

B.TECH. DEGREE EXAMINATION, MAY 2014**Eighth Semester**

Branch : Applied Electronics and Instrumentation Engineering / Electronics and Instrumentation Engineering

AI 010 805 G02 / EI 010 805 G03 – HUMAN FACTORS ENGINEERING (Elective IV) [AI, EI]

(New Scheme–2010 Admissions)

[Regular]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. What do you mean by HF?
2. What role does an HFE plays in an industry?
3. What is the use of anthropometric data?
4. Explain the requirement of safety features in the design of a work space.
5. How do the unwanted vibrations bring in health issues to the workers?

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Write an example to show the human machine interactions.
7. Explain how the front panels of electronic instruments helps in human machine interface?
8. Write a short note on Anthropometric principles.
9. What are the primary things to be done while designing a work space considering its safety feature?
10. How can the musculoskeletal disorders be formed when the worker is at work?

(5 × 5 = 25 marks)



**Part C**

Answer all questions.

Each question carries 12 marks.

11. What is the need for an engineering approach while we design a human machine interface?

Or

12. Explain in detail how and why the appropriate design of human machine interface helps in making our life at ease?

13. Illustrate how a human machine interface is useful in a mechanical fitting shop?

Or

14. Explain how the assembly lines can be setup in a manufacturing shop to show the human, machine interface?

15. Write short note on Anthropometric division of body types.

Or

16. What do you know about the following terms?

- (a) Bertillon's observations.
- (b) Allen's rule.
- (c) Bergmann's rule.

(4 + 4 + 4 = 12 marks)

17. Illustrate through simple examples, the need and design of safe clearances and heights and safe reach distances?

Or

18. How does the design of work space affect the worker's performance and fatigue?

19. Explain how the following environments affect the workers?

- (a) Visual Environment.
- (b) Thermal Environment.
- (c) Auditory Environment.

(4 + 4 + 4 = 12 marks)

Or

20. What are the safety and legal aspects related to work health issues?

[5 × 12 = 60 marks]