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Total No. of Printed Pages: 1

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B. Tech. (Mech. Engg.) (Semester –8th)
WORK STUDY & ERGONOMICS
Subject Code: BMECD1824
Paper ID: [18112353]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a. What is the objective of a work study?
- b. Mention one human factor involved in work study.
- c. What is the function of a string diagram in method study?
- d. What are SIMO charts used for in method study?
- e. Define micro-motion study.
- f. What is work sampling?
- g. Name two factors that affect the rate of working in a time study.
- h. What is the purpose of determining allowances in a time study?
- i. What is the consequence of stress development in the human body during work?
- j. What are the components of a man-machine system?

Section – B

(5 marks each)

- Q2. Define productivity and explain the key factors that affect productivity in an industrial environment.
- Q3. What are the principles of motion economy? How are they applied in improving work design?
- Q4. Describe the concept of work sampling and explain how sample size is determined.
- Q5. Discuss the areas of study under ergonomics and how they contribute to improving workplace efficiency.
- Q6. What is computer-based ergonomics? Discuss its role in improving human efficiency and reducing work-related injuries.

Section – C

(10 marks each)

- Q7. Explain the relationship between work study and management. How does work study benefit both supervisors and workers?
- Q8. Describe various recording techniques such as outline process charts, flow process charts, and man-machine charts used in method study.
- Q9. Define work measurement. What are the objectives and benefits of conducting work measurement in an organization?