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KC-6005

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

November/December – 2012

Engineering Graphics

Time : **3** Hours] [Total Marks : **100**

Instructions : (1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ B. E. 1 (SEM. 1) (ALL BRANCHES)

Name of the Subject :

☛ ENGINEERING GRAPHICS

☛ Subject Code No. : 6 0 0 5 ☛ Section No. (1, 2,.....) : NIL

Seat No. :

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) Only drawing sheets are to be used for drawing/calculation.

1 Attempt any six : **12**

(i) Define Parabola
(ii) Define Archimedian Spiral.
(iii) Any two uses of continuous thin line.
(iv) Give the uses of dotted line.
(v) Differences between scale and RF.
(vi) Differentiate between two systems of dimensioning.
(vii) divide an angle of 93^{o} into two equal parts.

2 Attempt any three : **24**

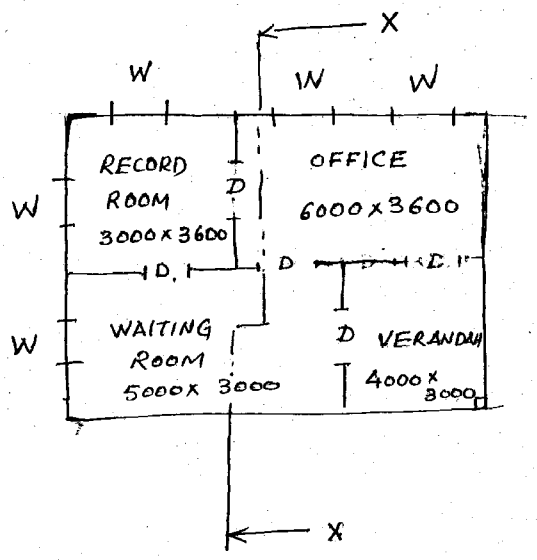
(i) Design and construct a conversion scale to convert centimeter to inches from given relation (1 inch = 2.54 cm)
(ii) Construct a rectangular hyperbola when point P on it is at a distance of 15 mm and 20 mm respectively from the two asymptots.
(iii) Construct a vernier scale of RF = 1 : 20,000 to show kms and long enough to measure upto 3 km. Show distance of 1.67 km and 2.05 on it.
(iv) Construct a nomogram for W = U+V Take LOS = 20 cms, a+b = 10 cms, U from 0 to 10 and V from 0 to 10. Take minimum 10 values for each function.

(v) A link 180 mm long swings about a point O from its vertical position of rest to the right through an angle of 50° and returns to its final position at uniform velocity. During that period, a point P moving at uniform speed along the centre line of the link from a point at a distance of 30 mm from O reaches at the end of the link. Draw the path of the point P and also name the curve.

3 The line diagram of 3 room office building with specification is given below. Draw to a suitable scale **14**

(i) TOP VIEW

(ii) SECTIONAL ELEVATION (Section x.x)



LINE DIAGRAM

Specifications :

(i) Depth of foundation below G.L = 1300 mm

(ii) First and second footing width = 900 mm and 700 mm respecitvely

(iii) Thickness of 1st and second footing = 600 mm and 500 mm respectively

(iv) Height of plinth above G.L. = 600 mm

(v) Wall thickness in plinth = 400 mm

(vi) Ceiling height = 3600 mm

(vii) Roof slab thickness = 130 mm thick

(viii) Wall thickness above plinth = 300 mm

(ix) Flooring : 120 mm thick

(x) Schedule of opening

(a) Door D - 1200 mm × 2100 mm

(b) Window W - 1000 mm × 1200 mm

Assume suitable data if required.

4 Attempt following : (any four) **12**

(i) Bisect the line of 115 mm long.

(ii) How do you represent the following lines on drawing ?

(a) Long break line

(b) Centre line

(c) Hidden line

(iii) Draw the symbols of following :

(a) Stone masonry

(b) Glass

(c) P.C.C.

(iv) Draw projection of line AB 50 mm long contained by VP and inclined to HP by 45°. The end A is contained by both the planes.

(v) State types of lettering and its uses.

5 Attempt following : (any three) **27**

(i) The line RS is in first quadrant. It is 80 mm long and 45° inclined to HP and 35° inclined to VP. The end R is 15 mm from HP and 25 mm from VP. Draw the projections of line RS.

(ii) The mid-point of line AB is 65 mm above HP and 50 mm in front of VP. The line measured 75 long and is inclined at 30° HP and 40° to VP. Draw the projection of line.

(iii) A line CD has its end C 15 mm above HP and 25 mm in front of VP. The other end D is 65 mm above HP and 70 mm in front of VP. The projections of the line are on same projector. Find T.L. θ, ϕ and also locate HT and VT. Use trapezoidal method.

(iv) The 90 mm long line EF has top view of 60 mm long and front view 70 mm long. The mid point M of the line is 30 mm from both the planes. Draw the projection of line and determine the inclinations with HP and V.P. Also locate the traces.

6 Two poles are raised on the opposite banks of a river which is 700 m wide. The height of the poles A and B are 100 m and 70 m respectively. The boat C stands in the river in such a way that its distances from the bottom of two poles are the same and equal to 600 m. Find out the true distance of the boat from the top of the poles. Select suitable scale. **11**