



Roll No.

--	--	--	--	--	--	--	--	--	--

# ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

**B.E. /B. Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, April/May 2025**

Industrial Engineering  
4<sup>th</sup> Semester

**IE23401 APPLIED ERGONOMICS**  
(Regulation 2023)

Time:3 hrs

Max. Marks: 100

<b>CO1</b>	Illustrate the knowledge on basic of human factor engineering and Engineering science.
<b>CO2</b>	Apply the skills associated with ergonomic measurement methods and analytical techniques to workplace ergonomic problems.
<b>CO3</b>	Conduct an ergonomic analysis and ergonomic recommendations for modern work environment problems.
<b>CO4</b>	Implement the occupational health and safety rules to improve the work place.
<b>CO5</b>	Analyze the proper assessment tools in ergonomics evaluation in an Industry

**BL – Bloom's Taxonomy Levels**

(L1-Remembering, L2-Understanding, L3-Appling, L4-Analysing, L5-Evaluating, L6-Creating)

## PART- A (10x2=20Marks)

(Answer all Questions)

Q. No.	Questions	Marks	CO	BL
1	Why Ergonomics is an interdisciplinary in nature	2	1	L2
2	Write the goals of Ergonomics	2	1	L2
3	Discuss the main Significant of hand tool design	2	2	L2
4	List the Physical factors in Visual Display Terminals (VDT)	2	2	L2
5	Differentiate the aerobic and anaerobic process	2	3	L2
6	State the Maximum aerobic power (MAP)	2	3	L2
7	write the impact of thermal stress in an industry	2	4	L2
8	What are the factors that causes heat stress	2	4	L1
9	Write the function of Hick's law	2	5	L2
10	List few Ergonomic assessment tools	2	5	L2

## PART- B (5x 13=65Marks)

Q. No.	Questions	Marks	CO	BL
11 (a)	Explain the Contribution of modern ergonomics in systems design	13	1	L4
OR				
11 (b)	Elaborate the Basic interactions in a work system and their evaluation	13	1	L4
OR				
12 (a)	Describe the factors for Work Place design for Standing posture	13	2	L3
OR				
12 (b)	Explain the significant effects on visual display design in work station design	13	2	L3
OR				
13 (a)	Express the Physical work capacity relate with basal metabolic rate (BMR)	13	3	L3
OR				
13 (b)	Explain the importance of physical fitness test	13	3	L3
OR				
14 (a)	Briefly explain how thermal stress is affecting the productivity.	13	4	L3

OR				
14 (b)	Explain the factors that influencing the productivity by considering environmental issues	13	4	L3
15 (a)	Compute the importance of the ergonomic assessment tools like Rapid Upper Limb Assessment (RULA), Rapid Entire Body Assessment (REBA)	13	5	L4
OR				
15 (b)	Compare Rapid Office Strain Assessment (ROSA) with Risk Assessment of Pushing and Pulling (RAPP)	13	5	L3

**PART- C (1x 15=15Marks)**  
(Q.No.16 is compulsory)

Q. No.	Questions	Marks	CO	BL
16.	Describe and draw the link of Human Machine Interface (HMI) systems and analysis the HMI requires knowledge of biomechanics, cognitive psychology, and systems design	15	5	L5

