

**B.Tech. MECHANICAL ENGINEERING  
(BTMEVI)**

**Term-End Examination**

**June, 2013**

**BIMEE-018 : INDUSTRIAL ERGONOMICS**

*Time : 3 hours*

*Maximum Marks : 70*

*Note : Answer any five questions. All questions carry equal marks.*

1. State some laws of ergonomics and how do you use them in human effort design. 14
2. (a) Discuss about optimal use of muscle strength. 10  
(b) Explain the factors affecting muscle strength. 4
3. Briefly outline the factors that determine the worker's efficiency. Explain, how ergonomic helps in improving worker's efficiency. 14
4. Explain the principles of sedentary workplace design. Also discuss the advantages, disadvantages and limitations of sedentary works. 14
5. Discuss the factors that lead to the musculoskeletal disorders among workers. Also explain the bio-mechanical model of the human lower back. 14

6. List and explain the ill effects of hand-arm vibration and whole - body vibration. 14
7. (a) What do you mean by indoor air quality ? 7  
What are the elements that determine indoor air quality ? Explain the effect of each element on human health.
- (b) Give the regulations that are to be followed for protection against noise in an industry. 7
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