



UE-6005

B. E. I (Sem. I) (All Branches) Examination

April / May – 2012

Engineering Graphics

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दशांशविक निशानीवाणी विगतो उत्तरवडी पर अवश्य लभवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
B. E. I (Sem. 1) (All Branches)	<input type="text"/>
Name of the Subject :	<input type="text"/>
Engineering Graphics	<input type="text"/>
Subject Code No. : <input type="text"/> 6 <input type="text"/> 0 <input type="text"/> 0 <input type="text"/> 5	<input type="text"/>
Section No. (1, 2,.....) : <input type="text"/> NIL	
Student's Signature	

- (2) Retain all construction lines.
- (3) Figures to the right indicate full marks.
- (4) Assume data suitably, if required and mention them clearly.
- (5) Use only drawing sheets for drawing/calculations

1 Attempt any six : 12

- (i) Use of Mini drafter.
- (ii) Divide 105° angle into 4 equal parts.
- (iii) Define R.F.
- (iv) Define logarithmic spiral.
- (v) Give any two uses of construction line.
- (vi) Differentiate between two systems of dimensioning.
- (vii) Write the R.F. for scale, 1 cm = 40 km.

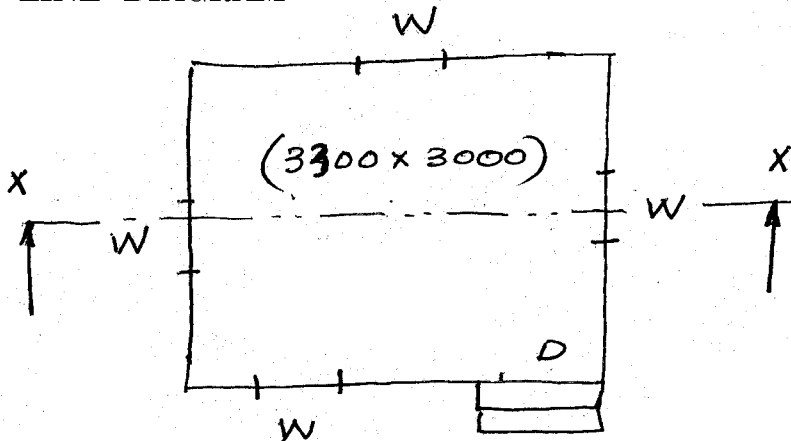
2 Attempt any three : 24

- (i) Draw a vernier scale for 1 cm = 2.5m and show on it a distance of 25.6 m and 32.8 m. Calculate the R.F. of the scale.
- (ii) Design and construct a conversion scale to convert cms to inches (1 inch = 2.54 cm)

- (iii) Draw an ellipse by rectangular method, given the major and minor axis as 100 mm and 60 mm respectively. Also draw a tangent and normal to any point on the curve.
- (iv) A fountain jet discharges water from ground level at an inclination of 60° to the ground. The jet travels a horizontal distance of 9m from the point of discharge and falls on the ground. Trace the path of the jet and name the curve.
- (v) A link 70 mm long, swings on a pivot from its vertical position of rest to the left at an angle of 60° and then it returns to its initial position at uniform velocity. During this period a point p moving at a uniform speed along the link from a point O, reaches the end of the link. Draw the locus of the point and name the curve.

- 3 The line diagram and specifications of a single room building are as follows : 14

LINE DIAGRAM



Draw neatly

- (i) Plan
- (ii) Sectional Elevation at XX.

Specifications :

- (i) P.C.C. base 1:4:8 in foundation, 200 mm thick and 900 mm wide.
- (ii) Depth of foundation 900 mm below ground level.
- (iii) Plinth height 600 mm above ground level.

- (iv) Thickness of brick masonry wall at plinth 400 mm and above plinth up to ceiling 300 mm. Parapet wall 600 mm height and 100 mm thick.
 - (v) Ceiling height 3000 mm.
 - (vi) 150 mm thick RCC lintel cum sunshade.
 - (vii) Roof slab 120 mm thick, 1:2:4 mix RCC.
 - (viii) Steps : Length of steps 1200 mm
Rise = 150 mm
Tread = 230 mm
 - (ix) Door - 1200 mm × 2100 mm
Window 1000 mm × 1200 mm
- Assume the data which is missing.

- 4 Attempt following (any **four**) : 12
- (i) Draw following lines :
 - (a) Centre line
 - (b) Dimension line
 - (c) Border line
 - (ii) Divide 12 cm line in five equal parts.
 - (iii) Name any three methods of construction of an ellipse.
 - (iv) Draw the symbols of following :
 - (a) Sand filling
 - (b) Brick wall
 - (c) Wood
 - (v) Draw the projection of point A, 15 mm above HP and 30 mm in front of VP.
- 5 Attempt following (any **three**) : 27
- (i) A line AB 100 mm long inclined to HP by 30° and VP by 40°. Its end A is 25 mm above HP and 35 mm in front of VP. The end B is in I-quadrant. Draw the projection of line AB.
 - (ii) A line CO 95 mm long is inclined at 45° to VP and 35° to HP. The end A is in I-quadrant and B in III-quadrant. The mid point M of the line is in both the planes. Draw the projections of line.
 - (iii) A line EF has its end E 20 mm above HP and 30 mm in front of VP. The end F is in I-quadrant. The plan length is 60 mm and elevation length is 70 mm. Determine true length and inclination of line with HP and VP, if $\theta + \phi = 90^\circ$. Also locate traces. Use Tsopozobdal method.

- (iv) The line PQ is 80 mm long. Its top view is 70 mm long and front view is 60 mm long. The mid point M lies in VP and 20 mm above HP. Draw the projections of line and determine the inclinations θ & ϕ . Locate HT and VT also.
- 6 A chimney of a boiler is 50 m high and 2m in diameter. It is supported by 3 guy wires appearing at 120° to each other in top view. The ends of the wires are pegged to the grounds at distances 4m, 6m and 8m respectively from the centre of the chimney. The other ends of the wires are connected to the chimney. The other ends of the wires are connected to the chimney 12 m, 20 m and 32 m from the bottom respectively. Find the length of the wires from the face of the chimney. Select any suitable scale.
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