KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food.Engg)

IIIrd Semester Final Examination- January-2015

Cat. No: Meen.2105   Marks: 80.00

Title:Kinematics of Machinery (2+1)   Time: 3 hours

I Fill in the Blanks:-   **(10X1=10Marks)**

1. The ………………….. of rotationof a body relative to another body is the centre about which the body rotates at any instant.

2. ………………….. is defined as the number of independent relative motion both translation and rotation 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 belt is given by $(T1/T2) =$ ………………

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 centre 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 TEN   **(10X3=30Marks)**

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. State law of belting.

5. What is meant by interference in gears?

6. Define the terms pitch circle, circular pitch and pitch point.

7. What is reverted gear train? Where it is used?

8. What are the difference between governor and flywheel?

9. What are different types of followers?

10. How are cam classified?

11. What is meant by static and dynamic balancing?

12. Define Grashoff's law.

III Write short essays on ANY SIX   (6X5=30 Marks)

1. Differentiate between mechanism and machine.

2. Explain the procedure to draw the velocity polygon for a slider crank mechanism.

3. Explain antifriction bearings.

4. What are the relative advantages and disadvantages of chain and belt drives?

5. Explain the principle of working of watt governor.

6. What is meant by open belt drive, Find the length of belt in an open belt drive?

7. What are the different types of gears?

8. The number of teeth on each of the two equal spur gears in mesh are 40. The teeth have 20^0 involute profile and module is 6mm. If the arc of contact is 1.75 times the circular pitch, find the addendum.

IV Write essay on ANY ONE   (1X10=10Marks)

1. What are the different motions of the follower

2. Enumerate the inversions of a single slider crank mechanism, Give examples