



Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
B.Tech Degree S8 (R,S) Examinations April 2026 (2019 Scheme)

**Course Code: MRT456**  
**Course Name: ERGONOMICS**

**Max. Marks: 100**

**Duration: 3 Hours**

**PART A**

*Answer all questions, each carries 3 marks.*

- |    |  | Marks |
|----|--|-------|
| 1  | Define ergonomics.   | (3)   |
| 2  | Prepare a short note on anthropometry and personal space.                                    | (3)   |
| 3  | List out the parameters in 1991 NIOSH lifting equation.                                      | (3)   |
| 4  | Which are the false assumptions about manual handling safety.                                | (3)   |
| 5  | List out the various factors affecting physical work capacity.                               | (3)   |
| 6  | Explain the correlation between building design and the indoor climate.                      | (3)   |
| 7  | List out the various factors to be considered to meet the visual comfort and visual demands. | (3)   |
| 8  | Write down the various steps to control noise in worksite.                                   | (3)   |
| 9  | Explain about the Cross-cultural considerations in ergonomic design.                         | (3)   |
| 10 | What is meant by human computer dialogue?  | (3)   |

**PART B**

*Answer any one full question from each module, each carries 14 marks.*

**Module I**

- 11 Explain in detail about the different types of anthropometric data used in ergonomics design using suitable sketches. (14)

**OR**

- 12 a) List and explain the musculoskeletal disorders in workplace. (6)  
b) With the help of tent analogy, explain the basic body mechanics. (8)

**Module II**

- 13 A worker must unload trays of breads as they emerge from an oven. He picks up a tray, turns 50 degree and places it on a conveyor. He does this 4 times per minute for 8 hours. Using the given data calculate RWL, Lifting Index and redesign the work if it is needed? (H=45, V=60, D=70, A=45 degree, FM=0.55, CM=1) (14)

**OR**

- 14 Explain the design of standing and sitting works. (14)

**Module III**

- 15 Explain about the different kind of muscles with their structure, function, and capacity. (14)

**OR**

- 16 Give your suggestions on making indoor climate of a work space more comfortable. (14)

**Module IV**

- 17 Design an acoustic environment with neat sketch. (14)

**OR**

- 18 Explain the concept of combining displays and controls with the help of a link analysis diagram. (14)

**Module V**

- 19 Explain in detail about the human centred design process for interactive systems. (14)

**OR**

- 20 Explain about the various steps needed for an ergonomic approach to system design. (14)

\*\*\*\*