Hall Ticket Number:

Code No. : 11018

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (CBCS) I-Semester Main Examinations, December-2017

Engineering Graphics – I

(Common to Civil, EEE & Mech.)

Time: **3** hours Max. Marks: **60**

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2=20 Marks)

1. List the order of priority when two or more lines of the following coincide: cutting plane, axis, visible line and invisible line.
2. The RF of the scale is 1/30000, construct a plain scale to read 4.7 km. Mark a distance of 2.5 km on it.
3. Draw a line 110mm long. Divide it into nine equal parts.
4. Construct a Heptagon of side 40 mm using circumscribing circle method.
5. Draw the symbolic representations for first angle and third angle projection methods.
6. Draw the projections of a line AB, 70 mm long, is perpendicular to the HP and behind the VP. The nearest point from the HP is B, which is 20 mm from the VP and 15 mm below the HP.
7. Draw the projections of a square plate of 35 mm sides when it has its surface vertical while its one edge is inclined at 30^0 to the HP.
8. The surface of a square of 30 mm sides is parallel to HP with one of the edges perpendicular to VP. Draw the projections when its centre is 40 mm in front of VP and 20 mm above HP.
9. A cube having its side 40 mm long has one of its faces on the HP with one of the vertical faces inclined at 30^0 to the VP. Draw its projections.
10. A square pyramid, base 25 mm and axis 50 mm, rests on its base on HP with an edge of the base inclined at 30^0 to the VP. The axis of the pyramid is 40 mm in front of VP.

Part-B (5 × 8 = 40 Marks)

11. a) Draw a Vernier scale of RF = 1/25 and capable of reading meters, decimetres and centimetres. Show a length of 3 m, 6 decimetres and 7 cm on it. [5]

    b) Construct a plain scale to read centimetre and millimetre to measure 5 cm with RF is equal to 2. Show on it a distance of 3.6 cm. [3]

12. a) A fixed point F is 50 mm from a fixed vertical straight line. A point X moves in the same plane in such a way that its distance from the fixed straight line is 1.5 times the distance from the fixed point. Draw the locus of the point. Name the curve traced by the moving point. [5]

    b) A bullet, fired in the air, reaches a maximum height of 75 m and travels a horizontal distance of 110 m. Trace the path of the bullet, assuming it to be parabolic. Use 1 : 1000 scale. [3]

Contd...2

Code No. : 11018

13. a) A line AB is 75 mm long and lies in an auxiliary inclined plane (AIP) which makes an angle of 45^0 with the HP. The front view of the line measures 55 mm. The end A is in VP and 20 mm above HP. Draw the projections of the line AB and find its inclination with HP and VP. [6]

    b) Draw the projections of a point P lying 30 mm above HP and situated in first quadrant, if its shortest distance from the line of intersection of VP and HP is 40 mm. Determine the distance of the point from the VP. [2]

14. a) A plate having a shape of an isosceles triangle has base 50 mm and altitude 70 mm long. It is so placed in the top view it is seen as an equilateral triangle of 50 mm side and one side is inclined at 45^0 to *xy*. Draw its front view. [5]

    b) A circle, 60 mm diameter, is resting on the ground on one of the points on its circumference so that the TV is seen as an ellipse with 40 mm minor axis. Draw the projections. [3]

15. A cone with base 40 mm diameter and axis 60 mm long is resting on a point of its base on the ground with its axis inclined at 30^0 to HP and 60^0 to VP. Draw its projections so that the base is invisible in the final FV. [8]

16. a) Construct a Vernier scale of RF = 1/30 to read centimetre and up to a maximum length of 5m. Mark the dimensions 3.57m and 4.64 m on the scale. [4]

    b) Construct a pair of hyperbola, where the distance between the foci is 80 mm and the length of the transverse axis is 60 mm. Find the eccentricity of the curve. [4]

17. Answer any ***two*** of the following:

    a) The front view of a line CD of length 70 mm is inclined at 30^0 to xy line and measures 45 mm. The end C is 20 mm above HP and 25 mm in front of VP. Draw the projections of the line and find the inclinations with HP and VP by trapezoidal method. [4]

    b) A semicircle of diameter 60 mm has its flat end on HP and perpendicular to VP. Draw its projections when its surface makes an angle of 30^0 with the HP. [4]

    c) A hexagonal pyramid of side 30 mm and axis 60mm long is resting on of its base edges on the ground. Draw the projections of the pyramid when one of its triangular faces is perpendicular to HP. [4]

§§§§§