

**Second Semester M.Tech. Degree Examination, July/August 2022**  
**Work Systems Engineering**

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

**Module-1**

- 1 a. Define Productivity. Discuss Productivity in enterprise level. (10 Marks)  
b. Define Work-study. List the different factors which add up in work content. (10 Marks)

**OR**

- 2 a. Briefly explain the steps involved in work study. (10 Marks)  
b. Discuss Maslow's hierarchy of needs. (10 Marks)

**Module-2**

- 3 a. Briefly explain flow process chart. (10 Marks)  
b. What are the principles of motion economy? Explain briefly. (10 Marks)

**OR**

- 4 a. Write a note on simo chart and chronocycle chart. (10 Marks)  
b. Define micro motion study and what are its advantages? (10 Marks)

**Module-3**

- 5 a. Define work measurement. Explain the purpose of work measurement. (10 Marks)  
b. Explain the method of conducting work sampling study. (10 Marks)

**OR**

- 6 a. Explain basic procedure of work measurement. (10 Marks)  
b. Briefly explain various types of allowances. (10 Marks)

**Module-4**

- 7 a. Define time study. Briefly explain about time study equipment. (10 Marks)  
b. Explain steps involved in time study. (10 Marks)

**OR**

- 8 a. Explain briefly PMTS and MTM techniques for work measurement. (10 Marks)  
b. Explain the procedure for the determination of sample size. (10 Marks)

**Module-5**

- 9 a. How does working conditions influence productivity? Explain. (10 Marks)  
b. Write a short note on OSHA. (10 Marks)

**OR**

- 10 a. How does layout of plant influence work study? Explain. (10 Marks)  
b. Write a short note on ergonomics. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42-8-50, will be treated as malpractice.