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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth Semester B.Tech Degree (R,S) Examination May 2024 (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	Explain the concept of design to everyone?	(3)
3	List out the parameters in 1991 NIOSH lifting equation?	(3)
4	Explain the three work space factors which exacerbate postural stress in manual handling?	(3)
5	List out any six factors affecting physical work capacity?	(3)
6	Explain the concept of building sickness syndrome?	(3)
7	List out the four things to be considered to meet the visual comfort and visual demands?	(3)
8	Write a short note on visual fatigue?	(3)
9	Explain the Cross cultural considerations in ergonomic design?	(3)
10	List out the six steps needed for an ergonomic approach to design?	(3)

PART B

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

Module I

11	a)	List out and explain different types of anthropometric data used in ergonomics design using suitable sketches?	(14)

OR

12	a)	Explain in detail about human machine system with neat figure?	(14)

Module II

13	a)	A worker has to unload trays of pork pieces as they emerge from an oven. He picks up a tray, turns 45 degree and places it on a conveyor. He does this 3 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 a) Explain design of a handle with neat sketches? (14)

Module III

15 a) Explain in detail about the muscle structure, their function and capacity? (14)

OR

16 a) List out the protective methods against extreme climate and explain in detail? (14)

Module IV

17 a) Explain the design of an acoustic environment? (14)

OR

18 a) Compile a note on industrial noise control? (8)

b) Write a short note on the design of controls? (6)

Module V

19 a) Explain human centred design process for interactive systems? (14)

OR

20 a) Compose a detailed note on human-computer interaction? (14)

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