

# JK LAKSHMIPAT UNIVERSITY, JAIPUR

## INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular), November-December 2015

B. Tech in Civil Engineering, Semester I

Roll No.....

CE102: Engineering Drawing

Time: 4 hours

Max. Marks: 100

### Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neatly (Proper lettering and dimensioning) on the A3 drawing sheet provided along with Title Block
4. Align method of dimensioning to be followed
5. Clearly show all the steps of construction lines and dimensions following the guidelines of Engineering Drawing

Q.1

Q.1A) A distance of 40 miles is represented by a line 8 cm long. Construct a plain scale to read 80 miles. Also construct a comparative scale to read kilometers up to 120 km (1 m = 1.609 km) 05

Q.1B) Inscribe a regular polygon of 4, 5 and 6 sides, given the length of its sides equal to 25 mm? Use the generalized method which can be used to construct regular polygon of any number of sides given (Method III, discussed in the class)? 05

Q.2A) 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. Indicate on it following distances. 1) 222 km 2) 336 km 3) 459 km 4) 569 km. 05

Q.2B) A 3.2 cm long line represents a length of 4 metres. Extend this line to measure lengths up to 25 metres and show on it units of metre and 5 metres. Show the length of 17 metre on this line? 05

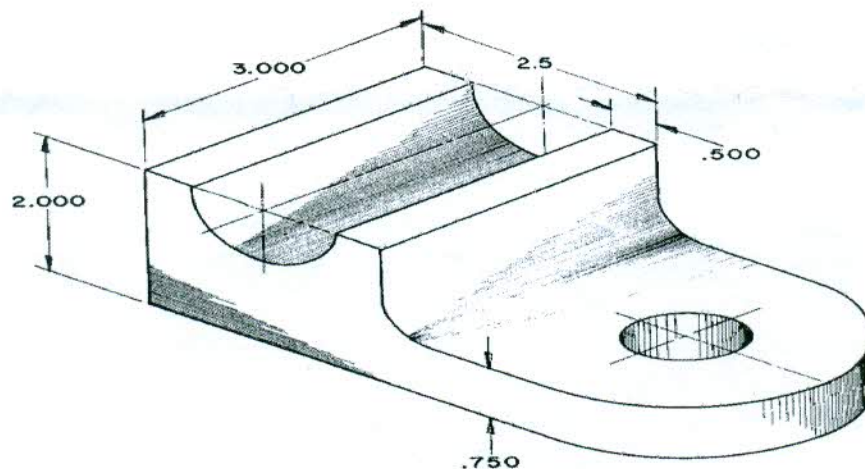
Q.3A) The actual length of 300 m of an Auditorium is represented by a line of 10 cm on a drawing. Draw a Vernier to read up to 400 m. Mark on it, a length of 343 m (Backward Vernier / Retrograde Vernier Scale)? 05

Q.3B) Construct a  $\Delta ABC$  having Angle  $ABC = 54^\circ$  and Angle  $BAC = 96^\circ$  construct angles by using scale of cords 05

Q.4A) Using DIRECTRIX-FOCUS METHOD draw point F which is 50 mm from a line AB. A point P is moving in a plane such that the ratio of its distances from F and line AB remains constant and equals to 05  
a).  $\frac{2}{3}$  draw locus of point P. { Maintaining, ECCENTRICITY =  $\frac{2}{3}$  }  
b). 1 draw locus of point P. { Maintaining, ECCENTRICITY = 1 }  
c).  $\frac{3}{2}$  draw locus of point P. { Maintaining, ECCENTRICITY =  $\frac{3}{2}$  }

- Q.4B) Draw an ellipse by : 05
- Rectangle method.
  - Concentric circle method.
  - By Arcs of circle method.
- Take major axis 100 mm and minor axis 70 mm long?

- Q.5) 10



**SHAFT SUPPORT**

Figure 1

Following the first angel projection method draw the orthographic projection of the Shaft Support shown in Isometric view. Clearly show the figure title for different views (FV, TV and LSV), along with the plane of projection. Scale Factor for the Shaft Support= 1:20. Draw to actual scale.

- Q.6) 10

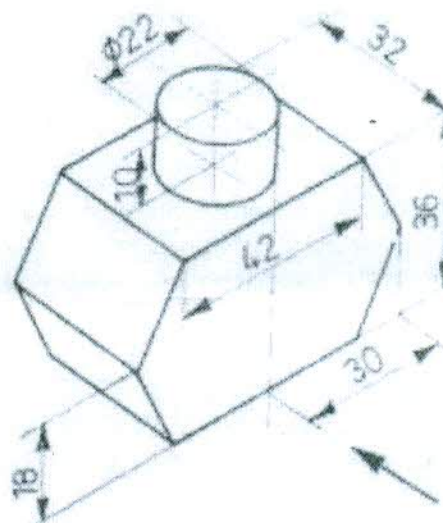


Figure 2

Following the first angel projection method draw the orthographic projection of the Figure 2 shown in Isometric view, show all the views : (FV, TV and LSV).

Q7)

10

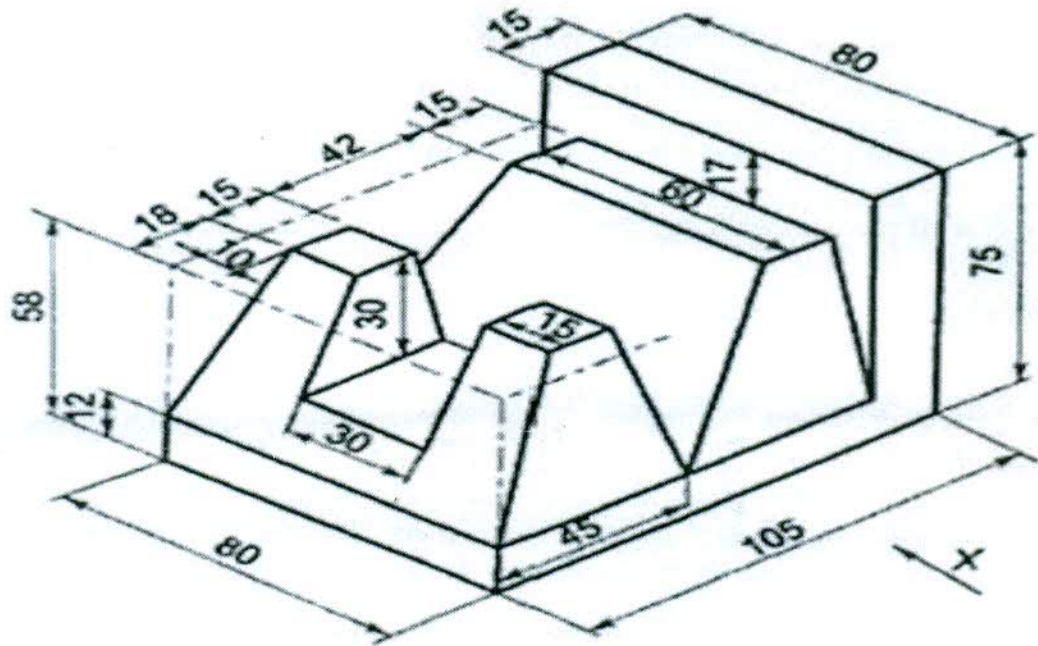


Figure 3

Following the first angel projection method draw the orthographic projection of the Figure 3 shown in Isometric view, show all the views : (FV, TV and LSV).

OR

Q7)

10

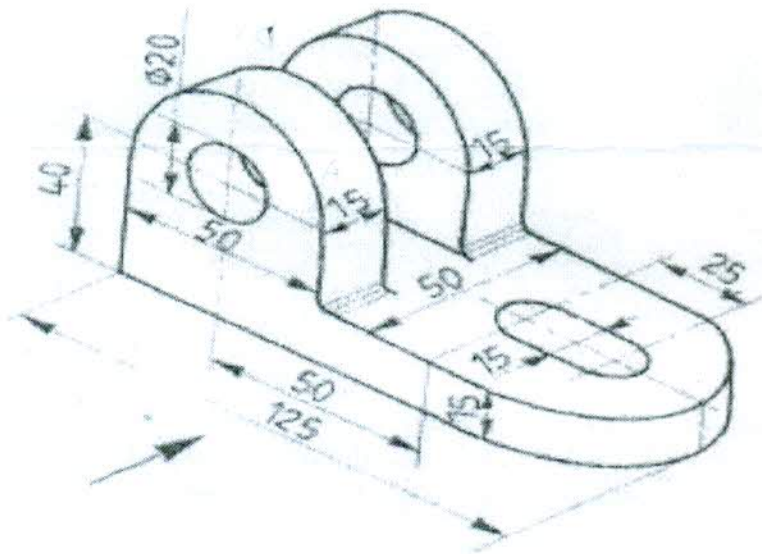


Figure 4

Following the first angel projection method draw the orthographic projection of the Figure 4 shown in Isometric view, show all the views: (FV, TV and LSV).

Q8).

A line AB is 75 mm long and it is  $30^\circ$  &  $40^\circ$  Inclined to HP & VP respectively. End A is 12mm above HP and 10 mm in front of VP. Draw projections. Line is in 1<sup>st</sup> quadrant.

10

Q.9) Line AB 75mm long makes  $45^\circ$  inclination with VP while it's FV makes  $55^\circ$ . 10

End A is 10 mm above HP and 15 mm in front of VP. If line is in 1<sup>st</sup> quadrant draw it's projections and find it's inclination with HP.

OR

Q9). Two objects, a flower (A) and an orange (B) are within a rectangular compound wall, whose P & Q are walls meeting at  $90^\circ$ . Flower A is 1M & 5.5 M from walls P & Q respectively. Orange B is 4M & 1.5M from walls P & Q respectively. Draw their projections and find distance between them. If flower is 1.5 M and orange is 3.5 M above the ground. Consider suitable scale. Refer to Figure5. 10

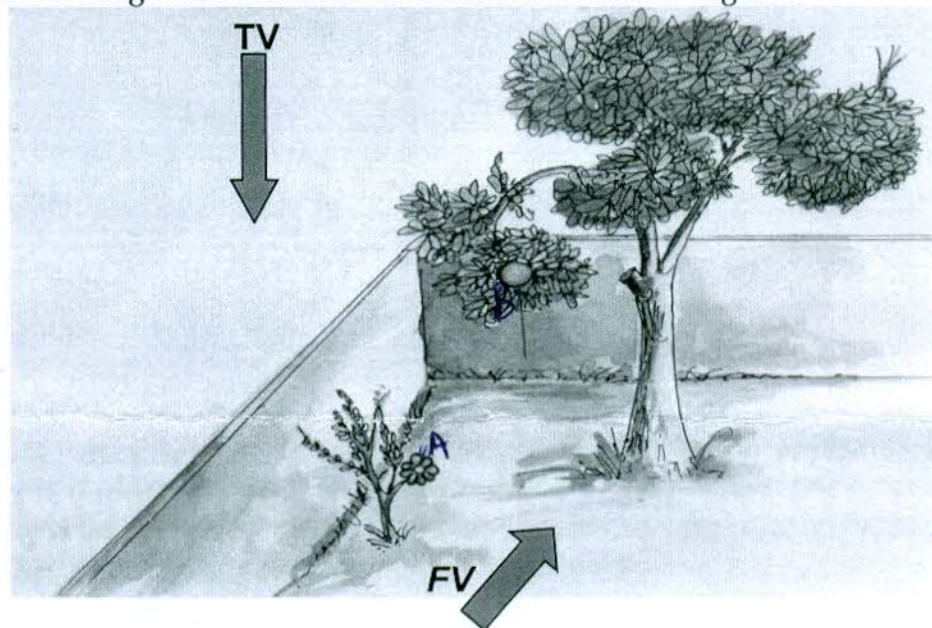


Figure 5

Q.10) Rectangle 30mm and 50mm sides is resting on HP on one small side which is  $30^\circ$  inclined to VP, while the surface of the plane makes  $45^\circ$  inclination with HP. Draw it's projections following first angle projection system ? 10

OR

Q.10) A  $30^\circ - 60^\circ$  set square of longest side 100 mm long, is in VP and  $30^\circ$  inclined to HP while it's surface is  $45^\circ$  inclined to VP. Draw it's projections following first angle project system? 10