Indian Institute of Technology (IIT) Guwahati

CE101: Engineering drawing

Assessment-1 ***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

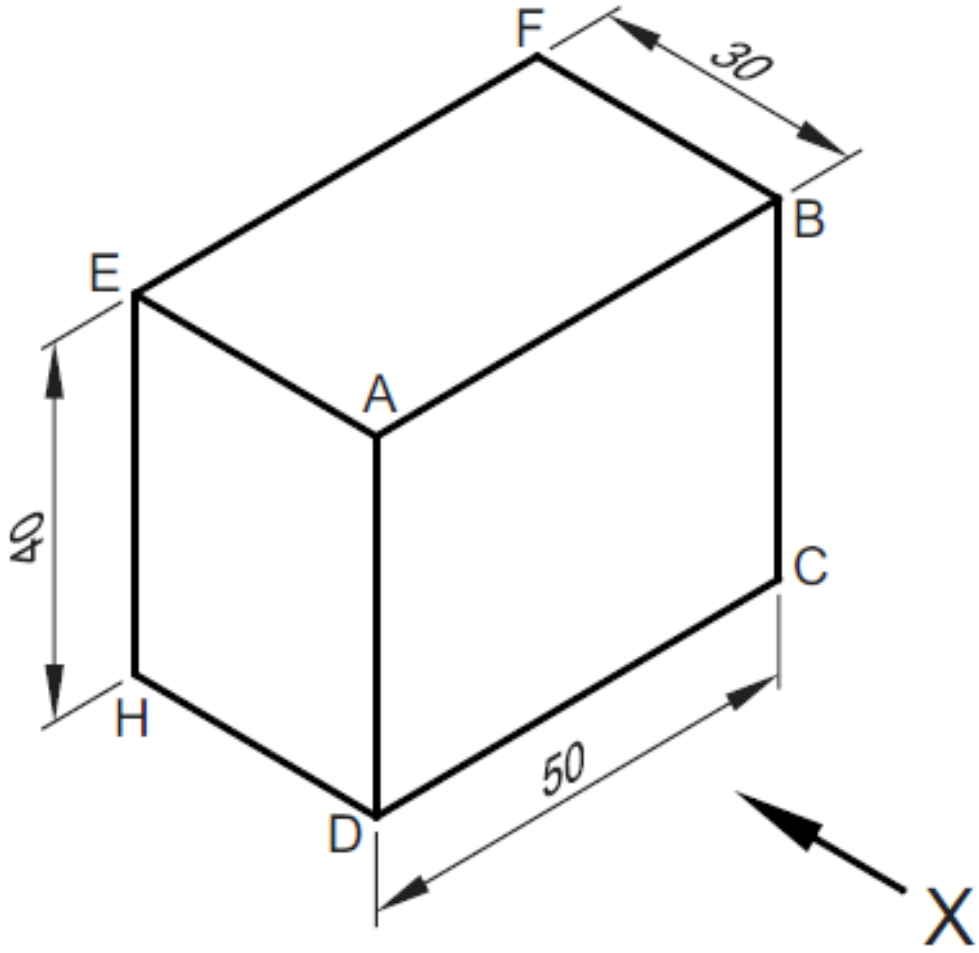
6. The line connecting a view to a note is called a
   (a) dimension line (b) projection line (c) leader (d) arrowheads
7. An epicycloid was generated by one revolution of a 30 mm circle outside another circle of diameter 100 mm. The included angle of the arc of the directing circle is --- degree
8. 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 $\theta°$ to HP and $\phi°$ 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 of 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.

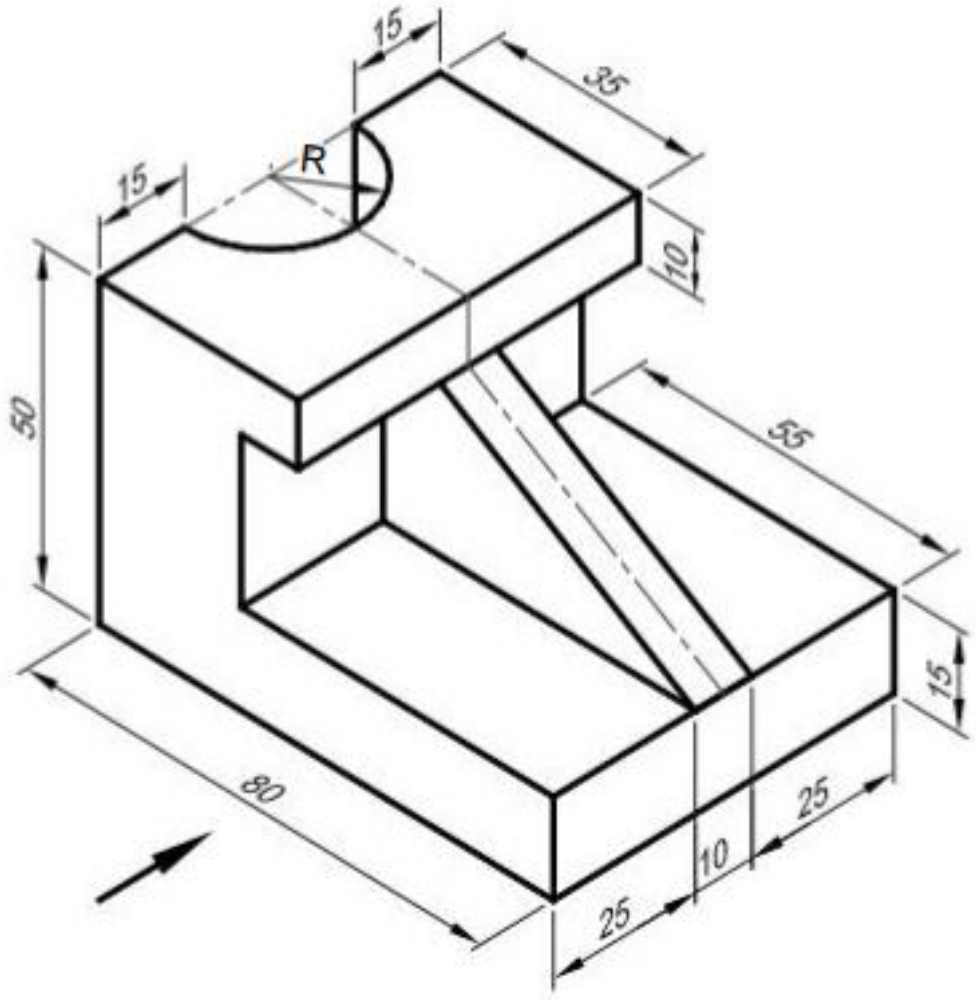


(5x5=25 marks)

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)