

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-I Examination January 2010

Subject code: 710902**Subject Name: Dynamics of Machinery****Date: 22 / 01 / 2010****Time: 12.00 – 2.30 pm****Total Marks: 60****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain the normal modal harmonic analysis. **06**
 (b) State the various methods used for noise measurement .Explain **06**
 any two of them.

- Q.2** (a) State the different types of control actions used for automatic **06**
 control systems. Discuss any two of them in detail with neat
 sketches.
 (b) What do you meant by stability of a control system. Explain **06**
 Routh's stability criteria.

OR

- (b) Write short note on: - Transient and frequency response of a **06**
 control system.

- Q.3** (a) Explain the importance of vibration analysis. Discuss any one of **06**
 the vibration analysis method.
 (b) Write a note on:- Vibration isolation of single degree freedom **06**
 system.

OR

- Q.3** (a) Discuss the vibration of continuous system of beams (any one **06**
 type of beam)
 (b) Explain briefly flexural and torsion vibrations. **06**

- Q.4** (a) Explain the use of mathematical models in cam analysis. **06**
 (b) Explain the jump phenomenon in case of cam. **06**

OR

- Q.4** (a) Discuss the mathematical model of cam and follower considering **06**
 their elasticity.
 (b) Explain Johnson's numerical analysis method used for cam. **06**

- Q.5** (a) Write a note on: - Noise control. **06**
 (b) Explain the applications of automatic control systems in different **06**
 industries.

OR

- Q.5** (a) Explain the forces induced in rigid systems in cam. **06**
 (b) Explain briefly about classical and approximate methods of **06**
 vibration analysis.
