

Roll No.

Total No. of Pages : 2

Total No. of Questions : 09

B.Tech.(AE) (Sem.-6th)
VEHICLE DYNAMICS
Subject Code : AE-308
Paper ID : [A0722]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students has to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students has to attempt any **TWO** questions.

SECTION-A

1. Answer briefly :
 - a) What is single degree of freedom system?
 - b) What do you understand by forced vibration?
 - c) What is Transmissibility?
 - d) Explain Tractive Effort.
 - e) What is Wheel Wobbling?
 - f) What is Understeer?
 - g) Define Camber.
 - h) What is meant by Fundamental Frequency?
 - i) Define Turning Circle.
 - j) How many degrees of freedom does a vehicle have?

SECTION-B

2. Discuss the effect of dynamic balance.
3. What are the causes of producing inertia torques that effect steering? Discuss.

4. Discuss the effect of camber in a vehicle.
5. How is vibration in a vehicle, a factor for human discomfort? Discuss.
6. Explain Holzer method for closed coupled system.

SECTION-C

7. A shock absorber is to be designed so that its overshoot is 10% of the initial displacement when released. Determine the damping factor. If the damping factor is reduced to one half of its value, what will be the overshoot?
8. A motor car has a wheel base of 2.743m and pivot centers 1.065m apart. The front and rear wheel track is 1.217m. Calculate the correct angle of outside lock and turning circle radius of the outer front and inner rear wheels when the angle of inside lock is 40° .
9. Write a note on vibration absorber.