

**M.Tech.****METHODS ENGINEERING AND ERGONOMICS****SUBJECT CODE : PE - 523****Paper ID : [E0460]****[Note : Please fill subject code and paper ID on OMR]****Time : 03 Hours****Maximum Marks : 100****Instruction to Candidates:**

- 1) Attempt any **Five** questions.
- 2) **All** questions carry equal marks.

- Q1)** (a) How are Industrial Engineering and productivity related? Define the various types of productivity.
- (b) What is the difference between method study and work measurement? List the various objectives of method study.
- Q2)** (a) Discuss the various principles of motion economy.
- (b) What is Time Study? How is a job selected for time study?
- Q3)** (a) What is the role of ergonomics in industrial engineering?
- (b) Discuss the various factors which are considered for ergonomic design of controls.
- Q4)** (a) What is Anthropometry? Explain the use of human anthropometry in workplace layout.
- (b) From the ergonomic design point of view, give recommendations for posture both for standing and slanted at work.
- Q5)** (a) Compare and contrast between static and dynamic muscular load.
- (b) Discuss the general steps in the measurement of mental work load.
- Q6)** (a) Discuss the various methods by which vibrations can be reduced.
- (b) Discuss the various effects of heat on body and work performance.

Q7) (a) What is meant by the term noise? Discuss the physiological effects of noise.

(b) Discuss the difference between temporary and permanent threshold shift.

Q8) Write short notes on the following :

(a) Measurement of physical work load.

(b) Wage incentive plans.

