

AU – 2651

Fifth Semester B. E. (Mechanical Engineering) Examination

Free Elective

ERGONOMICS

Paper – 5 FEME 05

(USC – 10846)

P. Pages : 3

Time : Three Hours]

[Max. Marks : 80

- Note :** (1) Answer **Three** questions from Section A and **Three** questions from Section B.
(2) Due credit will be given to neatness and adequate dimensions.
(3) Assume suitable data wherever necessary.
(4) Retain the construction lines.
(5) Illustrate your answer wherever necessary with the help of neat sketches.
(6) Use pen of Blue/Black ink/refill only for writing the answer book.

SECTION A

1. (a) What are the different elements of Ergonomics System ? Explain how the interaction between them can be evaluated. 7
(b) What do you mean by Ergonomics ? What are its applications in our day to day life ? 6

OR

2. (a) What are the functions of skeletal and muscular systems ? 7
(b) Give a brief introduction to human anatomy, posture and body mechanics. 6
3. What is Anthropometry ? Explain the difference between the structural and functional anthropometric data with suitable examples. 13

OR

4. Explain the principles of anthropometric Discuss in detail. 13

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5. What are the direct and indirect methods of measurement of energy expenditure at work ? Explain. 14

OR

6. (a) What are the common methods of carrying load ? Explain. 7
(b) Explain the correct lifting and lowering technique. 7

SECTION B

7. (a) Discuss the Ergonomic design considerations for the following types of controls :
(i) Toggle switch.
(ii) Push Button. 7
(b) What are the factors which govern the optimum temperature for comfort? 7

OR

8. (a) What is the effect of illumination on productivity of younger and elder workers ? Explain. 7
(b) What are the segmental and whole body vibrations ? Explain with suitable examples. 7
9. (a) Explain ergonomic consideration for design of :
(i) Hand wheels.
(ii) Levers. 6
(b) What are the basic principles of auditory environment ? 7

OR

10. (a) Distinguish between direct lighting and indirect lighting. 6

(b) What is codification of controls ? Explain.

7

11. What is the applications of Ergonomics in various fields ? Explain with suitable examples.

13

OR

12. How can application of Ergonomics assist in achieving safety in working ?

13



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