line, lines of symmetry are described as _____.	Chain line or Long chain line
9	A point lies in HP and its TV is above the reference line (x-y line). Its FV is (a) Above reference line (b) on reference line (c) Below reference line (d) any of the above	b
10	A right regular hexagonal prism is resting on HP on its base, its top view is a (a) Square (b) Rectangle (c) Hexagon (d) Pentagon	c
11	If generating and directing circle diameters are 60 mm and 240 mm, respectively then the angle subtended by the arc at directing circle's centre will be _____ degrees.	90

		b
12	For the given orthographic projections of a point, the quadrant in which it lies is: (a) 1st quadrant (b) 2nd quadrant (c) 3rd quadrant (d) 4th quadrant	
13	If the FV of a line is parallel to the XY, its true length is shown in (a) TV (b) FV (c) Side view (d) both FV & TV	a
14	Which of the following position is not possible for a right solid (e.g. pyramids, cylinders, prisms and cones)? (a) Axis perpendicular to HP and parallel to VP (b) Axis parallel to VP and perpendicular to HP (c) Axis parallel to both VP and HP (d) Axis perpendicular to both VP and HP	d
15	Multiplication of representative factor and maximum length to be measured is called as _____.	Length of scale
16	As per BIS (SP46:2003) code, the inclination of inclined letters drawn in engineering practice is _____ degrees.	75
17	• The top view is above the front view. The projection is a (a) First angle projection (b) Third angle projection (c) Second angle projection (d) Fourth angle projection	b
18	The line joining the front and top views of a point is called (a) Connector (b) reference line (c) projector (d) locus	c
19	Horizontal trace of a line exists when the line is (a) parallel to HP (b) Inclined to HP (c) Perpendicular to VP (d) Perpendicular to profile plane	b
20	A diagonal scale can read or measure up to _____ units. (a) 1 (b) 3 (c) 2 (d) None of the above	b
21	The front view of a rectangle, when its plane is parallel to HP and perpendicular to VP, is _____.	Line
22	If a line is inclined at 60° to HP and 45° to VP, its FV is inclined at an angle (a) 45° to XY (b) 60° to XY (c) between 45° and 60° to XY (d) Greater than 60° to XY	d
23	The following is formed by revolving rectangle about one of its sides which remains fixed (a) Cylinder (b) Sphere (c) Hemi sphere (d) Cone	a
24	When a line is parallel to VP and perpendicular to HP, its true length is obtained in (a) Front view (b) Side view (c) Top view (d) Both front view and side view	d
25	The top view of a right cylinder resting on HP on its base rim is (a) Ellipse (b) Circle (c) Rectangle (d) Square	b

26	The point at which the line intersects with the VP, extended if necessary is known as (a) Horizontal trace (b) Vertical trace (c) profile trace (d) auxiliary trace	b
27	The FV of a point is 40 mm above reference line and the TV is 50 mm below the reference line. Consider the following statements: 1) 40 mm below HP 2) 40 mm above HP 3) 50mm in front of VP 4) 50 mm behind VP. Of the above statements, true statements are (a) 1st & 3rd (b) 1st & 4th (c) 2nd & 4th (d) 2nd & 3rd	d
28	'Representative fraction' (RF) is defined as the ratio of (a) Length of an object in the drawing to actual length of the object (b) Length of an object in the drawing to isometric length of the object (c) Actual length of the object to length of an object in the drawing (d) Isometric length of the object to length of an object in the drawing	a
29	If the FV is above the reference line and TV is below the reference line, the point lies in (a) 4th quadrant (b) 3rd quadrant (c) 2nd quadrant (d) 1st quadrant	d
30	If a line is parallel to both HP and VP, its true length can be seen in: (a) FV (b) TV (c) side view (d) both FV & TV	d
31	A pentagonal pyramid is resting on its triangular face on HP with its axis parallel to VP. Which of the following sentences is correct? (a) FV shows TL of the axis (b) SV of the axis is perpendicular to XY (c) TV of axis is parallel to XY (d) All of the above	d
32	If the FV and TV of a line are inclined at 45° and 30° to the reference line XY, the true inclination of the line with HP will be (a) less than 45° (b) less than 30° (c) greater than 45° (d) equal to 45°	a
33	A point whose FV and TV are above reference line, is situated in (a) 4th quadrant (b) 3rd quadrant (c) 2nd quadrant (d) 1st quadrant	c
34	A point moves such that the ratio of its distance from a fixed point (focus) to its distance from a fixed line (directrix) is greater than 1. The locus of that point is _____.	Hyperbola
35	In the top view, if the apparent and true inclinations of a line are equal, the line is (a) Parallel to horizontal plane (b) Parallel to vertical plane (c) Parallel to profile plane (d) Inclined to both reference planes	a

Paper ends.

B	For evaluation purpose only			
	✓	✗	0	Total
No. of Questions				
Marks Obtained				



ME 111 Engineering Drawing

Mid-semester Examination

Maximum Marks: 35

Maximum Time: 40 minutes

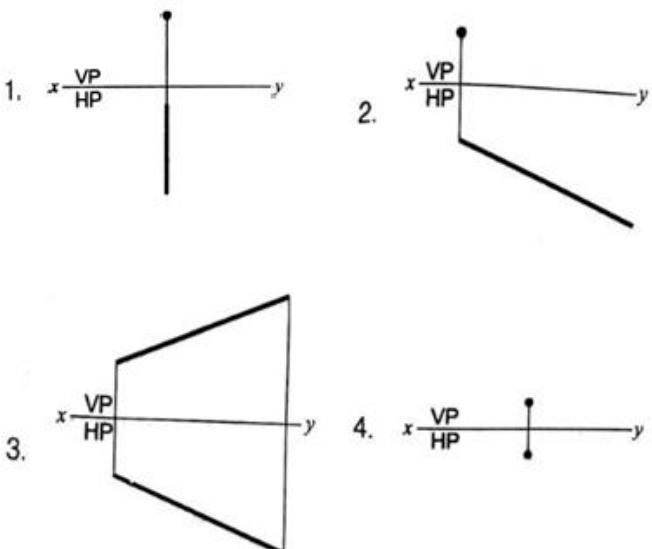
16 September 2017

Instructions:

1. Fill-in your necessary information on Page 1 and sign. Also, sign on the attendance sheet.
2. This question paper contains 35 questions. Each question carries 1 mark. No negative marking.
3. Write your answers in the ANSWER BLOCK ONLY.
4. Write your roll no. on all pages.
- 5.

Name of the student	
Roll No.	
Lab Group No. (e.g. L1, L2, L3-----)	
Lab Hall No. (1205/1206)	
Lab Instructor's name	
Students Signature	
Invigilators Signature	

Qs. No.	Question	Answer
1	A point whose FV and TV are above reference line, is situated in (a) 4th quadrant (b) 3rd quadrant (c) 2nd quadrant (d) 1st quadrant	c
2	The following is formed by revolving rectangle about one of its sides which remains fixed (a) Cylinder (b) Sphere (c) Hemi sphere (d) Cone	a
3	'Representative fraction' (RF) is defined as the ratio of (a) Length of an object in the drawing to actual length of the object (b) Length of an object in the drawing to isometric length of the object (c) Actual length of the object to length of an object in the drawing (d) Isometric length of the object to length of an object in the drawing	a
4	A point lies in HP and its TV is above the reference line (x-y line). Its FV is (a) Above reference line (b) on reference line (c) Below reference line (d) any of the above	b

	<p>3) 50mm in front of VP 4) 50mm behind VP Of the above statements, true statements are (a) 1st & 3rd (b) 1st & 4th (c) 2nd & 4th (d) 2nd & 3rd</p>	
17	A numerical value expressed in appropriate units of measurement and indicated graphically on technical drawings with lines, symbols & notes is called as _____.	Dimension
18	If the FV and TV of a line are inclined at 45° and 30° to the reference line XY, the true inclination of the line with HP will be a) less than 45° b) less than 30° c) greater than 45° d) equal to 45°	a
19	Multiplication of representative factor and maximum length to be measured is called as _____.	Length of scale
20	The top view is above the front view. The projection is a (a) First angle projection (b) Third angle projection (c) Second angle projection (d) Fourth angle projection	b
21	The FV of a point is 50 mm above the reference line and TV is 20mm below the FV. The point lies in (a) 4th quadrant (b) 3rd quadrant (c) 2nd quadrant (d) 1st quadrant	c
22	If a line is parallel to both HP and VP, its true length can be seen in (a) FV (b) TV (c) side view (d) both FV & TV	d
23	Centre line, lines of symmetry are described as _____.	Chain line or long chain line.
24	The curve traced by a point on the circumference of a circle which is rolling on the interior of another circle is a _____.	Hypocycloid
25	<p>Consider the following orthographic projections of a line</p>  <p>Which of the above projections are not possible?</p>	c

Paper ends.

NAME: _____

ROLL NO.: _____ **LAB GROUP** _____

Booklet-A

CE101 Engineering Drawing July-Nov 2019

Indian Institute of Technology Guwahati

MID-SEMESTER EXAMINATION

Total Marks: $15 \times 1 + 12 \times 2 + 2 \times 3 = 45$

Date: 14.09.2019

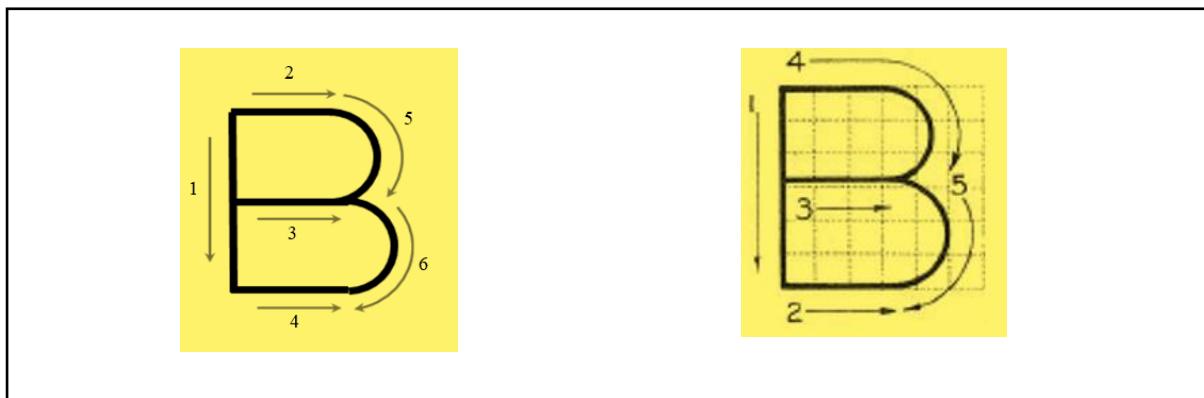
Time: 1 hr (11:00 am – 12:00 pm)

NOTES: (1) Answer all questions. (2) Questions 1-15 carry 1 mark each (3) Questions 16-27 carry 2 marks each (4) Questions 28-29 carry 3 marks each (5) There are no step marking. (6) This exam paper contains 14 pages, printed on both sides. (7) Free-hand drawing is allowed. (8) There is no negative marking. (9) In case of any discrepancy/missing data, write your assumption and solve. (10) In case of free hand sketches, take suitable lengths of the objects and the distances of points from XY. (11) Rough work to be done in attached sheet.

1-Mark questions

1. If a line AB is inclined at 50° to HP and is parallel to VP, its true length and true inclination with HP will be observed in **Front / Elevation** view.
2. $10 \text{ VSD} = 9 \text{ MSD}$: A Vernier scale following such a rule is called as **Forward Vernier**.
3. In case of third angle projection, the Top view is above the XY line and the Front view is below the XY line. Is this statement true/false? **True**
4. If a lamina is parallel to HP, then the true shape will be seen in the **Top** view.
5. While completing a letter using ‘Single Stroke’, the pen/pencil cannot be lifted. State whether the statement is True or False. **False**
6. A multiview orthographic projection is a type of convergent projection. Is this statement true/false? **False**
7. A line AB of 100 mm is inclined at 40° to HP and 30° to VP. The top view ‘ab’ measures 76.6 mm. If M is the midpoint of line AB, the distance of the midpoint from one of its end, ‘am’, in the top view is **38.3** mm.

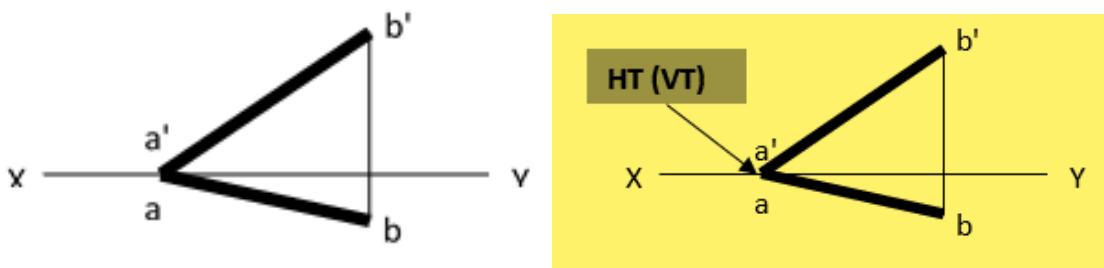
8. If a line is inclined at 20.3° to the HP and 69.7° to the VP, its true length is seen in **Side / Profile** view.
9. If the TV of a lamina is perfect square but the FV is a rectangle, then the true shape of the lamina is a **Rectangle**.
10. If the eccentricity ratio of a conic is greater than 1, the represented conic is **Hyperbola**.
11. A point is on HP and behind VP. The point is lying in the **Common plane of the second and third** quadrant.
12. If a line seen as a point in the profile plane, it will have **zero** number of trace(s).
13. The sum of the distances of a point on the ellipse from the two foci is equal to **Length of the major axis of the ellipse**.
14. A line is said to be **Oblique** if it is inclined to both HP and VP.
15. Draw the capital letter “B” and mark the sequence of strokes. (A)



2-Marks questions

16. If a generating circle of radius ‘r’ rolls inside of a directing circle of radius ‘R’, the generated cycloid will be termed as **Hypocycloid** and the angle subtended by one complete revolution of the generating circle will be expressed as **$r/R \times 360^\circ$** .
17. The recommended size of A2 drawing sheet is **420** mm \times **594** mm (or, **594** mm \times **420** mm)
18. Conic is defined as the locus of a point moving in a plane such that the ratio of its distance from **A fixed point (Focus)** to the **Fixed straight line (Directrix)** is always a constant.
19. The figure indicates the projections of line AB. In the same figure provided, locate the HT and VT of the line AB.

HT and VT coincides and is at point a or a'

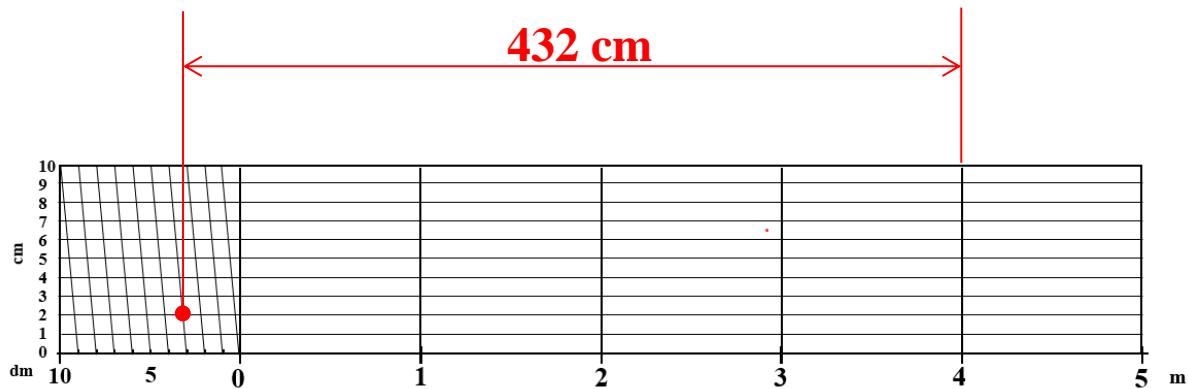


20. IIT Guwahati has an area of 2.85 km^2 . It is to be represented by a map of dimension $150 \text{ mm} \times 190 \text{ mm}$. The representative fraction for the map is **0.0001**.

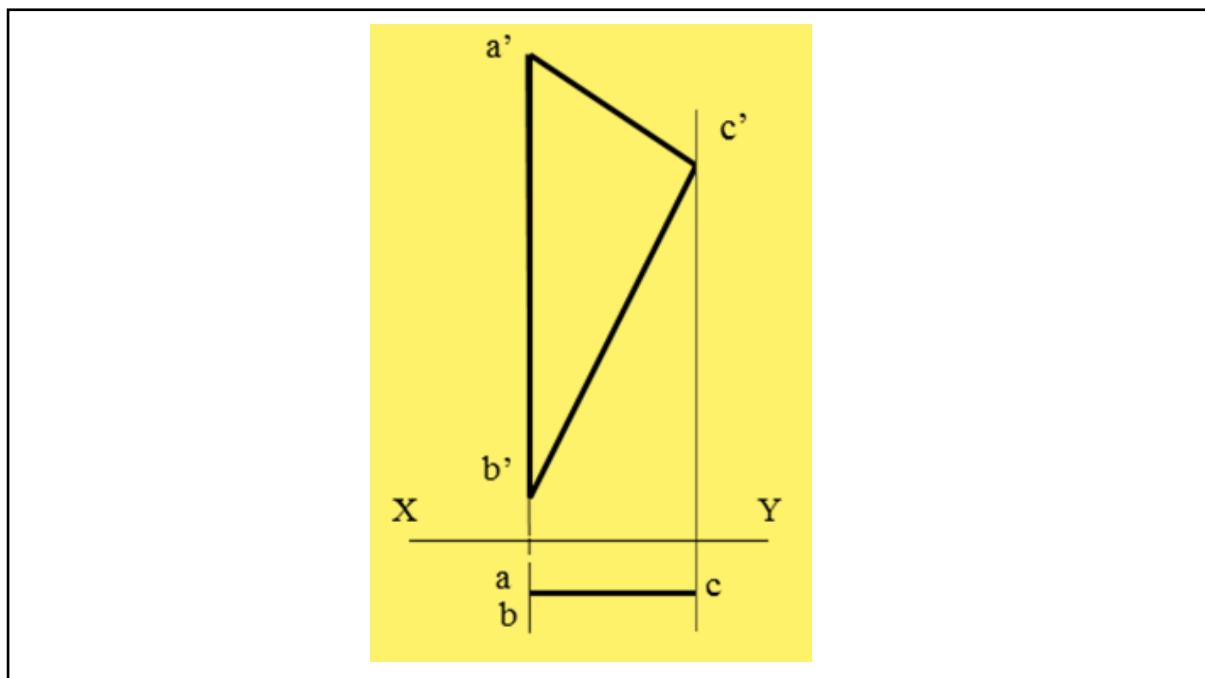
$$\begin{aligned}
 RF &= \sqrt{\text{Area of drawing / Actual area}} \\
 &= \sqrt{(150 \text{ mm} \times 190 \text{ mm}) / (2.85 \times 10^{12} \text{ mm}^2)} \\
 &= \sqrt{(1/10^8)} = 1/10^4 = 0.0001
 \end{aligned}$$

21. The top view (TV) of a rectangular shaped room will show its **Length** and **Width** dimensions. (or, its **Width** and **Length** dimensions)

22. A regular pentagon of 20 mm side is parallel to VP. The perimeter of the geometry in FV is **100** mm.
23. Mark a distance of 432 cm on the diagonal scale, provided in the figure.

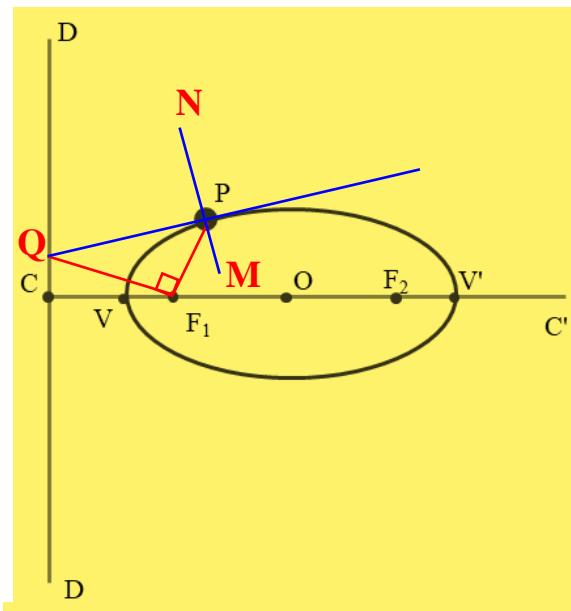


24. A right angle triangle lamina rests on VP on its edge, and makes an angle with VP. Draw the projections for first set (or, initial) TV and FV.

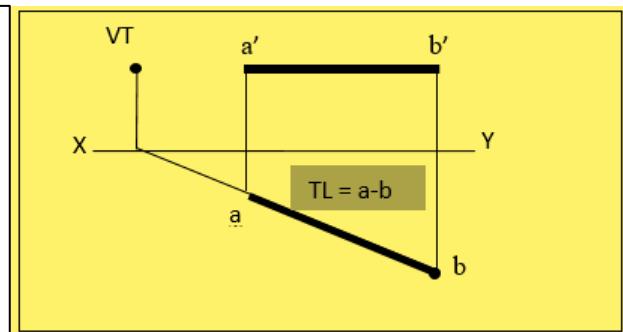
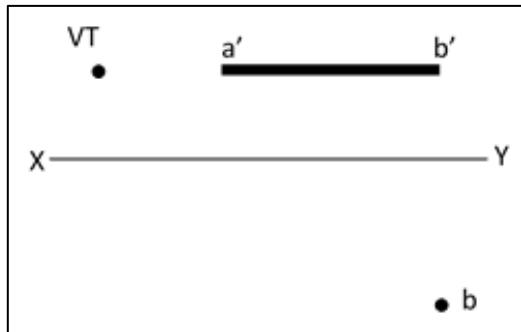


25. Given the ellipse along with its directrix, and a point P located on it, as shown in the figure, write the steps to draw the tangent and normal passing through Point P. Also, sketch the same on the figure provided.

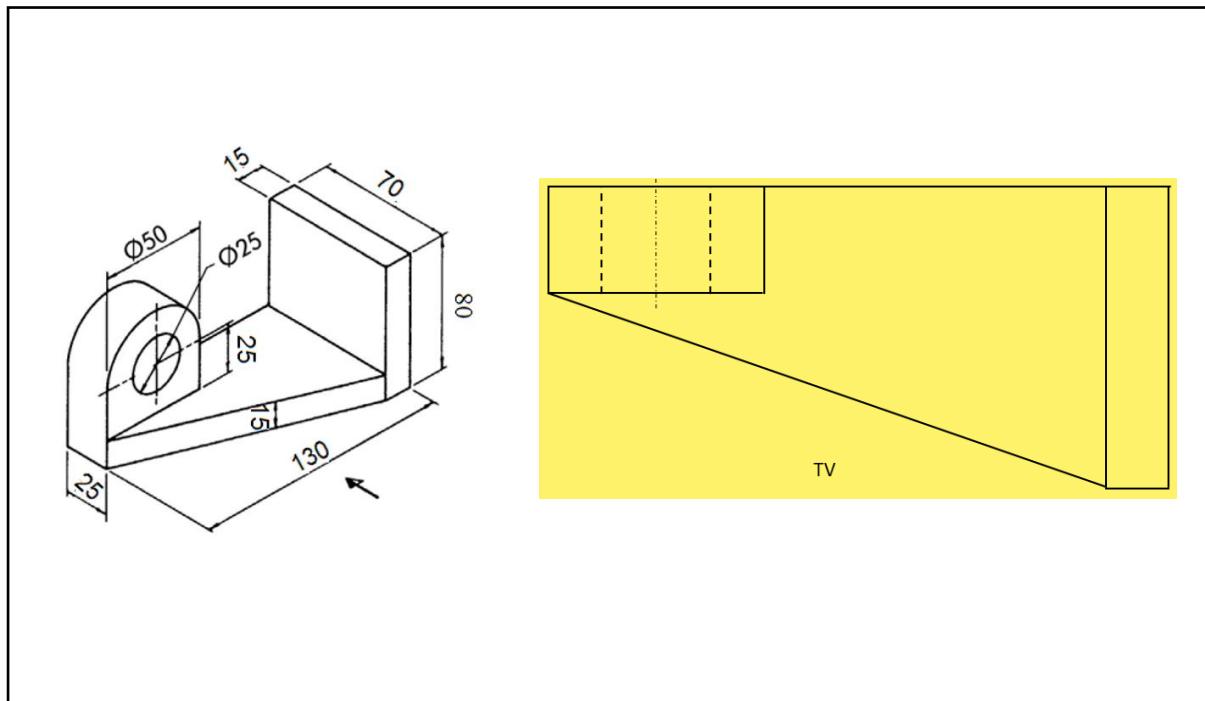
1. Mark the given point P and join PF_1 .
2. At F_1 , draw a line perpendicular to PF_1 to cut DD at Q.
3. Join QP and extend it. QP is the tangent at P.
4. Through P, draw a line NM perpendicular to QP. NM is the normal at P.



26. Given the figure, show the construction for finding the true length of line AB.

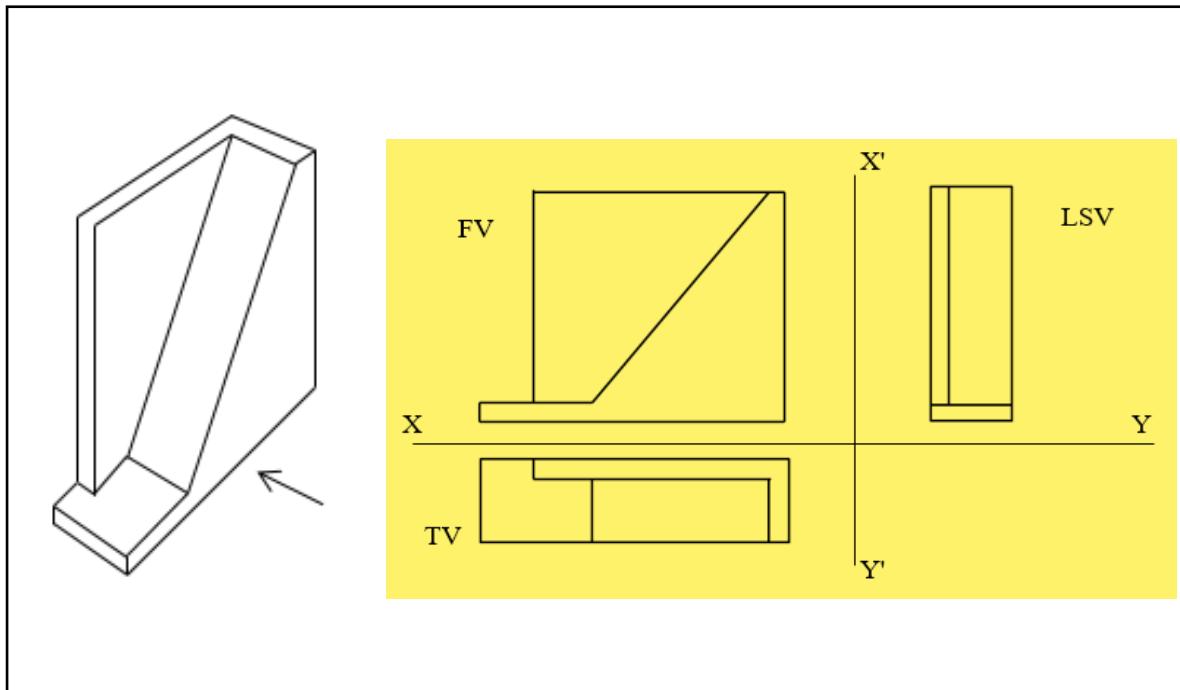


27. Consider the object as shown in the figure. Make free-hand sketch of the TV of the object.
Exact representation of dimension is not required.



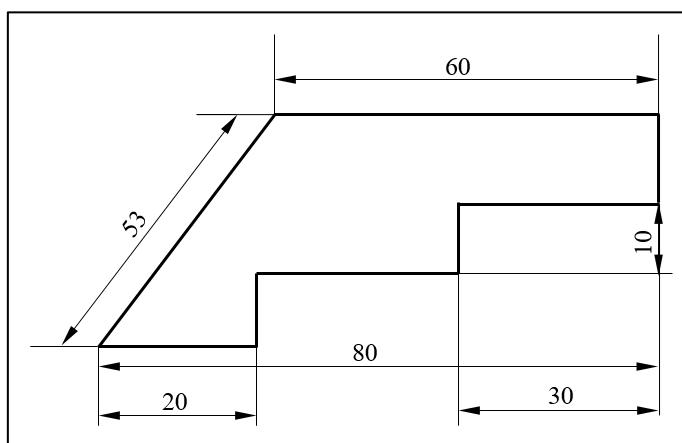
3-marks Questions

28. Using the first angle projection method for the object as shown in the figure, make free-hand sketch and properly mark the views as FV, TV and LSV.



29. Identify any three mistakes regarding dimensioning of the given object. (ANY THREE)

- (a) Extension lines are in contact with the object lines
- (b) Longer dimension is placed closer to the object, while the smaller dimensions are away
- (c) Object line is directly used for dimensioning for dimension 10
- (d) For the dimension 53, the extension line is not placed perpendicular to the object line
- (e) Complete information about the vertical features of the object are not provided
- (f) Extension lines are criss-crossing or intersecting each other



SHEET FOR ROUGH WORK
(WILL NOT BE CONSIDERED FOR EVALUATION)

NAME: _____

ROLL NO.: _____ **LAB GROUP** _____

Booklet-B

CE101 Engineering Drawing July-Nov 2019

Indian Institute of Technology Guwahati

MID-SEMESTER EXAMINATION

Total Marks: $15 \times 1 + 12 \times 2 + 2 \times 3 = 45$

Date: 14.09.2019

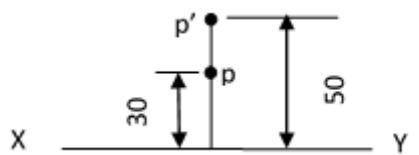
Time: 1 hr (11:00 am – 12:00 pm)

NOTES: (1) Answer all questions. (2) Questions 1-15 carry 1 mark each (3) Questions 16-27 carry 2 marks each (4) Questions 28-29 carry 3 marks each (5) There are no step marking. (6) This exam paper contains 8 pages, printed on both sides. (7) Free-hand drawing is allowed. (8) There is no negative marking. (9) In case of any discrepancy/missing data, write your assumption and solve. (10) In case of free hand sketches, take suitable lengths of the objects and the distances of points from XY. (11) Rough work to be done in attached sheet.

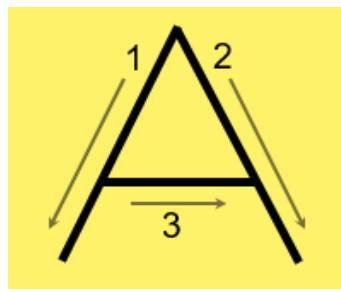
1-Mark questions

1. When a line is inclined at 40° to both HP and VP, its apparent inclination with HP is **Greater** than 40° .
2. The horizontal reference line XY is the result of intersection of an object's surface with the HP. Is this statement true/false? **False**
3. The true inclination of a lamina with a particular reference plane can be seen in its **Edge** view.
4. Profile plane is not a principal plane of projection. Is this statement true/false? **True**
5. A right circular cone is cut by a plane passing through its vertex. The true shape of the conic section represents a **Triangle**.
6. When the length of the object on the drawing is less than the length of actual object, the adopted scale is called as **Reducing scale / Reduction scale**.
7. When a line is perpendicular to vertical plane, its VT coincides with **Front** view.

8. If a line is inclined to HP and parallel to VP, its **Top** view is parallel to XY reference line.
9. In a drawing sheet, left margin is drawn at **20** mm away from its edge.
10. The size of a letter is always described by its **Height**.
11. The point of intersections of a line (or its extensions) with the representative/reference planes are called as the **Traces** of the line.
12. Considering the projected views of Point P as shown in the figure, the point P lies in the **Second** quadrant.



13. If a line is parallel to the HP and VP, then it can be seen as a point in **Side / Profile** view.
14. If a line is inclined to both VP and HP, then the front view and its VT are **Collinear / On the same straight line**.
15. Draw the capital letter “A” and mark the sequence of strokes.

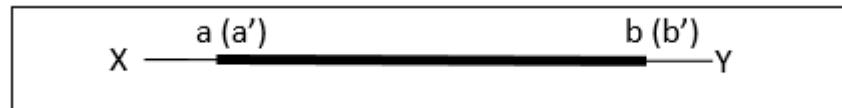


2-Mark questions

16. Why projection is not generally done in the IInd and IVth quadrants?

When projection done on 2nd or 4th quadrants are rotated, both the HP and VP overlap which results in overlapping views that is difficult to understand. Hence, it is not practiced.

17. Draw the projections (FV and TV) of a line AB that is contained by both HP and VP.



18. Any chord perpendicular to the axis of parabola is termed as **Double ordinate**. A particular chord passing through the ends of the parabola is called as **Base**.

19. Irregular boundary line are represented by **Continuous thin wavy** line, while Long break line is represented by **Continuous thin zig-zag** line. (**No need to draw/sketch the line**)

20. In the first-angle projection, the **Object** comes between the **Observer and plane / Plane and observer**.

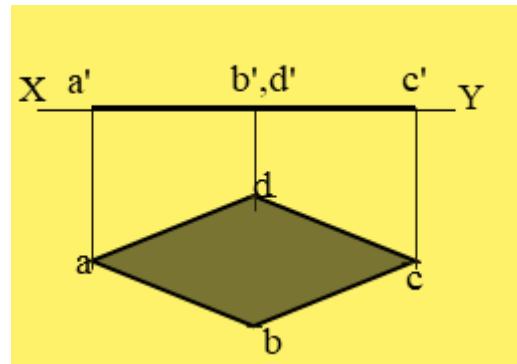
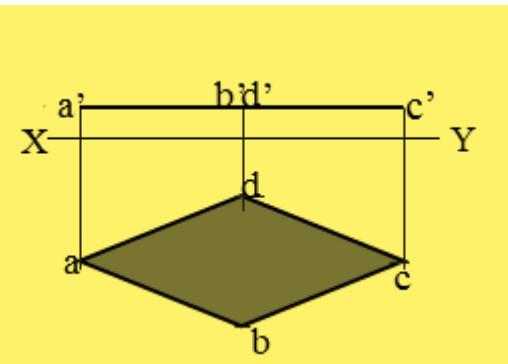
21. A line is inclined to both the plane and the inclination of top and front views with respect to XY are same. Comment on the actual inclination of the line with respect to HP and VP.

The line is equally inclined to both the HP and VP.

22. In orthographic projection, the **Projectors** are perpendicular to the **Planes** of projection.

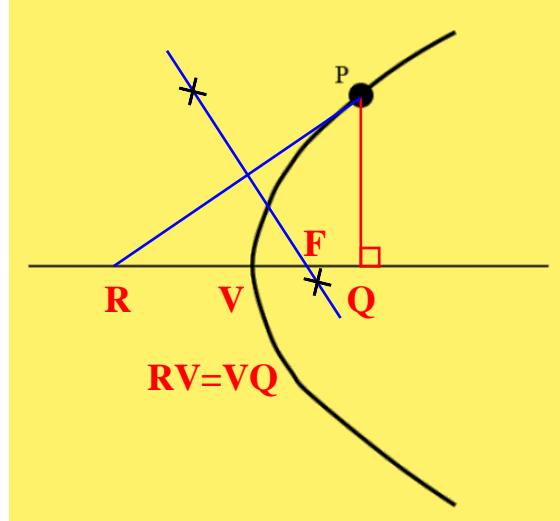
23. A 50 mm diameter circular plane is seen as an ellipse in TV and FV. If this plane is perpendicular to profile planes, and makes equal angle with HP and VP, then the length of major axis in both the views is **50** mm.

24. A rhombus rests on HP on one corner, while making an angle with HP. Draw the projections for the first set (or, initial) TV and FV.

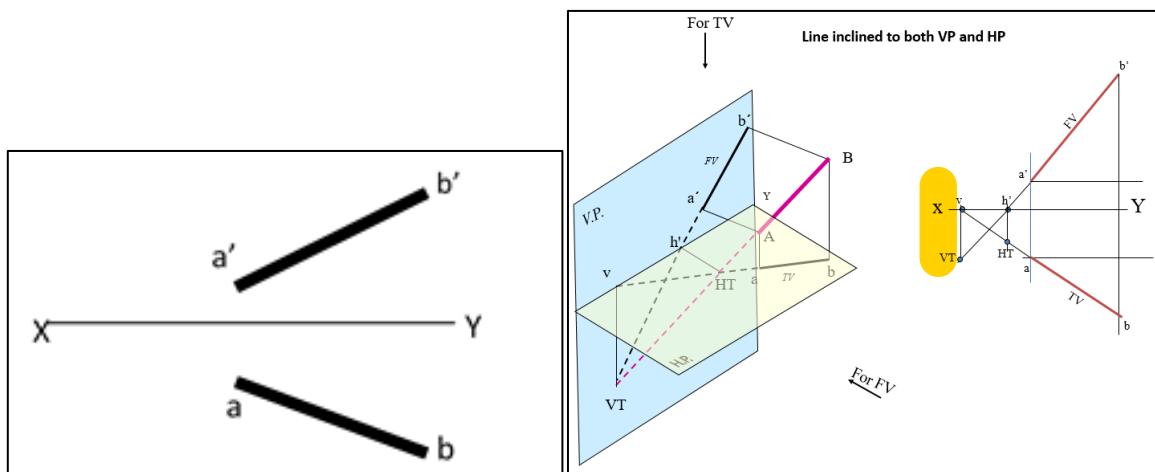


25. Given the parabola and a point P located on it, as shown in the figure, write the steps to locate the focus of the parabola. Also, sketch the same on the figure provided.

1. Draw a perpendicular PQ to the given axis
2. Mark a point R on the axis such that $RV=VQ$
3. Join RP. Draw a perpendicular bisector of RP cutting the axis at F, F is the focus



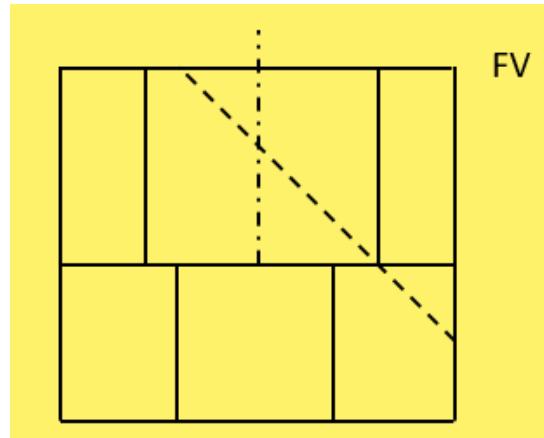
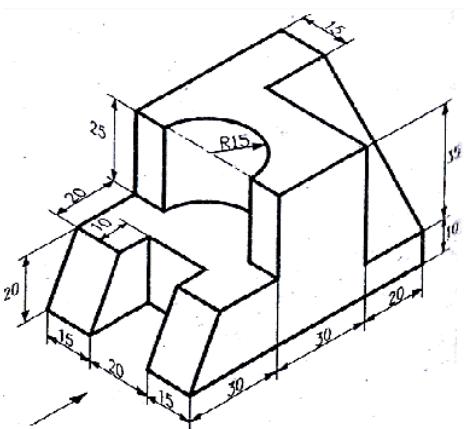
26. The projections of line AB are shown in the figure. The VT of line AB lies in Common plane of the third and fourth quadrant.



This image is only for representation purpose.
Nothing to do with the evaluation.

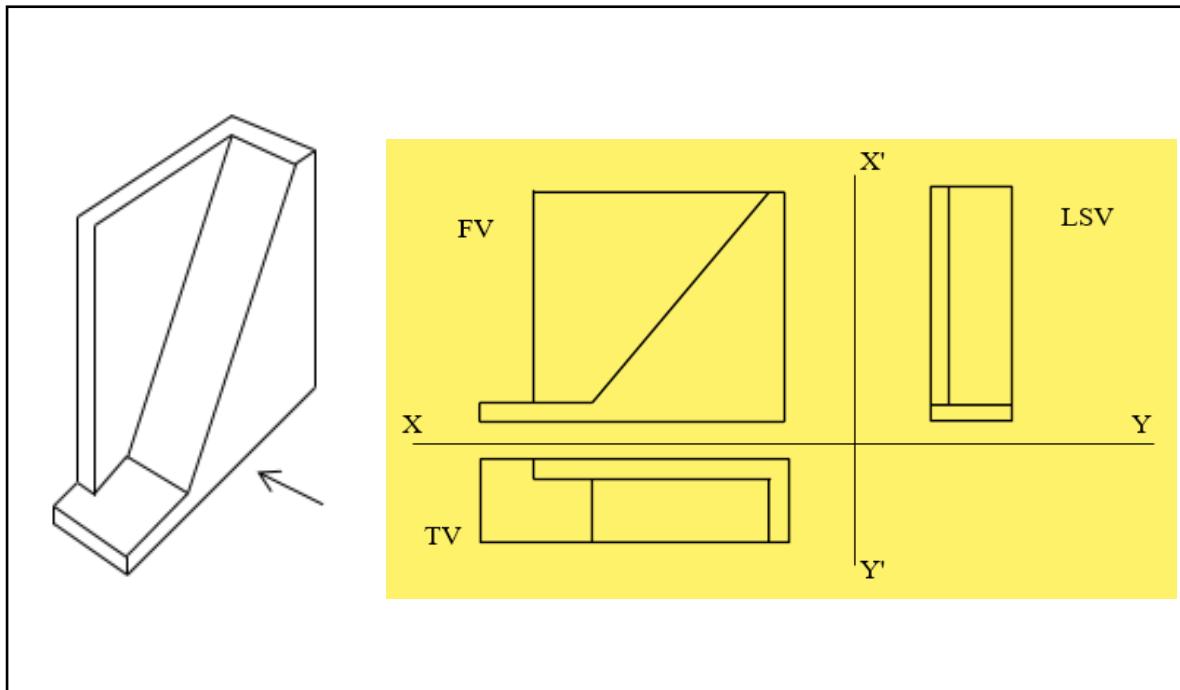
27. Consider the object as shown in the figure. Make free-hand sketch of the FV of the object.

Exact representation of dimension is not required.



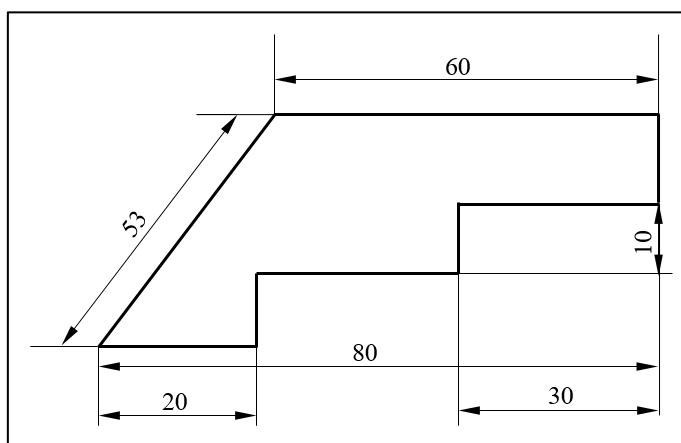
3-marks Questions

- 28.** Using the first angle projection method for the object as shown in the figure, make free-hand sketch and properly mark the views as FV, TV and LSV.



- 29.** Identify any three mistakes regarding dimensioning of the given object. (**ANY THREE**)

- (a) Extension lines are in contact with the object lines
- (b) Longer dimension is placed closer to the object, while the smaller dimensions are away
- (c) Object line is directly used for dimensioning for dimension 10
- (d) For the dimension 53, the extension line is not placed perpendicular to the object line
- (e) Complete information about the vertical features of the object are not provided
- (f) Extension lines are criss-crossing or intersecting each other



SHEET FOR ROUGH WORK
(WILL NOT BE CONSIDERED FOR EVALUATION)

MID-SEMESTER EXAMINATION 2013

Course: Engineering Drawing (ME111)

Department of Mechanical & Civil Engineering, IIT Guwahati

Subnet K + K₂

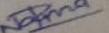
Total time: 70 minutes

Exam date: 21-09-2013

Total marks: 50

Name: Nama Pranay Naresh

Roll no: 130108030

Signature: 

NOTE: (1) Answer all 50 questions. (2) Each question carries 1 mark. (3) No Step marking. (4) This exam paper contains 6 pages printed on both sides.

O	1.	A cube of 40 mm is freely suspended from one of its corners; the center of gravity of this cube is at <u>$40\sqrt{3}/2$</u> mm from base.	X
1	2.	The sum of the distances of a point on the ellipse from the two foci is equal to <u>length of major axis</u> .	
1	3.	In a drawing sheet, left margin is drawn at <u>20</u> mm away from its edge.	
O	4.	Draw strokes for letter "B".	B X
1	5.	If a line is inclined at 30° to HP and 60° to VP, then its true length can be seen in <u>side</u> view.	
1	6.	What is the least count of mini-drafter you are using in drawing lab?	1 mm
1	7.	A line PQ inclined at 30° to the HP and parallel to VP, it will have <u>1</u> trace(s).	
1	8.	Eccentricity of conics is a ratio of distance between vertex and <u>focus</u> to distance between vertex and <u>directrix</u> .	
1	9.	<u>Arc of circle/Oblong</u> method is used to draw an ellipse, if major and minor axis given.	
1	10.	Any chord perpendicular to the axis of parabola is called <u>double ordinate</u>	
1	11.	If the asymptotes are perpendicular to each other then the hyperbola is called <u>rectangular hyperbola</u>	
1	12.	The cycloid is called the <u>hypocycloid</u> when the generating circle rolls along another circle inside it.	
13.		Vernier and diagonal scales can measure length with the same precision. True or false?	True

o	14.	Hollow cylinder requires <u>2</u> X orthographic view(s) for its description.
\	15.	A room of 1000 m^3 volume is represented by a block of 216 cm^3 volume. Calculate RF to measure up to 30 m. $R.F. = \frac{6}{10 \times 10^2} = \frac{3}{500}$
\	16.	If a line is inclined 40° to HP and parallel to VP, its true length can be seen in <u>Front</u> view.
\	17.	If a line is inclined at 30° to HP and 45° to VP, then apparent angle α° with HP is <u>greater</u> than the true inclination with the HP.
\	18.	In second angle projection, the object is placed <u>above</u> the HP and <u>behind</u> the VP.
\	19.	A line AB of 100 mm is inclined at 60° to HP and 20° to VP, the top view of line measures 50 mm. Point P is at one fourth distance from end A, distance of this point P from end A in the top view is <u>12.5</u> mm.
\	20.	The object is located in IV quadrant, the HP has to be rotated in <u>clockwise</u> direction to obtain orthographic views.
\	21.	A line PQ is inclined to both the HP and VP, <u>vertical</u> trace lies along with the front view of the line.
\	22.	When a solid is cut by a plane inclined to its base, it is called as <u>truncated</u> solids.
o	23.	Draw a line used for cutting planes. <u>X</u>
\	24.	Hidden line has precedence over <u>centre line</u> .
\	25.	A line is inclined to both the plane and the inclination of top and front views with respect to XY are same. Identify the line condition. <u>The true inclination of the line with HP and VP is the same and line is parallel to PP.</u> $\theta = \phi$
\	26.	A tetrahedron is having <u>four equal equilateral triangular</u> faces.
\	27.	If a line is parallel to the HP and VP, then it can be seen as a point in <u>side / end</u> view.
28.	In <u>backward</u> vernier scale, main scale division is less than vernier scale division.	

$$\frac{1}{M} = \frac{N}{M}$$

$$10V = 1M$$

Included angle of a regular pentagon is 108° degrees.

30. A point is on HP and behind VP, it is lying in 2^{nd} quadrant.

31. Draw symbols of following features: (a) Counter Sink (b) Dimension Origin.

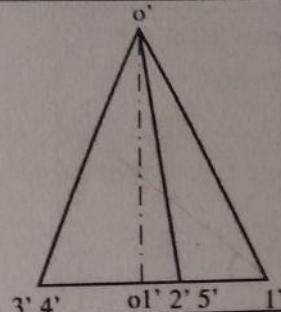
CSK



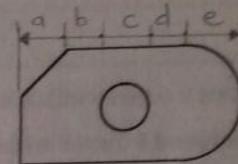
32. Enlargement scales are used for bridges. True or false?

False

33. The front view of pentagonal pyramid is shown in the figure. Redraw the same front view, if it is freely suspended from corner $1'$. Assume dimensions, if required.



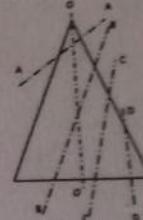
34. Dimension the component using aligned system. Assume dimensions as a, b, c etc.



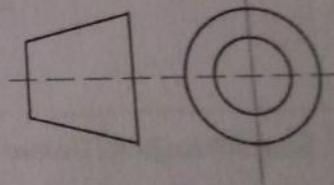
X

35. Rectangular hyperbola is obtained when section plane

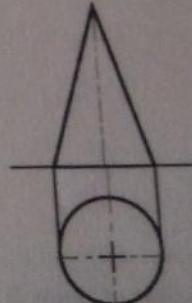
DO cuts the cone.



36. Symbol shows third angle projection.

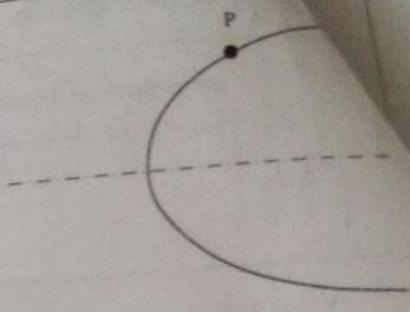


37. Complete the drawing, if there is any missing line. Ignore projection lines.



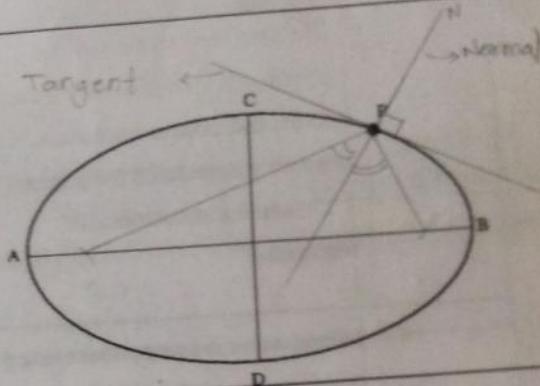
38

- Draw tangent at a point P on the parabola. Show only constructions, no theory.



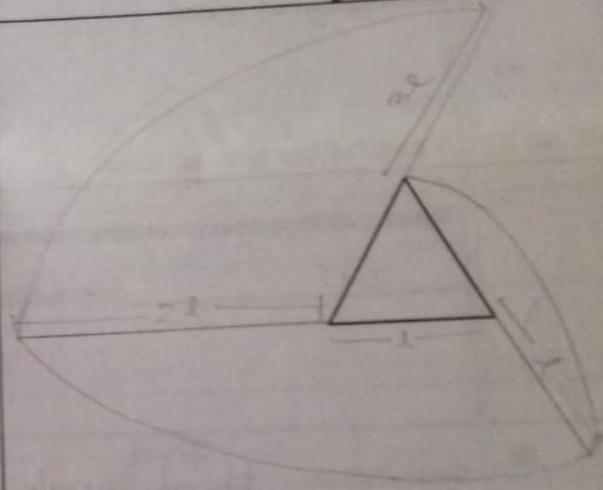
39.

- Draw tangent at a point P on the ellipse given major and minor axes. Show only constructions, no theory.



40.

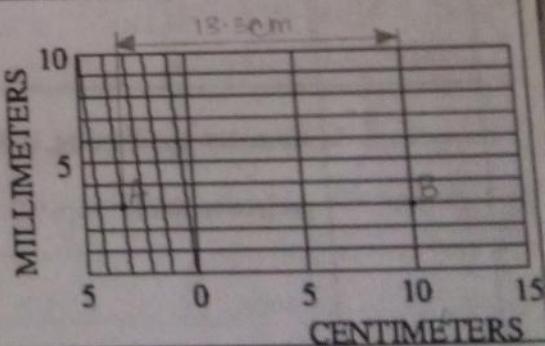
- Draw a curve which is traced by a free end of a thread unwound from the triangle given in the figure. Assume thread is always tight.



41.

- Mark off length 13.3 cm in the diagonal scale. Use proper extension and dimension lines.

$$AB = 13.3 \text{ cm}$$



42.

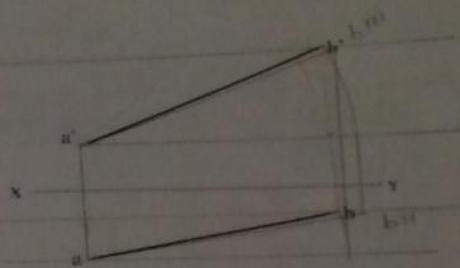
- Elevation of point P is 30 mm above XY reference line and plan is at 50 mm above XY. Identify its position with respect to the HP and VP.

30mm above HP and 50mm behind VP.

N

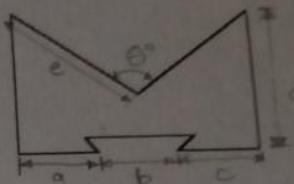
Identify true length of line AB shown in figure. Show only constructions, no theory. Assume suitable dimensions, if required.

$$\text{True length} = ab'' = a'b''$$

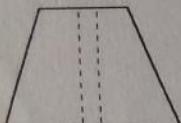


44. Dimension the figure shown using alphabets.

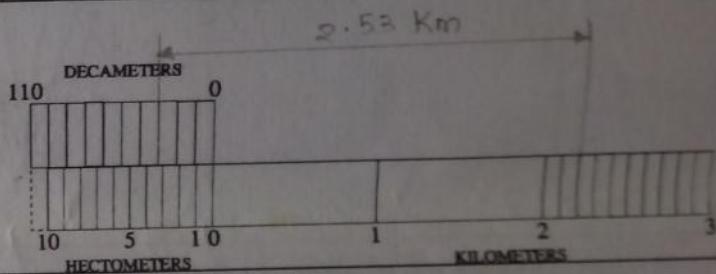
X



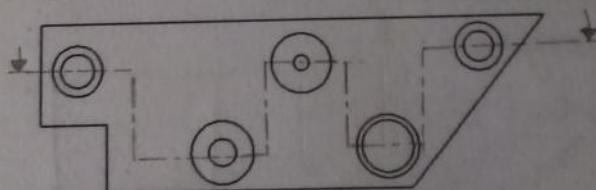
45. Redraw the correct figure, if there is any error.



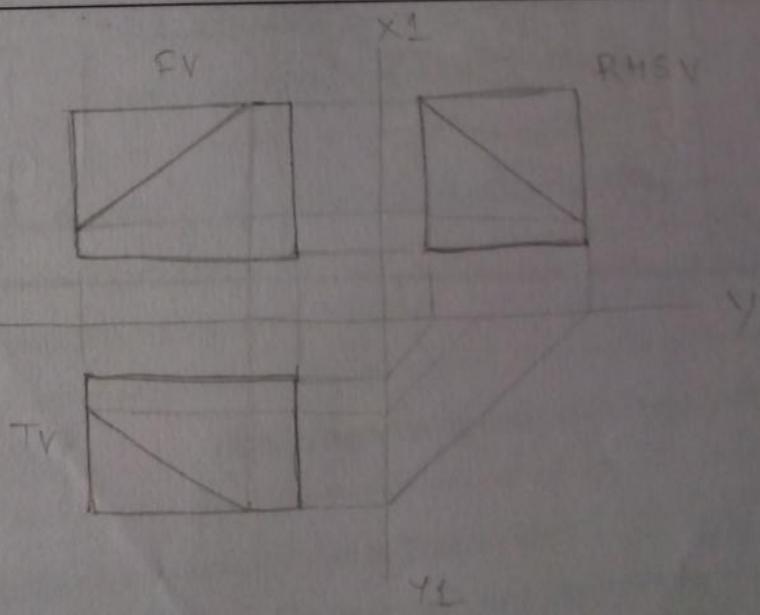
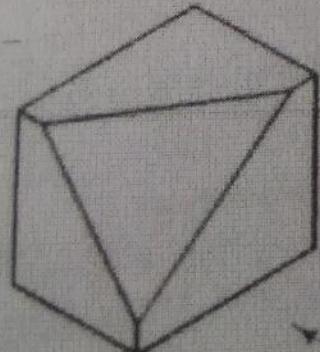
46. Measure 2.53 Km from the vernier scale. Use proper extension and dimension lines.



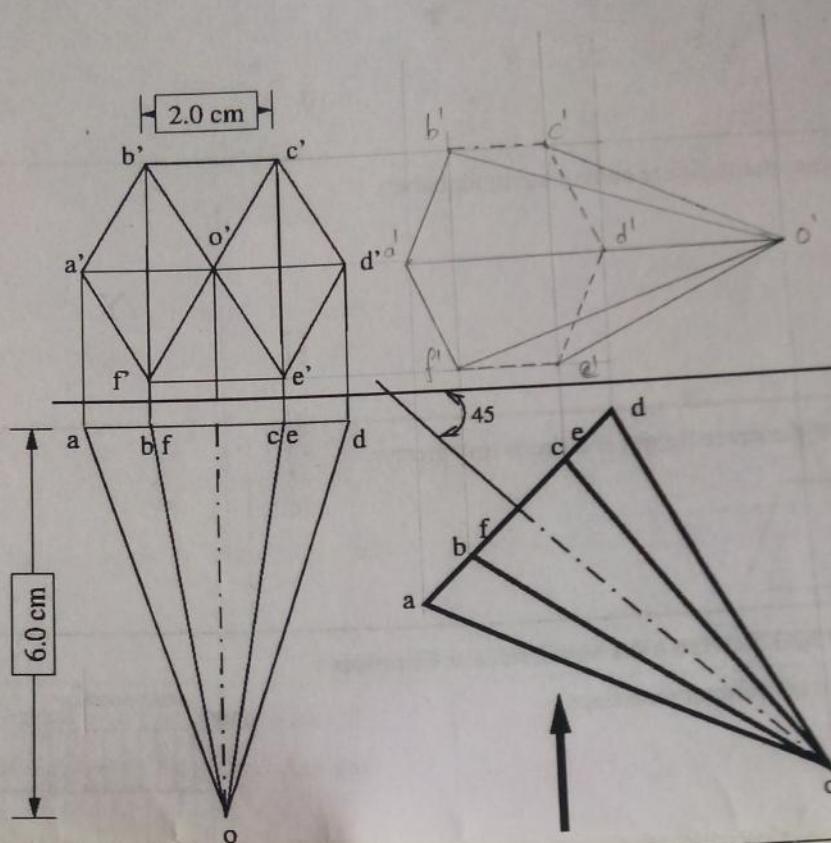
47. Draw appropriate cutting plane to section the given component.



48. Draw all the views (free hand drawing) of the given object.



49. Complete front view indicating visible and hidden edges.



50. Draw all the views (free hand drawing) of the given object.

