

**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.

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