

**IV B.Tech II Semester Supplementary Examinations, Apr/May 2006**  
**SOIL DYNAMICS & MACHINE FOUNDATION**  
**(Civil Engineering)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) What is the data required with regard to machines for designing machine foundations. [6]  
(b) Classify the machines based on the design criteria and operating systems [10]
2. (a) Write a note on viscous damping [6]  
(b) Derive an expression for maximum amplitude in the case of free vibration with viscous damping. [10]
3. (a) Discuss Tschebotarioffs reduced natural frequency. [8]  
(b) Describe the factors affecting co-efficient of elastic uniform compression. [8]
4. (a) Why is vibration isolation required [8]  
(b) What do you understand by active isolation and passive isolation. [8]
5. What are the laboratory methods used to determine the dynamic properties of soils? Explain them in brief. [16]
6. (a) What is apparent soil mass? Explain how Pauw used this concept to arrive at the natural frequency of a machine foundation soil system? [10]  
(b) What is a bulb of pressure concept? [6]
7. (a) How do you analyse a block foundation based on elastic half-space theory? [8]  
(b) Explain Quinlan and Sung's modifications. [8]
8. Write down the principles followed by I.S.code for design of foundations for reciprocating type machines. [16]

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