Bhagwan Mahavir College of Engineering & Technology, Surat

B.E. SEM-6 Subject Code: 161901

Subject Name: Dynamics Machinery

Assignment 3

1. Explain in detail vibration measuring instruments.

2..Why is balancing of rotating parts necessary for high speed engines?

3.Explain clearly the terms static balancing and dynamic balancing.State the necessary condition to achieve them.

4. For uncoupled two cylinder locomotive engine, explain the following terms: (i) Hammer blow (ii) Swaying couple (iii) Variation in tractive force

5.Discuss balancing of 'V' engines.

6.Enlist different vibration measuring instruments.

7. explain the working principle of a vibrometer and accelerometer

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Assignment 4

1.Write down the step by step procedure of stodola method to find out fundamental natural frequency of system having three degree of freedom.

2.Explin Holzers method to find out fundamental natural frequency of system having multi degree of freedom.

3.What are various frequency measuring instruments? Explain any one in detail.

4.A twin V-engine has the cylinder center lines at 90oand the connecting rods operate acommon crank. The mass of reciprocating parts per cylinder is 10kgand the crank radius is 75mm. The length of connecting rod is 300 mm. Show that the engine may be balanced for primary forces by means of a revolving balance mass. If the engine speed is 500 rpm, what is the value of maximum resultant secondary force?

5.Discuss the Rayleigh's method, to obtain fundamental natural frequency of vibration of a multi-degree of freedom system, with suitable example.

6.. Discuss the method of Balancing of V-engines and determine the expression for magnitude and direction of resultant primary force.

7.Define briefly whirling speed of shaft with single disc without damping.

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Assignment 1

1Define logarithmic decrement and derive an expression for it?

2.Explain the Viscous damping & Coulomb damping in details.

3. What is Vibration? Why is it importance to study of vibrations?

4.Explain the type of Vibration in details.

5. Discuss the effect of damping on vibratory systems. What is meant by under damping, critical
damping and over damping?

6.A machine having mass of 100 kg is supported on a spring which deflects 20 mm under the
dead load of machine. A dashpot is fitted to reduce the amplitude of free vibration to 10% of its
initial value in two complete oscillations. Determine the stiffness of the spring, critical damping.
coefficient, logarithmic decrement, damping factor and frequency of damped-free vibration.

7. What are different approaches to get equations of motion of a vibratory system? Explain any one in brief.