

**KERALA AGRICULTURAL UNIVERSITY**  
**B.Tech (Food.Engg) 2013 Admission**  
**III<sup>rd</sup> Semester Final Examination- December /January -2015**

Cat. No: Meen.2105

Title: Kinematics of Machinery (2+1)

Marks: 50.00

Time: 2 hours

**I Fill up the blanks**

(10 x 1=10)

1. The \_\_\_\_\_ of rotations of a body relative to another body is the center about which the body rotates at any instant
2. \_\_\_\_\_ is defined as the number of independent relative motion both translation and rotation of a body can have
3. If a body is moving in a straight path, it will have only \_\_\_\_\_-acceleration
4. Maximum value of angle of inclination of plane with the horizontal when the body starts sliding its own is known as \_\_\_\_\_
5. Brakes commonly used in trains are \_\_\_\_\_
6. Types of clutches used in buses and trucks are \_\_\_\_\_
7. Ratio of tension in the two sides of a V belts is given by  $(T_1 / T_2)$
8. \_\_\_\_\_ is the ratio of pitch diameter to the number of teeth
9. \_\_\_\_\_ is the smallest circle tangent to the cam profile drawn from the center of rotation of a radial cam
10. The bearing surfaces placed at the end of the shaft are known as \_\_\_\_\_

**II Write short notes on any FIVE questions**

(5x 2=10)

1. Define kinematic link, kinematic pair and kinematic chain
2. Differentiate between collar and pivot bearing
3. What are the different modes of transmitting power from one shaft to another
4. What is reverted gear train. Where it is used
5. What are the differences between governor and flywheel
6. How are cam classified
7. Define Grashoff's law

**III Write short notes on any FIVE questions**

(5x 4=20)

1. Explain the procedure to draw the velocity polygon for a slider crank mechanism
2. Explain antifriction bearings
3. What are the relative advantages and disadvantages of chain and belt drives
4. Explain the principle of working of watt governor
5. What is meant by open belt drive, Find the length of belt in an open belt drive

6. What are the different types of gears
7. The number of teeth on each of the two equal spur gears in mesh are 40. The teeth have  $20^\circ$  involute profile and module is 6 mm . If the arc of contact is 1.75 times the circular pitch ,Find the addendum

**IV Write an essay on any ONE**

**(1 x 10=10)**

1. what are the different motions of the follower
2. Enumerate the inversions of a single slider crank mechanism ,Give examples

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