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B.E / B. Tech (FULL TIME) END SEMESTER EXAMINATIONS April / May 2019

INDUSTRIAL ENGINEERING

Semester 6

IE8601 – APPLIED ERGONOMICS

(Regulation 2012)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. What are the objectives in Ergonomics?
2. What are the two areas dealt by physical ergonomics?
3. What is Hick's law?
4. Draw the Rasmussen's Decision Making Model.
5. What is Metabolism?
6. What are the measures of physiological strain?
7. List any four work postures and related complaints of industrial workers.
8. What are the standing measures of anthropometry?
9. What is accident and safety?
10. Name three types of ear protectors.



Part – B ( 5 x 16 = 80 marks)

*(Question No.11 is Compulsory sub-divisions carry equal marks)*

11. i). Draw the Human-Machine Systems and explain its components.  
ii) What are the risk factors associated with musculoskeletal disorders in the workplace? Explain about any one in detail.
12. a) i). Explain Signal detection theory with an example.  
ii). What are the reasons for human errors? Explain about Skill based errors.  
(OR)  
b) i) What are the heuristics used for coping with the limitations of the working memory? Explain any two.  
ii) What are the 'mistakes'? Explain the 'rule based' mistakes with example
13. a) i) Explain the process of metabolism at work with necessary sketch.  
ii) Explain about measurement of oxygen consumption.  
(OR)  
b) i). What is circadian rhythm? Explain about sleep cycle.  
ii). Explain about work – load analysis?
14. a) i). Explain about anthropometric design principles.  
ii). Explain the measurement and ergonomic implications of work posture with RULA and REBA.

(OR)

- b) i) What are the six common types of control coding? Explain any two in detail.
- ii). What are the types of lighting arrangements to illuminate the workplace?

15. a) i) What are the physiological effects of noise? Explain about the noise control in work place?
- ii) Explain the administrative and engineering control of heat stress in industrial work.

(OR)

- b) i) Discuss four kinds of personal protective devices for hands, indicating some typical uses of each.
- ii) Elaborate on factories act 1948 and subsequent amendments.

