

AQ – 2719

Third Semester M. E. (Prod. Tech.) Examination

ERGONOMICS

Paper – 3 SPTM 1

P. Pages : 3

Time : Three Hours]

[Max. Marks : 80

- Note :** (1) Separate answer book must be used for each section in the subject Geology, Engineering material of civil branch and Separate answer-book must be used for Section A and B in Pharmacy and Cosmetic Tech.
- (2) Answer **Three** questions from Section A and **Three** questions from Section B.
- (3) Due credit will be given to neatness and adequate dimensions.
- (4) Assume suitable data wherever necessary.
- (5) Illustrate your answer wherever necessary with the help of neat sketches.

SECTION A

1. (a) Explain the structure of an ergosystem. 7
- (b) Explain what is anatomy, psychology and physiology. 6
2. (a) Comment on the anthropometric design motto : —
"Let the small person reach".
"Let the large person fit". 7
- (b) Suggest and justify work postures for performing various tasks. 6
3. (a) Define various VDT terms with the help of sketch. 7
- (b) What is repetitive motion injury ? How it can be reduced ? 6
4. (a) Classify various handtools. Also, state some design guidelines for these handtools. 7

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(b) Discuss design considerations for the following controls :

- (i) Hand wheel
- (ii) Push button
- (iii) Foot Padel.

6

5. Write notes on (Any **three**) :—

- (i) Visual fatigue.
- (ii) Warning signs.
- (iii) Role of ergonomics in product design.
- (iv) Standardization of symbols.
- (v) Correct lifting technique.

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SECTION B

6. (a) Explain vibration. What are different forms of vibration ?

7

(b) Explain basic principles of auditory environment.

6

7. (a) State the factors that determine human comfort.

7

(b) Distinguish between heat stroke, heat exhaustion and heat cramp.

6

8. (a) Explain what is glare, flicker, contrast and colour in visual environment.

7

(b) Explain direct and indirect glare zone. How glares are controlled in :—

(i) General work places.

(ii) VDU work places.

6

9. (a) Why shift work is needed ? Discuss various problems associated with shift work. Why these problems occur ?

7

- (b) What is task analysis ? Explain how task analysis can be used as a tool to develop training programmes. 6

10. Write notes on (Any Three) :—

- (i) Whole body vibration.
- (ii) Design for assembly.
- (iii) Heat stress management.
- (iv) Minimum lighting level and VCP.
- (v) Effect of noise on performance.

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