Hall Ticket No: | | | | | | | | | | | **Question Paper Code :**

ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCES

(AUTONOMOUS)

M.E/M.Tech I-Semester Regular Examinations, November 2015

MECHANICS OF MACHINERY

(MACHINE DESIGN)

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

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT-1

1. Explain Carter's method and compare with other methods.

OR

2. Explain Good man's indirect acceleration analysis? Explain the methods of normal accelerations.

UNIT-2

3. What are polodes? Explain construction of fixed and moving polodes.

OR

4. Explain Bobbilier's theorem and describe the Bobbilier's construction for finding inflection point given the centre of curvature of the tracer point and instant centre.

UNIT-3

5. Explain function, path and motion generation.

OR

6. Explain Burmaster's curve of synthesis.

UNIT-4

7. Explain Chebychev spaces for N-points and Bloch's method of synthesis.

OR

8. Determine the proportions of four bar mechanism, by using three precision points, to generate $\mathbf{y = x^{1.8}}$, where **x** varies between 1 and 4. Assume $\theta_s = 30^0$, $\theta_f - \theta_s = 90^0$, $\varnothing_s = 90^0$, $\varnothing_f - \varnothing_s = 90^0$. Take length of the fixed link AD as 25mm.

UNIT-5

9. A dwell-rise-dwell cam has 30 mm rise with uniform velocity for 120º of cam rotation. The follower is assembled with a retaining spring with sufficient pre-compression, the stiffness of the spring being 40 N/mm. The equivalent weight and stiffness of the follower train are 3 N and 700 N/mm respectively. Determine the follower response by Johnson's numerical method when the cam rotates at 3500 rpm.

OR

10. (a) Explain Johnson's numerical analysis.
    (b) Explain position error, jump and cross over shock.