

Department of Mechanical Engineering
Indian Institute of Technology, Kharagpur
Spring Semester: 2014-15
Machine Design Practice (ME39602)
Assignment Sheet – I

1. A thin circular disc of 80 mm diameter is allowed to roll without slipping from upper edge of a plane which is inclined at 15° to the horizontal. Draw the *cycloid* curve traced by the point on the circumference of the disc. Refer Fig. 1.

2. Draw the *epi-cycloid* and *hypo-cycloid* curves for the following conditions:

Dia. of directing circle: 90 mm

Dia. of generating circle: 60 mm

Refer Fig. 2 and Fig. 3.

3. Draw the *involute* curve generated by the point on a straight line which is rolling without slipping on a circle of diameter 80 mm. Refer Fig. 4.

Draw another *involute* traced by the point on an unwinding thread from an equilateral triangle of 30 mm sides.

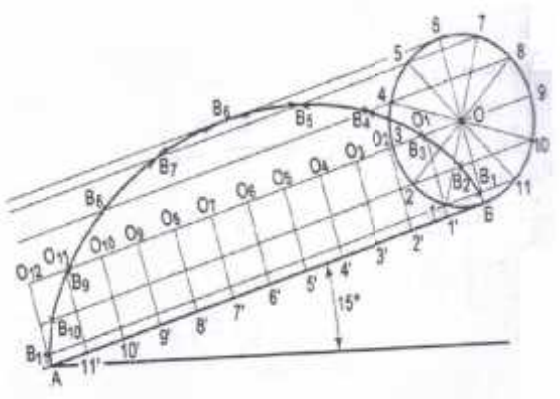


Fig. 1

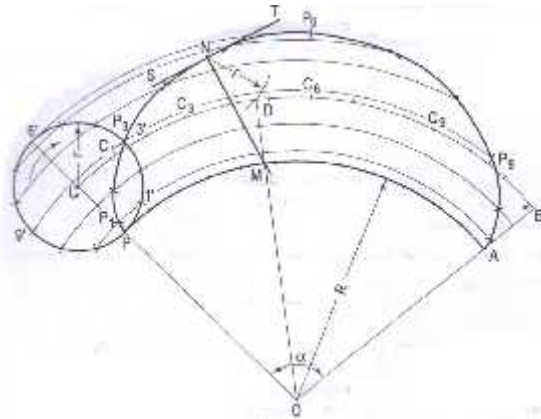


Fig. 2

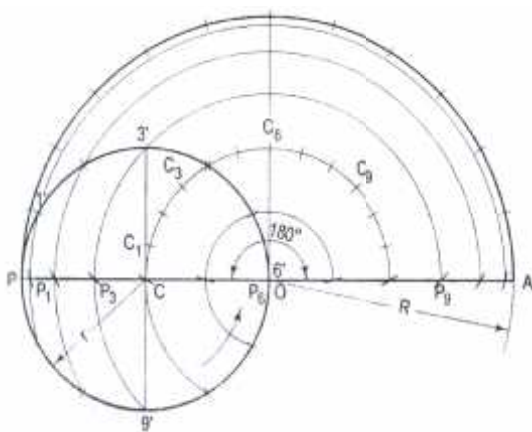


Fig. 3

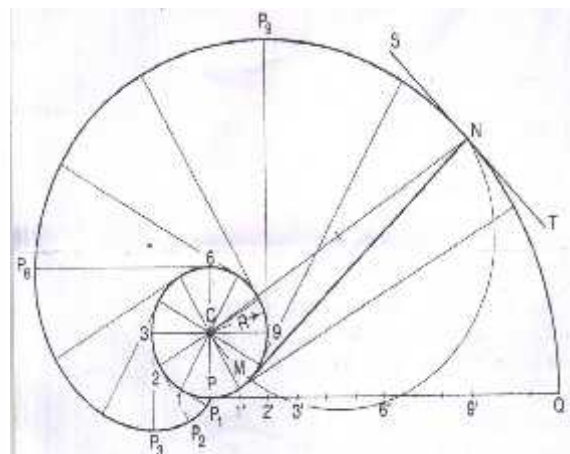


Fig. 4