PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech., Winter 2017 - 18 Examination

Semester: 1   Date: 23-12-2017
Subject Code: 03109101   Time: 02:00PM to 04:30PM
Subject Name: Engineering Graphics   Total Marks: 60

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions (Each of one mark)   **(15)**

1. 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

2. A square plate of negligible thickness is inclined to HP. The front view will appear as
   (a) rhombus   (b) square   (c) line   (d) rectangle

3. For the third angle projection method, which of the following is correct?
   (a) Observer – Plane – Object   (b) Observer - Object – Plane
   (c) A and B both   (d) None of this

4. The included angle of a hexagon is
   (a) 120^0 (b) 60^0 (c) 72^0 (d) 45^0

5. The development of cylinder is a
   (a) Rectangle   (b) Circle   (c) Ellipse   (d) None of the above

6. Define Representative Fraction (R.F).

7. Draw the Chain thin with thick end line.

8. A point C is 30 mm below the H.P and 50 mm behind the V.P. Draw the projection.

9. A point D is in the V.P. and 25 mm below the H.P. Draw the projection.

10. Explain **STRAIGHT LINE** command used in AUTOCAD.

11. Explain **CIRCLE** command used in AUTOCAD.

12. Explain **FILLET** command used in AUTOCAD.

13. Explain the term of H.C.P.

14. Explain the term of V.C.P.

15. Why Fourth angle projection is not used?

Q.2 Answer the following questions. (Attempt any three)   **(15)**

A) Draw the Curves, if the distance of focus from the directory is 40 mm and the eccentricity is 2/2. Also draw a tangent and a normal at any point on the curve.

B) A line CD, inclined at 25^0 to the HP, measures 80 mm in top view. The end C is in the first quadrant and 25 mm and 15 mm from the HP and the VP respectively. The end D is at equal distance from the both the reference planes. Draw the projections, fine true length and true inclination with the VP.

C) Draw the development of the lateral surface of the lower portion of a cylinder of diameter 50 mm and axis 70 mm. the solid is cut by a sectional plane inclined at 40^0 to HP and perpendicular to VP and passing through the midpoint of the axis.

D) A straight line AB is 60 mm 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 V.P. Draw projections of straight line AB.

Q.3 A) A circle of 50 mm diameter rolls along a straight line without slipping. Draw the curve traced by a point **(07)** P on the circumference for one complete revolution. Draw a tangent and normal on it 40 mm from the base line.

B) Draw the projections of a Hexagonal plane of side 30 mm rests on the ground on one of its corners with a **(08)** diagonal containing that corner is inclined 40° to HP and 50° to VP.

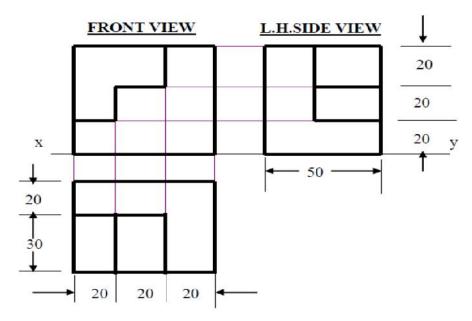<div align="center">OR</div>

B) A square pyramid, base 35 mm side and axis 70 mm long, has its base on the H.P. and all the edges of **(08)** 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.

Q.4 A) A cone of base diameter 50 mm and altitude 60 mm rests on its base on the HP. It is cut by a plane **(07)** Perpendicular to the VP and inclined at 40° to the HP. The cutting plane meets the axis at 30 mm From the apex .Draw the sectional top view, True shape.

<div align="center">OR</div>

A) Draw the isometric view using 1st angle projection method. **(07)**

B) Draw the following views using first angle projection method (a)ELEVATION (b)PLAN **(08)**