C.U.SHAH UNIVERSITY
Summer Examination-2019

Subject Name: Engineering Graphics & CAD

Subject Code: 4TE02EGC1   **Branch: B.Tech (All)**

Semester: 2   **Date: 25/04/2019**   **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.

Q-1   **Attempt the following questions:**   **(14)**

(a) A line of 1 meter is shown by 1cm on a scale. Its Representative fraction (RF) is
(a) 1   (b) 100   (c) 1/100   (d) 1/50

(b) The sectional plane are represented by
(a) Continuous thick line   (b) Continuous thin line
(c) Chain thin line   (d) Chain thin line having thick edges

(c) Line composed of closely and evenly spaced short dashes in a drawing represents
(a) Visible edges   (b) Hidden edges   (c) Hatching   (d) Pitch circle of gears

(d) The curve generated by a point on the circumference of a circle, which rolls without slipping along outside of another circle is known as
(a) Hypocycloid   (b) Epicycloid   (c) Cycloid   (d) Trochoid

(e) The locus of a point moving in a plane keeping constant distance from a fixed point will give
(a) Bisection of line   (b) Bisection of angle   (c) Triangle   (d) Circle

(f) 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

(g) The front view of a rectangle, when its plane is parallel to HP and perpendicular to VP, is
(a) Rectangle   (b) Square   (c) Line   (d) Point

(h) Which of the following position is not possible for a right solid?
(a) Axis perpendicular to HP and parallel to VP
(b) Axis parallel to VP and perpendicular to HP
(c) Axis parallel to both VP and HP
(d) Axis perpendicular to both VP and HP

(i) A right circular cone resting on HP on its base is cut by a section plane parallel to HP, bisecting its axis. The true shape of the section is
(a) Parabola   (b) Hyperbola   (c) Ellipse   (d) Circle

(j) 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

(k) The development of lateral surfaces of a pentagonal pyramid is
(a) Five squares   (b) Five Rectangles   (c) Five triangles   (d) None of these

(l) The side view of an object is drawn in
(a) Vertical plane   (b) Horizontal plane   (c) Profile plane   (d) Any of the above

(m) In third angle projection method, the object is supposed to be in
(a) First quadrant   (b) Second quadrant   (c) Third quadrant   (d) Fourth quadrant

(n) The isometric projection of a circle is a
(a) Circle   (b) Ellipse   (c) Hyperbola   (d) Parabola

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

Q-2   **Attempt all questions**

(a) On the map of Gujarat, 1cm represents 5 kms. Construct a plain scale long enough to measure a distance between Ahmedabad to Kutchh. Indicate on it a distance between Ahmedabad to viramgam. Distance: (I) Ahmedabad to Kutchh = 100 kms (II) Ahmedabad to viramgam = 65 kms. **(04)**

(b) A link AB 80 mm length rotates about its centre in the clockwise direction. While the link completes one revolution, the insect walks across the length from one end to the other. Plot the locus of the insect assuming the rotation of the insect assuming the rotation of the link and the motion of the insect as uniform. **(05)**

(c) A circle of 50 mm diameter rolls along a straight line without slipping. Trace the path of a point on the circumference of the rolling circle for one complete revolution. **(05)**

Q-3   **Attempt all questions**

(a) The major axis and the minor axis of Ellipse are 125 mm and 75 mm. Construct Half ellipse by Oblong method and another half by Concentric circle method. **(07)**

(b) A line AB 75 mm long has its end point A 15 mm above H.P. and 10 mm in front of V.P. and end point B 45 mm above H.P. and 50 mm in front of V.P. Determine true inclination of line AB with H.P. and V.P. **(07)**

Q-4   **Attempt all questions**

(a) Draw the projections of a line AB when its end A is 20 mm above H.P. and 10 mm in front of V.P., its end B is 55 mm above H.P. and 60 mm in front of V.P. and distance between projectors of A and B is 45 mm. Find True length and true inclination of line AB with H.P. and V.P. **(07)**

(b) A square plate of side 60mm is held on a corner on H.P. Plate is inclined to the H.P. such that the plan of it is rhombuses with a diagonal of 30mm. determine the angle it makes with H.P. The other diagonal is inclined at 45° to V.P. Draw the projection of plate. **(07)**

Q-5   **Attempt all questions**

(a) A regular pentagonal plate of 50mm sides has one of its corners on HP. The plane of the pentagon is inclined at 30^0 to HP. The side of the pentagon which is opposite to the corner, which is on HP, is inclined at 45^0 to the VP. Draw the projections of the plate. **(07)**

(b) A Hexagonal prism is resting on one of its side of base 30mm, such that axis **(07)**
60mm is inclined at 45° to H.P. and the side on which it is resting is inclined at
30° to V.P. Draw the projections.

Q-6 **Attempt all questions**
(a) A square pyramid, base 40 mm side and axis 65mm long, has its base on the **(07)**
H.P. And all the edges of the base equally inclined to the V.P. It is cut by a
section plane perpendicular to the V.P. inclined at 45° to the H.P. and bisecting
the axis. Draw its sectional top view, sectional side view ant true shape of the
section.
(b) Draw the development of lateral surface of a right circular cone having base **(07)**
diameter 40 mm and length of axis 60 mm, when it is resting on H.P. and cut
by an AIP inclined at 45° to the H.P. and bisecting the axis.

Q-7 **Attempt all questions**
(a) Explain with illustration following AutoCAD commands. i) Line ii) Pline iii) **(04)**
Arc iv) Mirror.
(b) A pictorial view of a Press- bracket is shown in figure below. Draw by first **(10)**
angle method of projection.
(i) Sectional front view, looking in the direction –X, take section along A-A.
(ii) Top View
(iii) Left hand side view.
All dimensions are in mm.
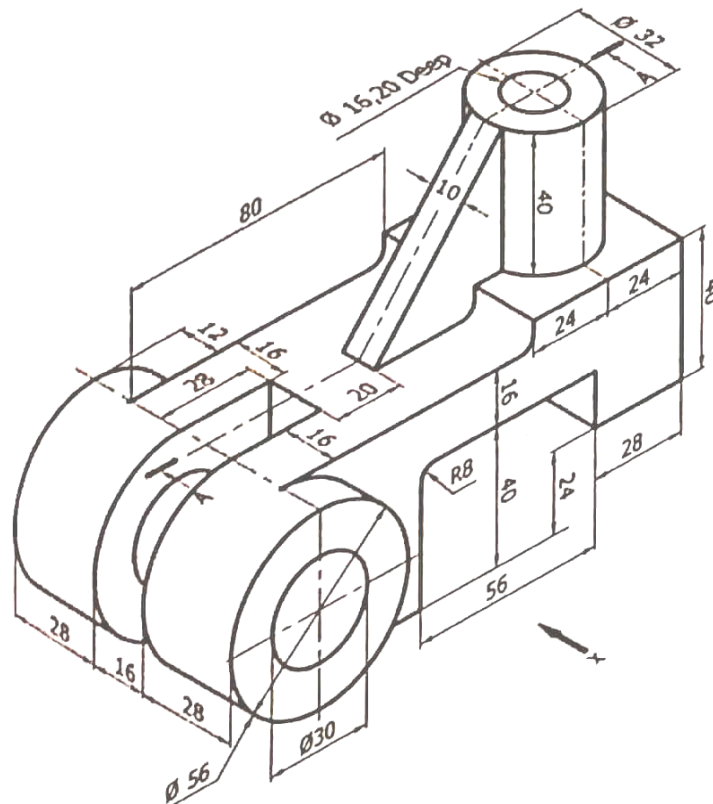
Q-8 **Attempt all questions**
(a) Differentiate between first angle and third angle orthographic projection **(02)**
systems.

(b) In figure Orthographic projections of the object are given. Draw its isometric **(12)** view.

Sp. R 15

20 C_6 C_5 C_7
8
12
50 C_4
C_3
SQ 40
60
C_2
20 C_1
SQ 80

100
⌀120 ⌀100
C_7
30 50