KADI SARVA VISHWAVIDYALAYA

B.E SEMESTER 1st EXAMINATION (DECEMBER 2015)

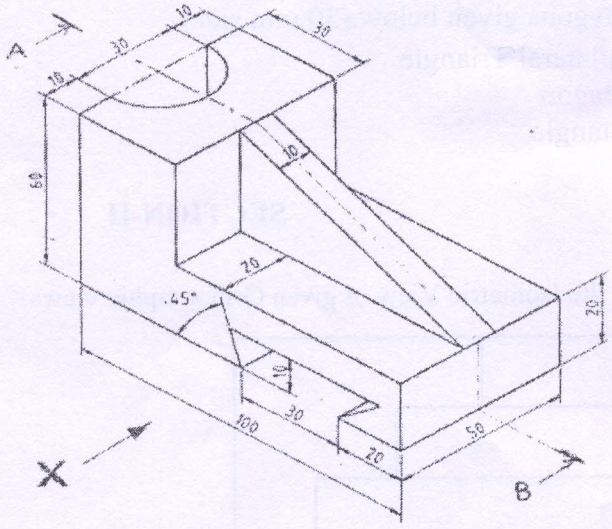
SUBJECT CODE: CC-111 **SUBJECT NAME: Engineering Graphics**
DATE: 06/01/2016 **TIME: 10:30 am to 1:30 pm** **TOTAL MARKS: 70**

Instruction:

1. Answer each section in separate Answer Sheet.
2. All questions are compulsory.
3. Indicate **clearly**, the options you attempted along with its respective question number.

SECTION-I

Que:1 (A) Draw the orthographic projections in first angle projection system. **[12]**
(1) Full sectional Front view at AB, (2) Top view and (3) Right-hand side view



(B) Compare first angle projection with third angle projection. **[3]**

OR

(B) Give the symbolic representation of first angle and third angle projection system. **[3]**

Que:2 (A) The distance between the end projectors of a straight line AB is 60 mm. Point A is 5 mm above H.P. and 30 mm in front of V.P. point B, is 40 mm above and 50 mm behind V.P. Draw the projections and find the inclination of straight line AB with H.P. and V.P. and the true length of the line. **[7]**

(B) i. A line parallel to one principal plane is always perpendicular to the other plane. (True /False). **[3]**
ii. If a line is contained by HP and inclined to VP its front view will lie on -------.
iii. Angle made by the front view of a straight line with xy is called ----------.

OR

(A) A hexagonal pyramid of 30 mm side of base and 45 mm length of axis is resting on one of its triangular faces on H.P. draw the projections of the pyramid when its edge of base which is in H.P. is inclined at 60^0 to the V.P. **[7]**

(B) i. Define frustum. **[3]**
ii. A solid has its axis perpendicular to the HP, which view will show the true shape of its base?
iii. What is a truncated solid?

Que:3 (A) A cylinder is resting on H.P. on its base. It is cut by A.V.P. perpendicular to H.P. and inclined to V.P. by 45° and cutting it remaining 12mm away from the axis. Draw the projections with section and draw also the true shape of section. Take diameter of cylinder 55mm and height 60mm. **[7]**

(B) i. What is the true shape of section when the cone is cut by a plane parallel to its generator? **[3]**

ii. A cutting plane perpendicular to the HP is shown in the ------- view.

iii. When the cutting plane is perpendicular to both the HP and VP, the sectional ----- - view will give the true shape of the section.

OR

(A) ABCD is a rhombus of diagonal AC = 110 mm and BD = 70 mm. Its corner A is in the H.P. and the plane is inclined to the H.P. such that the plan appears to be a square. The plan of diagonal AC makes an angle 20° to the V.P. Draw the projections of the plane and find its inclination with H.P. **[7]**

(B) Draw polygons given below.(30 mm side) **[3]**

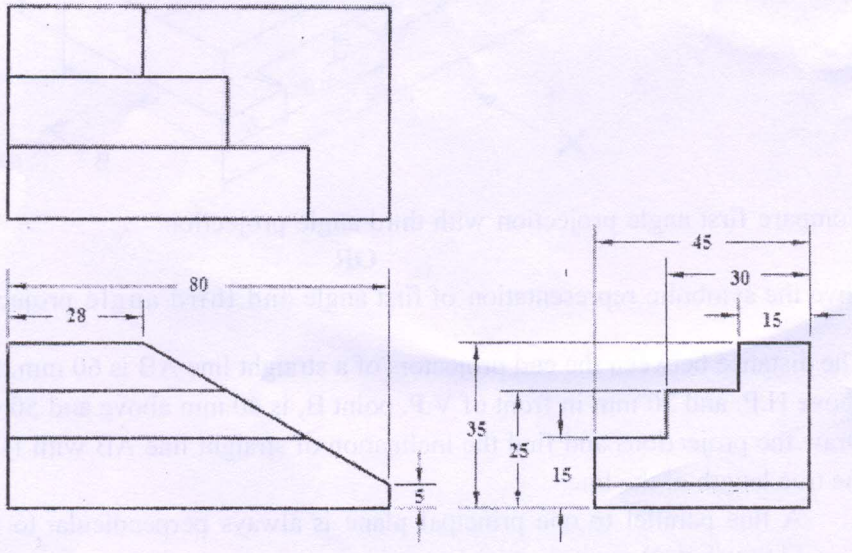
i. Equilateral Triangle

ii. Pentagon

iii. Rectangle

SECTION-II

Que:4 (A) Draw the Isometric View of given Orthographic views. **[12]**



(B) A cubical tank of 1m × 1m × 1m was required to be fabricated for storing water. In this regard, Isometric Projection of the mentioned specification was prepared and supplied to the fabricator. The fabricator fabricated the tank considering it is as Isometric Drawing. Determine the reduced water storing capacity of the fabricated tank. **[3]**

OR

(B) Draw the Isometric Scale for the normal length of 10 cm. **[3]**

Que:5 **(A)** Construct the parabola if the base is 80 mm and the axis length is 50 mm. [7]

(B) Give the application of following: [3]

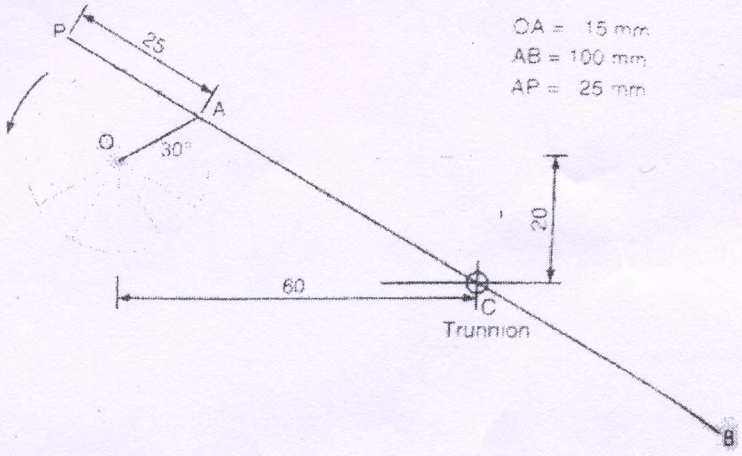
i. Parabola

ii. Hyperbola

iii. Spiral

OR

(A) In the mechanism shown in fig, the connecting rod is constrained to pass through the trunnion at C. Draw the locus of the end B and of a point P for a complete revolution of the crank. Take AB = 100 mm, OA = 15 mm and AP = 25 mm. [7]



(B) i. What is loci of point? [3]

ii. Name the different mechanism used in loci of point.

iii. In what way the knowledge of locus of points will helpful to the engineer?

Que:6 **(A)** A square pyramid, side of base 30 mm and axis length 50 mm is resting on the H.P. on its base with all sides equally inclined to V.P. it is cut by an AIP inclined at 45° to the H.P. and bisecting the axis. Draw development of lateral surface of the pyramid. [7]

(B) What do you mean by development of surfaces? What are its applications? [3]

OR

(A) i. Construct a plain scale of R.F. = 1:10 showing the feet and inches and long enough to read the distance of 5 feet. Show on it the distance of 4 feet and 10 inches. [4]

ii. Explain any three drawing command of AUTO CAD. [3]

(B) i. A point is 'x' cm below HP and 'y' cm behind VP. State the position of the front and top views. [3]

ii. A point A, its plan is 20mm above xy line; the elevation 20mm below the xy line. State its quadrant

iii. Describe the position of an object in the four quadrants relative to their principle planes.

ALL THE BEST...

Kadi Sarva Vishwavidyalaya

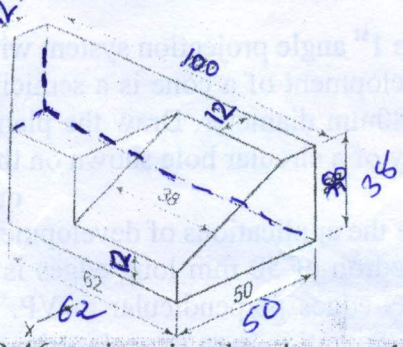
BE Sem-I
Subject: Engineering Graphics

Date: 05/01/2013 Max. Marks:70
Time: 3 Hrs

Instructions:
1. Answer each section in separate Answer sheet
2. Use of Scientific calculator is permitted
3. Take scale wherever it is necessary

Section – I

Q.1 [A] Draw Front view, Top view, RHS view and LHS view. 10



[B] Write short note on BIS SP-46 engineering drawing standard. 5

or

[B] Describe a frustum of pyramid, tetrahedron and octahedron. 5

Q.2 [A] Explain application of engineering curves in industries. 3

[B] A Circle of 15 mm radius is rolling on the circle of 15 mm radius without slip, on outside of it. Initially a point P is at the contact point of two circles. Draw the locus of the point P for one revolution of rolling circle. Name the curve. 7

or

Q.2 [A] Define conics? Enlist different types of conics. 3

[B] A link AB 80 mm long rotates about its centre for two revolutions. During the same time an insect moves along the link from A to B and reaches at B. Draw the locus of an insect. 7

Q.3 [A] Enlist different types of lines. 3

[B] A straight AB has its end A 10 mm above HP and end B 50 mm in front of the V.P. Draw the projections of line AB, if it is inclined to H.P. by 30^0 and to V.P. by 45^0 and it is 50 mm long. 7

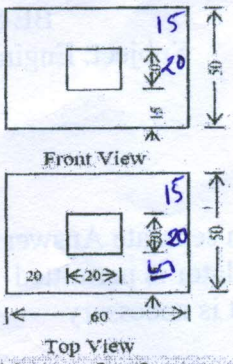
or

Q.3 [A] What is apparent length and true length in case of projection of the line? 3

[B] A regular hexagonal lamina ABCDEF resting on VP on one of its corner A. Diagonal AD makes an angle of 30^0 with VP and its plan make 45^0 with HP. Draw its projections. 7

Section – II

Q.4 [A] Draw Isometric scale and draw isometric view of given figure. 10



[B] Draw an involute of a line of 10 mm for 3 turns. 5

or

[B] Using the scale of chords, construct angles of 45° and 60°. 5

Q.5 [A] Compare 1st angle projection system with 3rd angle projection system. 3

[B] The development of a cone is a semicircle of 80mm radius having a circular hole of 80mm diameter. Draw the plan and elevation of the cone along with periphery of a circular hole shown on them. 7

or

Q.5 [A] What are the applications of development of surfaces? 3

[B] A tetrahedron of 50 mm long edges is lying on HP on one of its faces with one of its edges perpendicular to VP. It is cut by an A.I.P. so that the true shape of its section is an isosceles triangle of base 40 mm and altitude 28 mm. Find the inclination of the section plane with HP. Draw the front view, sectional top view and the true shape of the section. 7

Q.6 [A] Draw free hand sketches of different types of threads. 3

[B] A frustum of a cone, having base diameter 60 mm, top base diameter 25 mm and axis 45 mm, is resting on one of its generators on H.P. The axes of the frustum makes and angle of 30° with V.P. Draw the projections of the solid. 7

or

Q.6 [A] Answer following questions. 3

i. Give names of various CAD softwares.
ii. Name five edit commands used in CAD. .
iii. State two methods of drawing an arc in AutoCAD.

[B] A square pyramid, side of the base 40 mm and axis 60 mm long, has one of its base edges in the H.P. and axis inclined at 30° to the HP. Draw its projections when a) the top view of the axis makes an angle 45° with the V.P. and b) the axis makes an angle of 45° with the V.P. 7

KADI SARVA VISHVAVIDHYALAYA
B.E. SEM II

Subject Code: **Subject Name:** **Engineering Graphics**

Date: 03/06/2013 **Time: 10.30a.m.-1.30p.m.** **Total Marks: 70**

Instructions:

1. Answer each section in separate Answer Sheet.
2. Use of Scientific calculator is permitted.
3. All questions are **compulsory.**
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

Section - I

Q 1 Draw Orthographic projection for Object shown in Fig. 1 using First Angle Projection Method.

(A) Top View **[5]**

(B) Left Hand Side view **[5]**

(C) Sectional Front View through plane A - A **[5]**

OR

(C) Right Hand Side View **[5]**

Q 2 (A) A straight line AB is 70mm long. It is inclined to H.P. and V.P. by an angle of 30^0 and 45^0 respectively. Point A is 30 mm above H.P. and 20 mm in front of V.P. Point B is in 3rd Quadrant. Draw the projections of straight line AB. **[5]**

(B) The front view of a line AB, 90mm long, measures 75 mm. Front view is inclined to XY line by 45^0, point A is 20 mm below H.P. and on V.P. Point B is in 3rd Quadrant. Draw the projections and find inclinations of line with H.P. and V.P. **[5]**

OR

Q 2 (A) A cone, diameter of base 60 mm and height 70 mm has one of its generators in H.P. and making and angle of 45° with the V.P. Draw the projections of the cone when the apex is towards the observer. **[5]**

(B) A hexagonal prism is resting on H.P. on its base with 2 edges on sides of base parallel to V.P. It is cut by A.I.P. perpendicular to V.P. and inclined to H.P. by 45° passing through a point of axis 40 mm above the base. Draw 3 principal projections and find the true shape of section. Take side of base 25 mm and height 50 mm. **[5]**

Q 3 (A) A circular plate, of 60 mm diameter and negligible thickness, has a square hole side 25 mm, punched centrally. A plate is resting on the H.P. on point A of its rim with its surface inclined at 30° to the H.P. and the diameter AB, through A, is inclined at 45° to the V.P. Draw the projections of a plane with hole. **[5]**

(B) A regular pentagonal plate, of 50 mm sides, has one of its corners on H.P. The plane of the pentagon is inclined at 30° to the H.P. The side of pentagon which is opposite to the corner, which is on H.P., is inclined at 45° to the V.P. Draw projections of the plate. **[5]**

OR

(A) A square prism side of base 50 mm and height 75 mm is resting on H.P. on its base with all vertical faces equally inclined to V.P. Hole of 60 mm diameter is drilled centrally through the prism. Axis of hole is perpendicular to V.P. Draw the development of surface of prism. **[5]**

(B) A cylinder having diameter of 60 mm is resting on H.P. An A.I.P. cuts the object from midpoint with inclination of 45°. Draw development for given cylinder with height 75 mm. **[5]**

Section - II

Q 4 (A) Construct the diagonal scale of R.F. 1/500 to read meters and decimetres. It should be able to read max. 80m. Plot 47.8 meters on same scale. **[5]**

(B) Enlist instruments used for engineering drawing. **[5]**

(C) Draw free hand sketches of Acme thread and With worth thread. **[5]**

OR

(C) Draw free hand sketches of Hexagonal Bolt and Flange coupling. **[5]**

Q 5 (a) In an offset slider crank chain OBA, the crank OB is 300 mm long and the connecting rod BA is 1000 mm long. Slider A slides in Horizontal guide 150 mm below the reference O. Draw the loci of point P and Q where the point P is a point on the connecting rod BA 250 mm from B and Point Q is End point of PQ. A rod attached at right angle to connecting rod AB at P. Refer Fig. 2. **[10]**

OR

(a) Explain following AutoCAD software commands in brief **[5]**
(i) Line
(ii) Offset
(iii) Mirror
(iii) Array
(V) Move

(b) Write down the procedure, to draw the object shown in Fig. 3 using AutoCAD Software, enlisting the commands required. **[5]**

Q 6 (A) Draw Isometric drawing object for the two views shown in Fig. 4. **[10]**

OR

(A) Construct an Archimedian spiral of 1.5 convolutions. Give the max and min. Radii 55mm and 35 mm respectively. Draw tangent and normal to the curve at any point. **[5]**

(B) Draw an ellipse using Concentric Circle method. For which major axis and minor axis are 125 mm and 75 mm respectively. **[5]**

----ALL THE BEST----

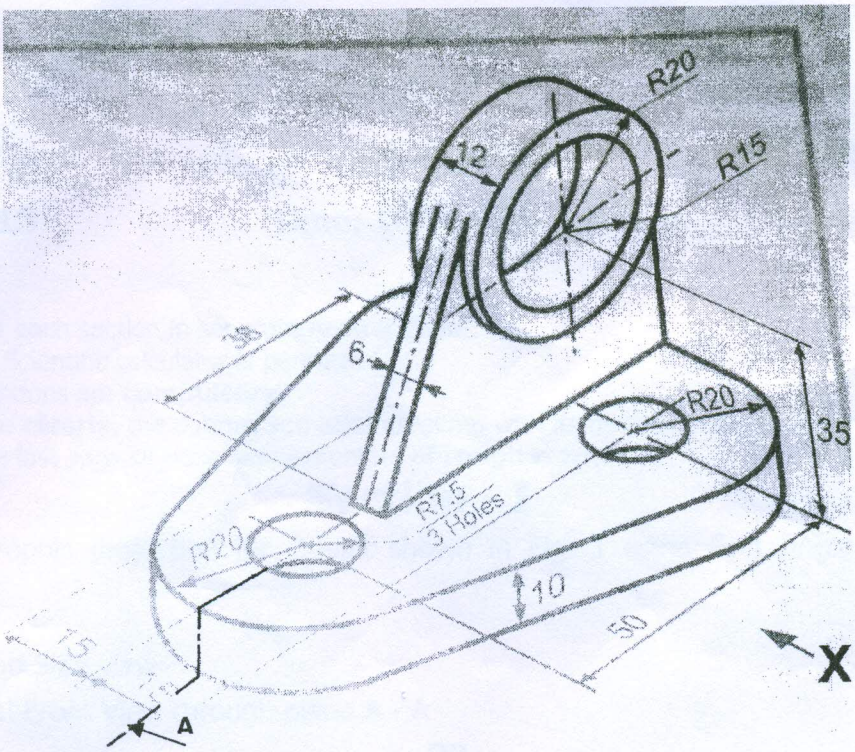


Fig . 1

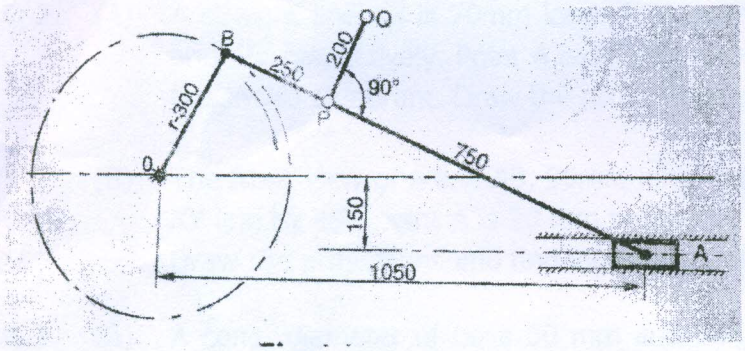


Fig. 2

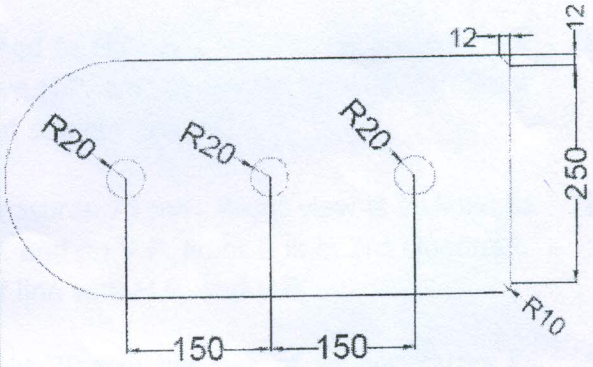


Fig. 3

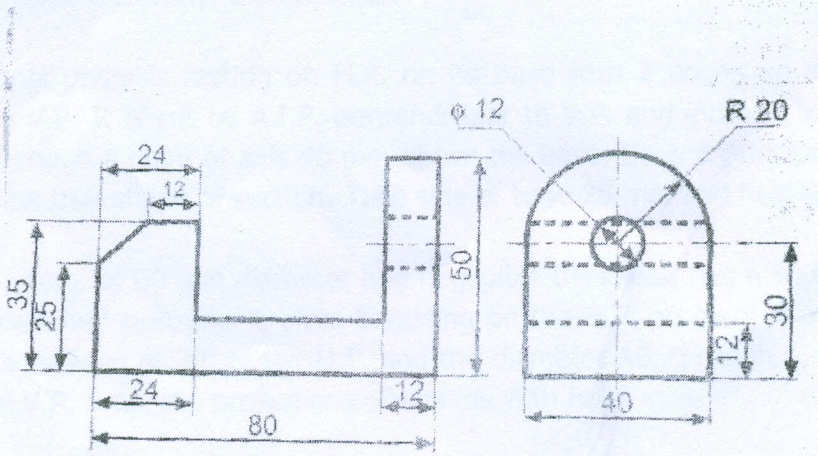


Fig. 4

KADI SARVA VISHVAVIDHYALAYA

B. E. Semester- I

Subject Code:CC111 **Subject Name: Engineering Graphics**

Date: 24/12/2013 **Max. Marks: 70**

Time:10:00 to 1:00 pm

Instructions:

1. **Figures to the right indicate full marks.**
2. **Answer each section in separate Answer sheet.**
3. **All questions are compulsory.**
4. **Indicate clearly, the options you attempt along with its respective question number.**
5. **Make suitable assumption whenever necessary.**

Section-I

Q.1 Draw top view, Front view and Right Hand Side view for object shown in Figure-1 using first angle projection method. (15)

Q.2 (a) A pendulum OC, pivoted at O, is 120 mm long. It swings 30^0 to the right of vertical and also 30^0 to the left of vertical. Insect, initially at O reaches the point C, when the pendulum complete two oscillation. Draw the path of insect, assuming motion of insect and of pendulum as uniform. (5)

(b) A string is unwounded from a circle of 20 mm diameter. Draw the locus of endpoint of string for unwinding this string's one turn. String is kept tight during unwinding. Draw tangent and normal to the curve at any point. (5)

OR

(a) Fig. 2 shows mechanism in which OB is a crank of 30 mm length revolving in clockwise direction. BC is a rod connected to the crank at the point B by turning pair and rod BC is constrained to pass through the guide at O_1, called trunnion. Draw the loci of the points P and C for one revolution of the crank. The point P is 30 mm from B on the rod BC. Length of BC is 150 mm. Point O_1 is 80 mm on the right and 15 mm below the point O. (5)

(b) The major axis and minor axes of the ellipse are 125 mm and 75 mm respectively. Construct an ellipse by arcs of circle method. (5)

Q.3 (a) A room is 5m x 4.5 m x 4m high. Determine by method of projections of straight lines. Distance between diagonally opposite corners of the room (5)

(b) A cylinder having diameter of 60 mm is resting on H.P. An A.I.P. cuts the object from midpoint with inclination of 45^o. Draw development for given cylinder with height 75 mm. (5)

OR

(a) The distance between end-projectors of straight line PQ is 130mm. Point P is 40 mm below H.P. and 25 mm in front of V.P. Point Q is 75 mm above H.P. and 30 mm behind V.P. Draw the projection of line and find out its true length and inclination with H.P. and V.P. (5)

(b) A square prism side of base 50 mm and height 75 mm is resting on H.P. on its base with all vertical faces equally inclined to V.P. Hole of 60 mm diameter is drilled centrally through the prism. Axis of hole is perpendicular to V.P. Draw the development of surface of prism. (5)

Section-II

Q.4 Draw isometric view of object shown in Figure-3 using first angle projection method. (15)

Q.5 (a) Draw the projection of a circle, of 70 mm diameter, resting on 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° with V.P. Measure the angle of the plane with the H.P. (5)

(b) A cube of 50 mm long edges is resting on the H.P. on one of its corners, worth one of the body diagonals parallel to H.P. and (i) inclined at 45° to the V.P. (ii) perpendicular to V.P. Draw projections of the cube. (5)

OR

(a) A 30° – 60° set square has its shortest side 50 mm long and is in the H.P. The top view if the set square is an isosceles triangle and the hypotenuse of the set square is inclined at an angle of 40° with the V.P. Draw the projections of the set square and find its inclination with H.P. (5)

(b) A cone, diameter of base 70 mm and height 80 mm, is resting on H.P. on its base. It is cut by a cutting plane perpendicular to V.P. and H.P. Cutting plane remains 15 mm away from the axis. Draw plan, elevation and sectional side view. State the nature of section. (5)

Q.6 **Attempt any two**

(1) On a map of Gujarat,1 cm represents 5 kms. Construct a plain scale long enough to measure a distance between Ahmedabad & Baroda. Indicate on it a distance between Ahmedabad and anand.Distance:Ahmedabad-Baroda:100 kms & Ahmedabad- Anand : 65 kms. (5)

(2) Prepare isometric scale to measure 110mm long line. (5)

(3) Differentiate method of dimensioning with figure(aligned system & unidirectional system) (5)

(4) Explain following (any five) commands of AutoCAD. (5)
1.MIRROR 2.TRIM 3.OFFSET 4.PLINE 5.FILLET 6.CHAMFER 7.EXTEND

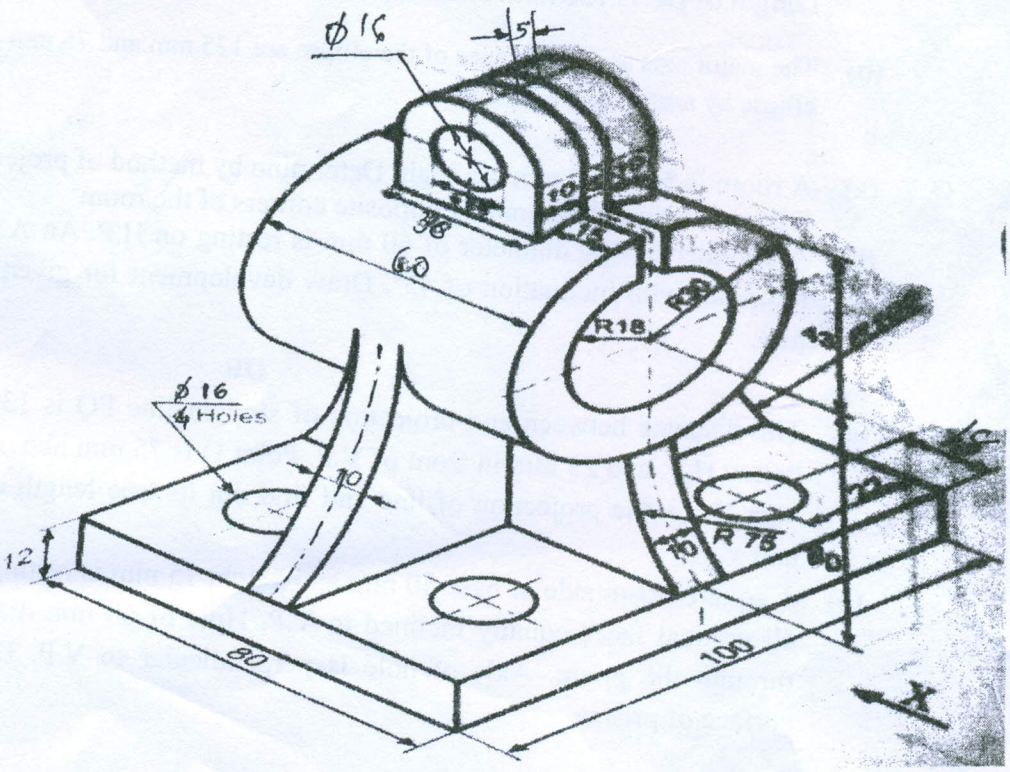


Figure - 1

Figure-1

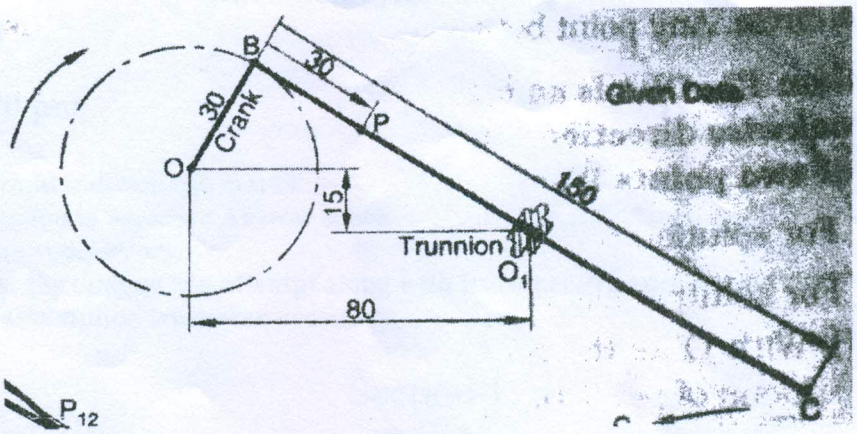


Figure-2

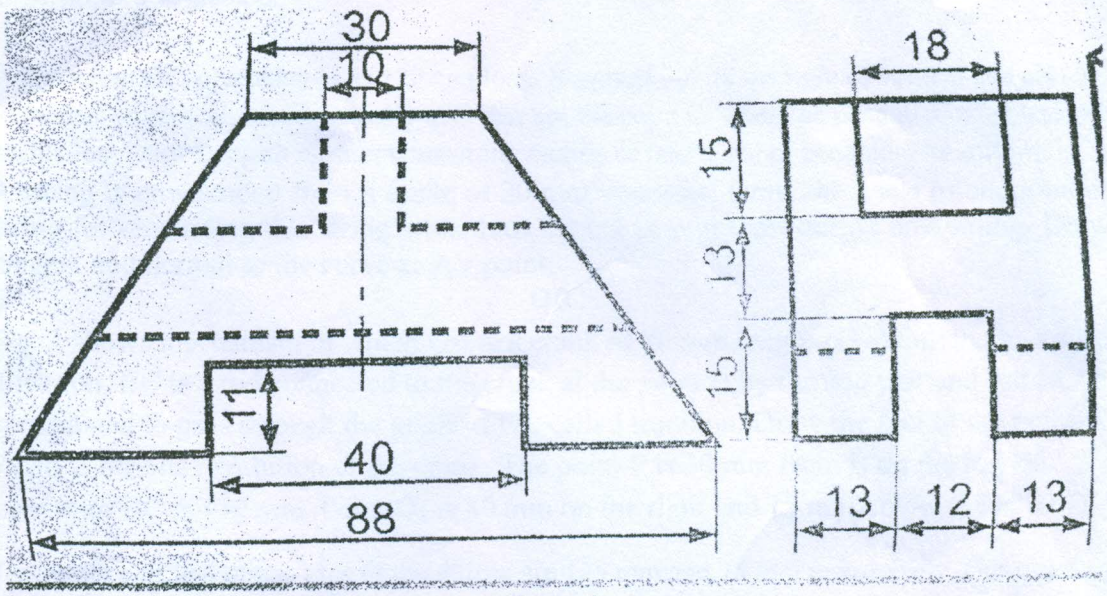


Figure-3

Best of Luck

KADI SARVA VISHWAVIDHYALAYA

B.E. Semester–I/II (All Branches) Examination Winter-2014

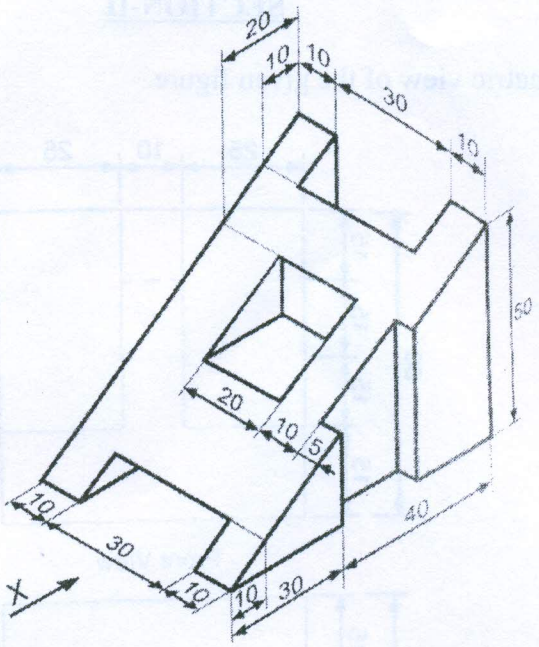
Subject: Engineering Graphics **Date: 05/01/2015**
Subject Code: CC111 **Time: 10:30 am to 01:30 pm**
Total Marks: 70

Instructions:

1. Answer each section in separate Answer sheet.
2. All questions are **Compulsory**.
3. Indicate **clearly**, the options you attempt along with its respective question number.

SECTION-I

Que:1 (A) Draw the following views: Front view, LHSV and Top view using first angle projection system. **[10]**



(B) Answer the following. **[5]**

(i) In orthographic projection second and fourth angle projection method are not used. Justify the statement.

(ii) Give the difference between first angle and third angle projection system.

OR

(B) List the different types of projection system used by engineers and explain it. **[5]**

Que:2 (A) A pendulum AB pivoted at A is 90 mm long. It is swings 30° to the left of vertical and than 30° to the right of vertical. Point P initially at A reaches the point B, when the pendulum completes 1.5 oscillations. Draw the path of point P assuming the motion of the point and the pendulum to be uniform. **[7]**

(B) In what way, the knowledge of loci of points will be helpful to the engineer? **[3]**

OR

(A) Construct 3 convolutions of the involute of 10 mm long line. **[7]**

(B) Explain conics with neat sketch. **[3]**

Que:3 (A) A line AB is 80 mm long. The end A is 20 mm above HP while end B is 25 mm in front of VP. The line is inclined at 25° to HP while the elevation of the line is inclined at 40° to the reference line XY. Draw the projections of line and fine its inclination with VP. **[7]**

(B) What is the apparent angle and true angle in case of the projections of the line? **[3]**

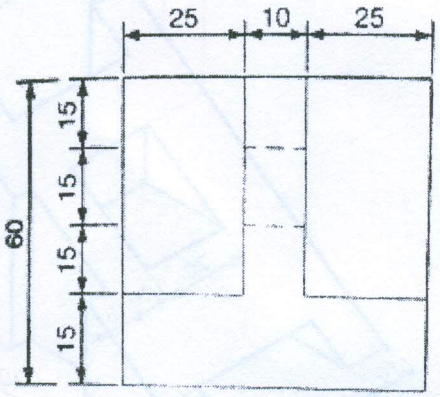
OR

(A) On the road map of Ahmedabad- Gandhinagar 2 kms is represented by 1 cm. Ahmedabad- Gandhinagar distance is 25 kms. Gandhi-Ashram is 18 kms from Gandhinagar. Represent it after preparing the scale for the above. **[7]**

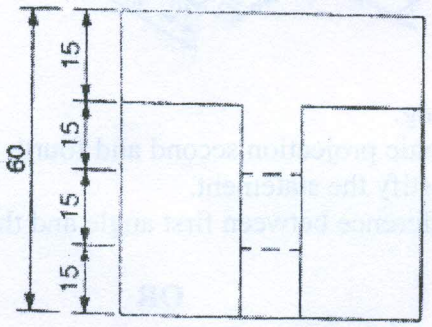
(B) Define "Parabola" and list its uses. **[3]**

SECTION-II

Que:4 (A) Draw the isometric view of the given figure. **[10]**



Front View



Top View

(B) Explain the terms. **[5]**
(I) Isometric Line/Axes (II) Isometric Plane (III) Isometric Scale

OR

(B) What is R.F.? Divide a line AB 95 mm long into 7 equal parts. **[5]**

Que:5 (A) A pentagon of 40 mm side is resting on one of its corner on VP. The edge opposite to that corner makes an angle of 30° to the HP. The surface of the plate is inclined at 45° to the VP. Draw its projections. **[7]**

(B) List the edit commands used in Auto CAD. **[3]**

OR

(A) A hexagonal pyramid, of 30 mm side of base and 45 mm length of axis, is resting on one of its triangular faces on HP. Draw the projections of the pyramid when its edge of the base which is in HP is inclined at 60° to VP. **[7]**

(B) Define the terms.
(I) Edge or Generator (II) Apex of Solid (III) Axis of Solid **[3]**

Que:6 (A) A pentagonal prism is resting on HP on one of its rectangular faces with axis of the prism parallel to HP and VP both. It is cut by Auxiliary Vertical Plane perpendicular to HP and inclined to VP by 45° passing through a point on axis 15 mm from one end. Draw three principal projections with sections and also draw the true shape of section. Take side of base 45 mm and height 80 mm. **[7]**

(B) What is Frustum of Solid? **[3]**

OR

(A) Develop the lateral surface of the truncated cone. Assume suitable dimensions. **[7]**

(B) Explain importance of "Development of Surfaces of Solid" **[3]**

All the Best... ☺

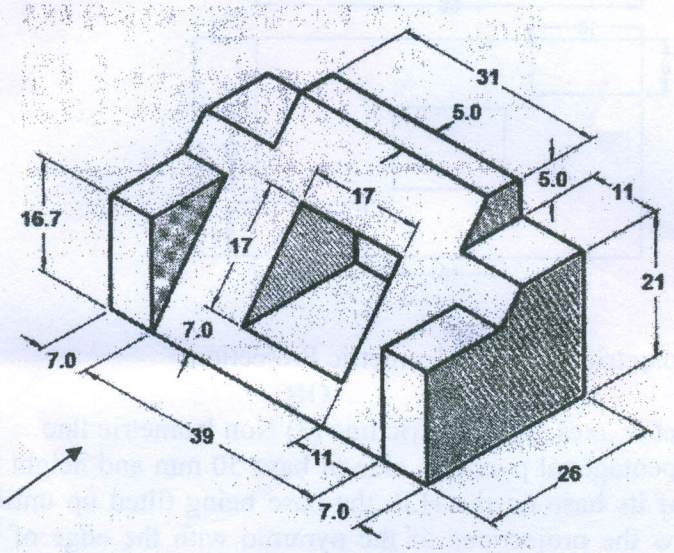
KADI SARVA VISHWAVIDHYALAYA
Semester–I&II

Subject: Engineering Graphics **Date: 04/06/2015**
Subject Code: CC111 **Time: 10:30 am to 01:30 pm**
Branch: BE (All) **Total Marks: 70**

Instructions:
1. Answer each section in separate Answer sheet.
2. All questions are Compulsory.
3. Indicate clearly, the options you attempt along with its respective question number.
4. Assume suitable data whenever necessary

SECTION-I

Que:1 (A) Draw Front View Top View and RHSV. Use the 1st angle projection system. **[12]**



(B) Differentiate 1st angle Projection System and 3rd angle projection System. **[3]**

OR

(B) List the principal planes of projection. **[3]**

Que:2 (A) A circular disc of diameter AB=80, rotates about its center O for revolution. The point P which is initially at A moves to the center when the disc completes the half revolution and then comes back to A in remaining half revolution. Trace the locus of point P assuming the rotation of the disc and movement of the point to be uniform. **[7]**

(B) What is locus of point? In what way the knowledge of locus of points will be helpful to the engineer? **[3]**

OR

(A) The distance between directrix 200mm. The distance between vertex 150mm. Determine eccentricity and minor axis. Construct an ellipse by directrix-focus method. Draw the tangent and normal to the curve at any point S. **[7]**

(B) What is conic and the eccentricity of conic? Classify conics based on its eccentricity, **[3]**

Que:3 (A) The distance between the end projectors of a straight line AB is 60 mm. Point A is 5 mm above H.P. and 30 mm in front of V.P. point B, is 40 mm above and 50 mm behind V.P. Draw the projections and find the inclination of straight line AB with H.P. and V.P. and the true length of the line. **[7]**

(B) What are the apparent length, apparent angle, true length and true angle in case of the projection of the line? [3]

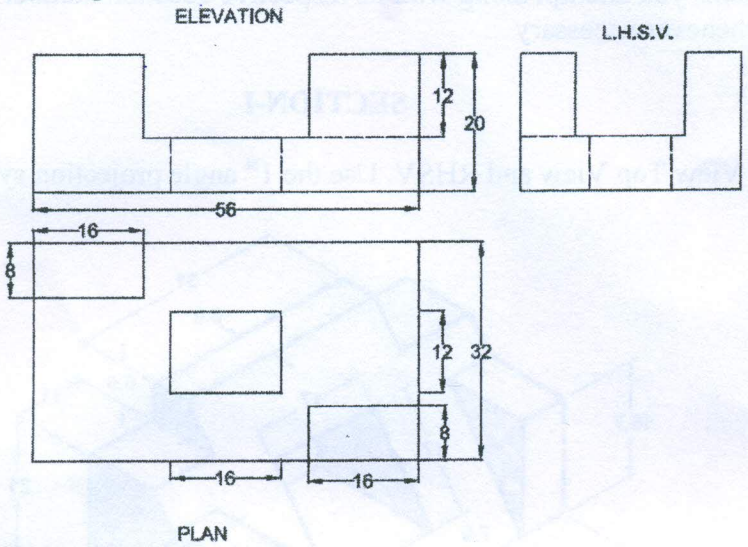
OR

(A) A regular hexagonal plate 50 mm side is resting on one of its corners in H.P. The diagonal through that corner is inclined at 40° to H.P. and (diagonal is inclined at 30° to V.P. [7]

(B) Draw the different types of plane of 40 mm side based on shapes. [3]

SECTION-II

Que:4 (A) Draw Isometric drawing. [12]



(B) Differentiate: isometric View and Isometric Projection. [3]

OR

(B) Define (1) Isometric axes (2) Isometric line (3) Non Isometric line [3]

Que:5 (A) A right regular pentagonal pyramid, side of base 50 mm and height 80 mm, rests on one of the corners of its base on the H.P. the base being tilted up until the apex is 60 mm above H.P. Draw the projections of the pyramid with the edge of base opposite to the corner. On which it is resting, is made parallel to V.P. [7]

(B) What is solid of revolution and truncated solid? [3]

OR

(A) A transparent cylindrical container, diameter of base 60 mm and height 75 mm, is full of water, (1) it is tilted by 60° from vertical so that some water from it is drained out. (2) It is tilted by θ° from vertical so that half the water is drained out, find angle θ°. [7]

(B) What is apparent shape and true shape of section in case of the section of solid? [3]

Que:6 (A) Draw the development of the lateral surface of a pentagonal prism and pentagonal pyramid. [7]

(B) What do you mean by the development of surface? What are its applications? [3]

OR

(A) Construct a plain scale 1 cm = 1 dm to read decimeter and centimeter. It should be long enough to read 20 dm. show the length 157 cm and 65 cm. [7]

(B) What is R.F.? and How is the length of scale determined? [3]

All the Best...