



SE-6005

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

April / May – 2011

Engineering Graphics

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

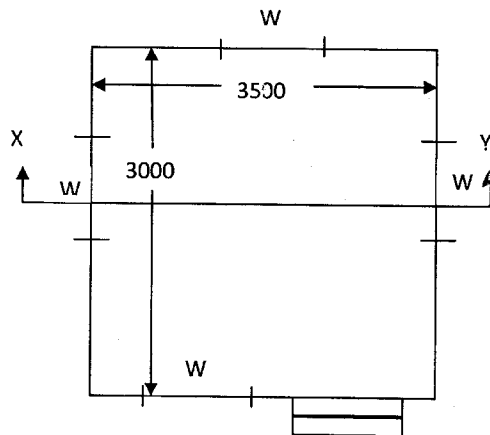
नीचे दशांशिक निशानीवाणी विगतो उत्तरवही पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.		Seat No. :	
Name of the Examination :		<input type="text"/>	
B. E. I (Sem. 1) All Branches		<input type="text"/>	
Name of the Subject :		<input type="text"/>	
Engineering Graphics		<input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

- (2) Use only drawing sheets for drawing, calculations and theory.
- (3) No programmable calculations are permitted.
- (4) Figures to the right indicate full marks.
- (5) All questions are compulsory.
- (6) Do not remove construction lines.
- (7) Assume suitable data if necessary and mention them clearly.

- 1 (a) Attempt any four of the following : 8
 - (i) Give one use of given instrument : Dividers and Protectors.
 - (ii) State different types of nomograms.
 - (iii) Explain enlarged scale and reduced scale.
 - (iv) Any two use of continuous thin lines.
 - (v) Difference between aligned and unidirectional systems of dimensioning.
- (b) Construct a plain scale of R.F. 1:50,000 to show 4
kilometers and hectometers and long enough to measure upto 7 kilometers. Mark on it a distance of 54 hectares.

- 2 Attempt any three from the following : 24
- (i) The distance between Surat and Anand is 200 km and its equivalent distance on map measures 10 cm. Draw a diagonal scale to indicate 223 km and 135 km.
 - (ii) The actual length of 300 m is represented by a line of 10 cm on a drawing. Draw a vernier scale to read upto 400m. Mark on the scale a length of 343m.
 - (iii) A stone thrown upwards from a ground level reaches a maximum height of 5m and travels a horizontal distance of 11m from the point of projection. Trace the path of stone and name the curve.
 - (iv) Draw a logarithmic spiral for one convolution such that the angle between consecutive radii is 30° . The successive radii are of the ratio 6:5 and the final radius vector is 90 mm. Draw the tangent at any point on the curve.
 - (v) Construct a rectangular hyperbola when a point P on it is at a distance of 15mm and 20mm respectively from the two asymptotes.

- 3 The line diagram of single room office building are as follows : Draw neat elevation and section X-Y. 14



SPECIFICATIONS :

- (i) P.C.C. base 1:4:8 in foundation, 200mm thick and 900mm wide.
- (ii) Depth of foundation 900mm below ground level.
- (iii) Plinth height 600mm above ground level.
- (iv) Thickness of brick masonry wall at plinth 400mm and above plinth up to ceiling 300mm. Parapet wall 600mm high and 100 mm thick.
- (v) Ceiling height 3000mm.

- (vi) 150 mm thick RCC lintel-cum-sunshade.
 - (vii) Roof slab : 120mm thick, 1:2:4 mix RCC.
 - (viii) Steps : Length of steps 1200mm
Rise-150mm
Tread-230mm
 - (ix) Door : 1200mm × 2100 mm
Window : 1000mm × 1200 mm
- Assume missing data

4 (a) Fill in the blanks : 10

- (1) Line lies in profile plane if $\theta + \phi = 90^\circ$ _____
(True/False)
- (2) Line lies _____ quadrant if its plan and elevation are above xy line (First/Second)
- (3) In first angle projection, the object lies between the observer and the plane of projection _____.
(True/False)
- (4) Plane cement concrete (pcc) is a mixture of _____, _____ and _____.
- (5) D.P.C. is provided to protect the building from _____.

(b) Watch A and B. 5

- | (A) | (B) |
|-------------------|----------------------------------------------------------------------------|
| (i) COPING | (1) Horizontal member provided to support masonry above opening in a wall. |
| (ii) CAD | (2) Engineering drawing done with a computer. |
| (iii) ROM and RAM | (3) Representing heights or depths with respect to reference line. |
| (iv) ELEVATION | (4) Main memory connected to CPU of a computer. |
| (v) LINTEL | (5) Provided on top of parapet wall. |

5 Attempt any three of the following.

24

- (1) A line CD 80mm long is inclined at an angle of 30° to H.P and 45° to V.P. The point C is 20mm below H.P and 30mm in front of V.P.

Draw the projections of line of point D is in 1st quadrant.

- (2) A line measuring 80mm long has one of its ends 60mm above H.P and 20mm in front of V.P. The other end is 15mm above H.P. and in front of V.P. The front view of the line is 60mm long. Draw the top view. Also find the true inclination of the line with H.P and V.P.
- (3) The distance between the projectors of two ends of a straight line, PQ is 40mm. Point P is 15mm above H.P. and 10mm in front of V.P. The other end Q is 40mm above H.P. and 40 mm in front of V.P. Draw the projections of the line. Find the true length and true inclinations of line with H.P and V.P.
- (4) A line LM 70mm long has its end L 20mm above H.P and 15mm in front of V.P. The top view and front view measure 60mm and 40mm respectively. Draw the projections of the line and determine its inclinations with H.P. and V.P.
- (5) The end A of line AB is in H.P. and 15mm in front of the V.P. The end B is 50 mm behind the V.P. and 40mm below the H.P. The distance between the end projectors is 50mm. Draw the projections of line and determine its true inclination and true length.

6 Three lines OA, OB, and OC are respectively 25mm, 45mm and 65mm long, each making 120° with each other and the shortest line being vertical. The figure is the top view of the three rods OA and OB and OC whose ends A B and C are on the ground while O is 100mm above it. Draw the front view and determine the lengths of each rod.

11