

B.E./ B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2011

Industrial Engineering

FIFTH SEMESTER- (REGULATIONS-2004)

IE374 APPLIED ERGONOMICS

Time: 3 hr

Max. Mark: 100

Answer ALL Questions

Part-A (10 X 2 = 20 Mark)

1. List any few contributions of modern ergonomics in systems design and management?
2. What is the outcome of task and human-machine interaction analysis?
3. What is signal detection theory?
4. Define Reaction Time.
5. What are the industrial applications of Physiology?
6. Define Metabolism
7. Define VDT
8. How will you compute the efficiency of work?
9. What are industrial accidents?
10. Define Risk Assessment.

Part-B (5 X 16 = 80 Marks)

- 11 (i) Highlight the importance of human factors engineering? (6)
- (ii) Explain the ergonomics and its areas of application in the work system? (6)
- (ii) What are the identification and classification of design issues? (4)
12. (a) (i) How will you receive information and process? (4)
- (ii) What is the encoding factors influencing retrieval of information from memory?(4)
- (iii) Explain the information theory and its applications? (8)

OR

12. (b) (i) What is coding and cognition? (4)
- (ii) Describe the concepts of Human response & errors and biostatic and biodynamic mechanics? (12)

13. (a) (i) What is oxygen-dependent and oxygen-independent systems? (4)
(ii) Differentiate between static work and dynamic work? (5)
(iii) What are the limiting factors on muscle contraction and efficiency of muscle contraction? (7)

OR

13. (b) (i) What is physical work capacity? Explain the methods involved and factors affecting the physical work capacity with suitable example? (16)

14. (a) (i) How will you conduct the Anthropometry measures in industrial environment? Explain? (6)

- (ii) Classify the various displays used in a man-machine system? Discuss the functional requirements and criteria used for their design. (10)

OR

14. (b) State the principles for the design of visual displays? Explain the work space layout, work station design, hand tool design and controls? (16)

15. (a) (i) What are the human safety devices used in industries? (4)

- (ii) Explain the various standard safety management practices used in industry? (12)

OR

15. (b) Write short notes for the following:

- (i) Quantitative Work Load Analysis (4)
(ii) Physical Fitness Test (4)
(iii) Hazard Control Technology (4)
(iv) Safety in consumer product design (4)
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