24170

B. Tech. (ME) 4th Semester (Re-appear) Examination – October, 2020

KINEMATICS OF MACHINE

Paper : ME-204-F

Time : 1.45 Hours]	*[Maximum Marks : 100*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *three* questions. All questions carry equal marks.

1. (a) Describe Grubler's rule.

   (b) What is velocity diagram ? Explain.

   (c) Explain cam and follower.

   (d) Describe interference and undercutting in gears.

   (e) Explain structural error.

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2. Explain various inversions of single slider crank chain.

3. Explain how link velocities are determined ? Also explain its types.

4. Draw cam profile for the data given below base circle radius of cam = 50 mm, Lift = 40 mm, Angle of ascent = 60°, Angle of dwell = 40°, Angle of descent = 90°, Speed of cam = 300 RPM, Motion of follower = 5 HM Type of follower = knife edge. Also calculate maximum velocity and acceleration during ascent and descent.

5. Two 15 mm module, 20° pressure angle spur gears have addendum equal to one module. The pinion has 25 teeth and the gear has 50 teeth. Determine Whetner interference will occur or not. If it occurs, to what value should the pressure angle be changed to eliminate interference ?

6. What are gear trains ? Explain its types with suitable examples.

7. Explain how relative pole for slider crank mechanism is determined.

8. Describe force analysis of a sliding body resting on horizontal plane.

9. Derive or find out effect of initial tension on power transmission.

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