

APJ Abdul Kalam Technological University

Ernakulam II Cluster

Second Semester M.Tech Degree Examination April 2018

**05ME6404 - WORK SYSTEM DESIGN**

Time: 3 hrs

Max. Marks 60

1. (a) What is productivity? Explain the relationship between productivity, economic growth and standard of living?  
(b) Explain the procedure of micro motion study with examples.  
(6 + 6 = 12 Marks)
2. (a) What is meant by Predetermined Motion Time Systems (PMTS)? What are its applications?  
(b) In an eight hour day, it was found that the normal time was only 400 minutes. Assuming that the remaining time is meant for rest and personal needs, determine the standard time per article if the normal time per article is 1.5 minutes. Also find the number of articles produced per day.  
(6 + 6 = 12 Marks)
3. (a) What do you mean by Ergonomics? Explain the applications and objectives of Ergonomics.  
(b) Explain anthropometry and its uses.  
(c) Discuss various methods to reduce musculo-skeletal stress through work place design.  
(6 + 6 + 6 = 18 Marks)

**OR**

4. (a) Explain the ergonomic aspects in workstation design and analysis.  
(b) Describe various musculoskeletal problems in sitting and standing.  
(c) Define fatigue and describe the methods of measurement of fatigue in work physiology?  
(6 + 6 + 6 = 18 Marks)
5. (a) Describe the principles for the design of visual displays and controls.  
(b) Discuss the various methods of protection against vibration.  
(c) Write short notes on cognitive load and design principles for cognitive load.  
(6 + 6 + 6 = 18 Marks)

**OR**

6. (a) "The physical environment in an organization have role on the human performance". Discuss.  
(b) Write a note on effect of light and sound on human performance.  
(c) Explain about human sensory system.  
(6 + 6 + 6 = 18 Marks)