

# C.U.SHAH UNIVERSITY

## Winter Examination-2019

**Subject Name: Engineering Graphics and CAD**

**Subject Code: 4TE02EGC1**

**Branch: B.Tech (All)**

**Semester : 2**

**Date : 18/09/2019**

**Time : 02:30 To 05:30**

**Marks : 70**

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
  - (2) Instructions written on main answer book are strictly to be obeyed.
  - (3) Draw neat diagrams and figures (if necessary) at right places.
  - (4) Assume suitable data if needed.
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**Q-1 Attempt the following questions: (14)**

- (a) The following is not included in title block of drawing sheet.  
(a) Sheet No. (b) Scale (c) Method of Projection (d) Size of sheet
- (b) Which of the following represent reducing scale?  
(a) 1:1 (b) 1:2 (c) 2:1 (d) 10:1
- (c) The following line is used for dimension line  
(a) Continuous thick (b) Continuous thin  
(c) Chain thin line (d) Short zigzag thin
- (d) A point 'P' is above Horizontal Plane (HP) and in front of Vertical Plane (VP).  
The point is in  
(a) First quadrant (b) Second quadrant (c) Third quadrant (d) Fourth quadrant
- (e) When the line is parallel to both Horizontal Plane (HP) and Vertical Plane (VP), we can get its true length in  
(a) Front view (b) Top view (c) Both 'a' and 'b' (d) Side view
- (f) Which of the following position is not possible for a plane?  
(a) Perpendicular to both HP and VP  
(b) Parallel to both HP and VP  
(c) Perpendicular to HP and parallel to VP  
(d) Perpendicular to VP and parallel to HP
- (g) The following are the Solids of revolution except  
(a) Prism (b) Sphere (c) Cone (d) Cylinder
- (h) If a solid is cut by a cutting plane parallel to the base of the solid and top part is removed, the remaining part is called  
(a) Frustum of a solid (b) Truncated solid  
(c) Oblique solid (d) None of the above
- (i) A right regular hexagonal prism in resting on HP on its base, its top view is a  
(a) Square (b) Rectangle (c) Hexagon (d) Pentagon
- (j) A right circular cylinder resting on HP on its base is cut by a section plane inclined to HP, bisecting its axis. The true shape of the section is  
(a) Parabola (b) Hyperbola (c) Ellipse (d) Circle
- (k) The following is the method for development of a right regular prism.  
(a) Parallel line method (b) Radial line method



- (c) Triangulation method      (d) Approximate method
- (l) The isometric axes are inclined at \_\_\_\_ degree to each other.  
 (a) 60    (b) 90    (c) 120    (d) 150
- (m) In first angle projection method, object is assumed to be placed in  
 (a) First quadrant (b) Second quadrant (c) Third quadrant (d) Fourth quadrant
- (n) When the projectors are parallel to each other and also perpendicular to the plane, the projection is called \_\_\_\_\_.  
 (a) Perspective projection      (b) Oblique projection  
 (c) Isometric projection      (d) Orthographic projection

**Attempt any four questions from Q-2 to Q-8**

**Q-2**

**Attempt all questions**

- (a) Construct a plain scale to show kilometers and hectometers when 25 mm is equal to 1 km and long enough to measure up to 6 km. Find RF and show a distance of 3km and 4 hectometer on the scale. **(04)**
- (b) Define “Loci” of point. In a slider crank mechanism, the connecting rod is 160 mm and crank is 40 mm in length. The other end point of connecting rod on the slider moves along a straight line passing through centre of crank rotation. Trace the locus of midpoint ‘P’ of the connecting rod. **(05)**
- (c) Construct an Involute of a regular pentagon of 25 mm sides. **(05)**

**Q-3**

**Attempt all questions**

- (a) A point P moves towards another point O, 75 mm from it, and reaches it during  $1\frac{1}{4}$  revolution around it in clockwise direction. Its movement towards O is uniform with its movement around it. Draw the curve traced out by the point P and name it. **(07)**
- (b) A straight line AB 80 mm long is inclined at  $30^\circ$  to the HP and at  $45^\circ$  to the VP. Its midpoint C is in the VP and 18 mm above the HP, while its end A is in the third quadrant, and the end B is in the first quadrant. Draw its projections. **(07)**

**Q-4**

**Attempt all questions**

- (a) A line AB 75 mm long is inclined at an angle of  $45^\circ$  to HP and  $30^\circ$  to VP. One of its end point A is in HP as well as VP. Determine its apparent inclination with VP. **(07)**
- (b) A regular pentagon of 30 mm side has one side parallel to the V.P. and making an angle of  $40^\circ$  with the H.P. the plane surface of the pentagon make  $35^\circ$  with the V.P. Draw its projections. **(07)**

**Q-5**

**Attempt all questions**

- (a) Draw the projections of a circle, of 70 mm diameter, resting on the H.P. on a point A of the circumference. Plane is inclined to the H.P. such that the plan of it is an ellipse of minor axis 40 mm. the plan of the diameter, through the point A, is making an angle of  $45^\circ$  with the V.P. Measure the angle of the plane with the H.P. **(07)**
- (b) A Square pyramid, side of base 50 mm and axis length 60 mm is kept on HP on one of its base edges in such a way that its axis makes an angle of  $45^\circ$  with HP. If the base edge which is on HP makes an angle of  $45^\circ$  with VP, draw the projections when apex is 30 mm away from VP. **(07)**

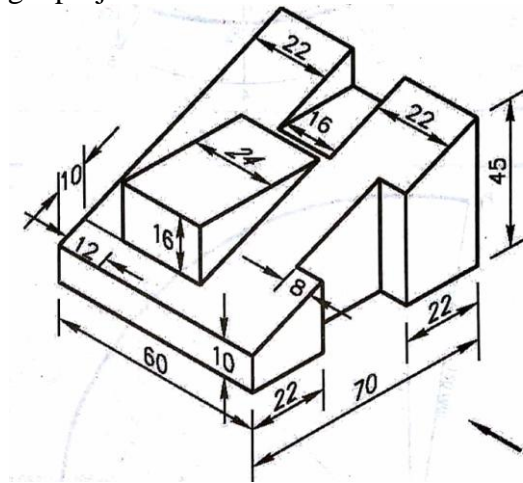


**Q-6 Attempt all questions**

- (a) A cone, base 40 mm diameter and axis 60 mm long, rests on its base on the HP. It is cut by a section plane perpendicular to the VP and parallel to one of its generators and passing through a point on the axis at a distance of 25 mm from the apex. Draw the front view, sectional top view, and the true shape of the section. (07)
- (b) A pentagonal pyramid of base edge 30 mm and height 60 mm rests on the HP such that one of its edge of base is parallel to and nearer to the VP. The pyramid is cut by a plane inclined  $40^\circ$  to the HP at 35 mm on axis from base of the pyramid. Draw the lateral development of the truncated pyramid. (07)

**Q-7 Attempt all questions**

- (a) Explain with illustration following AutoCAD commands. (04)  
 (i) Line (ii) Rectangle (iii) Ellipse (iv) Offset
- (b) Draw the front view, top view and left hand side view of the object given in figure. Use first angle projection method. (10)



**Q-8 Attempt all questions**

- (a) Explain system of dimensioning with suitable example. (04)
- (b) In figure Orthographic projections of the object are given. Draw its isometric view. (10)

