



RM-6005

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

April / May – 2010

Engineering Graphics

Time : 3 Hours]

[Total Marks : 100

Instruction :

(1)

नीचे दर्शावेल 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"/>
<input type="text" value="B. E. 1 (Sem. 1) (All Branches)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="Engineering Graphics"/>	<input type="text"/>
Subject Code No. : <input type="text" value="6"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="5"/>	Section No. (1, 2,.....) : <input type="text" value="1&2"/>
	Student's Signature

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

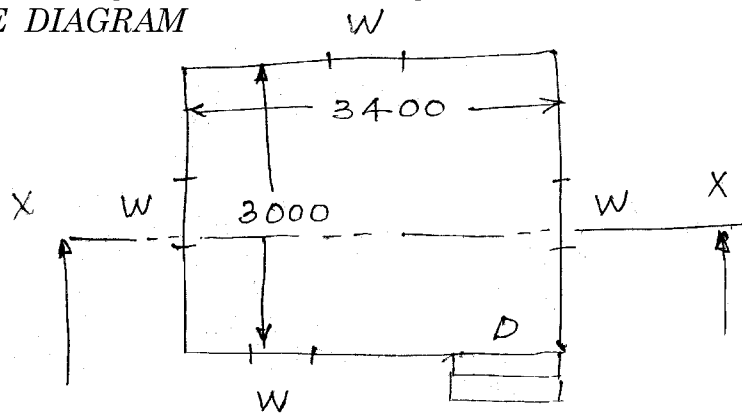
SECTION - I

- 1 (a) Attempt any **four** of the following : 8
 - (i) Write differences between Aligned and Unidirectional systems of dimensioning.
 - (ii) Make 5 equal parts of a 14 cm long line.
 - (iii) Define Hyperbola.
 - (iv) Define scale modulus.
 - (v) Any two use of continuous thin line.
- (b) Construct a functional scale for $f(x) = x^2$, given that x ranges from 10 to 1000. Show calculations Take LOS =10 cm.
- 2 Attempt any **three** of the following : 24
 - (i) An area of 825 sq km of a city is represented by an equivalent area of 132 sq. cm on the city map. Find the R.F. and construct a diagonal scale to measure up to 40 km. Indicate the following distances on the scale.
 - (a) 24.3 km
 - (b) 39.6 km.

- (ii) Design and construct a conversion scale to convert miles to kilometers (1 mile = 1.61 km). Take range of mile as 0 to 10 and L.O.S. as 15 cm.
- (iii) Construct a rectangular hyperbola when a point P on it is at a distance of 15 mm and 20 mm respectively from the two asymptots.
- (iv) Construct an ellipse when its major axis is 90 mm and minor axis is 60 mm by concentric circles method. Draw tangent and normal at any point on the ellipse.
- (v) 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.

3 The line diagram and specifications of a single room (load bearing structure) building are as follows : 14

LINE DIAGRAM



All dimintions are in MM

Draw neat sectional plan, section xx.

Specifications :

- (i) P.C.C. base 1:4:8 in foundation, 200 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 heigh and 100 mm thick.
- (v) Ceiling height 3000 mm.
- (vi) 150 mm thick RCC lintle-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 missind data.

SECTION - II

- 4 Attempt any **seven** from the following : 14
- (i) How do you represent the following lines on a drawing?
 - (a) Short break line
 - (b) Long break line.
 - (ii) What is the eccentricity of Ellipse and Parabola?
 - (iii) State the position of plan and elevation of a line situated in IInd quadrant w.r.t. reference line.
 - (iv) State two methods of projections of straight line inclined to both the planes.
 - (v) The concrete grade is M_{25} , what is meant by M and 25?
 - (vi) The R.F. of building drawing should be _____ and R.F. of drawing of parts of wrist watch should be _____.
 - (vii) Define : R.C.C. and P.C.C.
 - (viii) State the function of lintel and chhajja.
- 5 Attempt any **three** of the following : 24
- (i) A line MN 50 mm long is parallel to V.P. and inclined at 30° to H.P. The end M is 20 mm above H.P. and 10 mm in front of V.P. Draw the projection of the line.
 - (ii) A line AB 120 mm long is inclined at 45° to the H.P. and 30° to the V.P. Its mid-point C is in V.P. and 20 mm above H.P. The end A is in the third quadrant and B is in the first quadrant. Draw the projections of the line.
 - (iii) A point A is 50 mm below the H.P. and 12 mm behind the V.P. A point B is 10 mm above H.P. and 25 mm in front of the V.P. The distance between the projectors of A and B is 40 mm. Determine true length and locate traces by trapezoidal method.
 - (iv) Line AB measures 75 mm and is in first quadrant. Front view and top view of line are inclined at 45° to XY. End A is 20 mm in front of VP and 30 mm above H.P. Draw the projections of line determine its true inclinations with HP and VP and its traces.
- 6 A room measures 8 m long, 5 m wide and 4 m high. An electric bulb hangs in the centre of the ceiling and 1 m below it. A thin straight wire connects the bulb to a switch kept in one of the corners of the room and 1.25 m above the floor. Draw the projection of the wire, also determine its true length. 12