

KERALA AGRICULTURAL UNIVERSITY

B.Tech (Agrl.Engg) 2014 Admission
IIIrd Semester Final Examination-January -2016

Cat. No: Fpme 2106

Marks: 50.00

Title: Theory of Machines (2+1)

Time: 2 hours

I Answer all questions/Choose the right answer

(10 x 1=10)

1. The magnitude of linear velocity of a point B on a link AB relative to point A is
a) w_{AB} b) $w(AB)^2$ c) w/AB d) w^2AB
2. The component of the acceleration, parallel to the velocity of the particle at the given instant is
a) Tangential Component b) Centrifugal component c) Centripetal component d) None
3. The angle of inclination of the plane, at which the body begins to move down the plane is
a) Angle of friction b) Angle of cohesion c) Angle of adhesion d) None
4. Due to slip of the belt, the velocity ratio of the belt drive
a) Does not change b) Change slightly c) Change heavily d) None
5. The size of cam depends upon
a) Base circle b) Pitch circle diameter c) Module d) None

Fill in the blanks

6. The velocity ratio of two pulleys connected by an open belt or crossed belt is proportional to their distances
7. The product of the diametral pitch and circular pitch is equal to
8. A differential gear in automobile is used to help in
9. A governor is said to be hunting, if the speed of the engine
10. The brakes commonly used in railway trains is

II Answer any Five questions

(5 x 2=10)

1. Differentiate between a link and a structure
2. List of the specifications of V-belt and their importance
3. What do you mean by sensitivity of a governor
4. Write Kennedy's theorem
5. Differentiate between pivot and collar friction
6. List different types of bearings and their applications
7. List the types of cams and their applications

III Answer any Six questions

(6 x 5=30)

1. Obtain an expression for the length of a belt in a cross belt drive
2. Classification of friction along with different laws of friction
3. a. Explain the types of instantaneous centers
b. Explain different kinds of kinematic pairs giving example for each one of them

4. a. Explain the working principle of Porter Governor
b. Write about fluctuation of speed of a fly wheel
5. a. Explain the balancing of rotating masses in a single plane
b. Write about interference between rack and pinion
6. Explain the nomenclature of a spur gear
7. List the types cam followers and explain any one of cam followers

IV Answer any one question

1. a. Explain the functioning of a single plate disc clutch
b. Explain the partial balancing of reciprocating masses.

Or

2. a. Explain the constructional details of Watt governor
b. Explain the simple and compound gear trains.

(1 x 10=10)