Roll No. .....

24721

B. Tech. 7th Semester (Automobile Engg.) Examination – December, 2016

VEHICLE DYNAMICS

Paper : AUE-403-F

Time : Three 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 *five* questions in all, selecting at least *one* question from each Section. Question No. 1 is ***compulsory.*** All questions carry equal marks.

1. Explain the following : 6, 7, 7

   (a) Whistling of shafts.

   (b) Static stiffness of tyre.

   (c) Define semi definite system with example.

SECTION – A

2. Derive the equation for forced vibration for single degree of freedom for overdamped condition. 20

3. What is the significance of directional stability of vehicle ? 20

SECTION – B

4. Discuss the closed coupled system with example. 20

5. What is the wheel hoop, wobble and wheel shimmy ? 20

SECTION – C

6. Explain the Holzer method with example. 20

7. What is the effect of driving and braking torque-Gough's tyre characteristics ? 20

SECTION – D

8. What is magnification factor ? Also discuss the transmissibility. 20

9. Derive the expression to compute the steer angle required to negotiate the given curve under steady state condition. 20
