

Roll No:

B.E./B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, MAY 2012

Industrial Engineering

FIFTH SEMESTER- (REGULATIONS-2008)

IE9304 APPLIED ERGONOMICS

11

Time: 3 hr

Max. Mark: 100

Answer ALL Questions

Part-A (10 X 2 = 20 Mark)

1. Show the types of functions performed by human or machine components of human-machine systems.
2. What are the characteristics of systems?
3. What are the factors influencing human performance?
4. Define Response and Reaction Time.
5. What are the physiological factors involved in muscular activity?
6. Define Physiological Fatigue
7. What is VDT? Give an Example?
8. What are the ways for computation of the efficiency of work?
9. Define industrial accidents
10. What do you understand by the term NIOSH Act?

Part-B (5 X 16 = 80 Marks)

11. Describe the ergonomics and its areas of application in the work system? Briefly explain the classification of design issues? (16)
 12. (a) Discuss the information theory and its application? Explain the concepts of biostatic and biodynamic mechanics with suitable example? (16)
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12. (b) What is information receiving and processing, coding and cognition? Explain the encoding factors influencing retrieval of information from memory? (16)

13. (a) What is Metabolism? How will you define oxygen-dependent and oxygen-independent systems? Bring out the major difference between static work and dynamic work? Highlight the limiting factors on muscle contraction and efficiency of muscle contraction? (16)

OR

13. (b) How will you measure the energy expenditure in physical aspects of human at work? What is work and rest schedules? Explain the methods involved and factors affecting the physical work capacity? (16)

14. (a) (i) What are the problems of body size in work place design? Explain the various anthropometry measures used in industrial environment? Classify the various displays used in a man-machine system? (16)

OR

14. (b) What is work space layout and work station design? Highlight the principles for the design of visual displays? Write a brief note on VDT work station and hand tool design? (16)

15. (a) Discuss the personnel protective devices with an example? Describe the various theories of accident causation? (16)

OR

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

- (i) Safety Management Practices (4)
 - (ii) Effect of environment (heat and cold) (4)
 - (iii) Factories Act (4)
 - (iv) Safety in consumer product design (4)
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