

12 JUN 2023

Reg. No.

Question Paper Code

11853

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Sixth Semester

Artificial Intelligence and Data Science

20AIPC601 – ROBOTICS PROCESS AUTOMATION

(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|--|-------------------------------|
| 1. List the important components of PDD. | 2,K1,CO1 |
| 2. Define RPA business case. | 2,K1,CO1 |
| 3. What are grippers and where it is used? | 2,K1,CO2 |
| 4. How to build a data table using data scrapping? | 2,K2,CO2 |
| 5. What are the structure of Selector and the format of each node? | 2,K2,CO3 |
| 6. Difference between input method and output method. | 2,K2,CO3 |
| 7. How a range finder works? | 2,K2,CO4 |
| 8. Define inverse kinematics. | 2,K1,CO5 |
| 9. What is the scope of robotics in future? | 2,K1,CO6 |
| 10. How robots are employed in disaster management? | 2,K2,CO6 |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

- | | |
|---|-----------|
| 11. a) (i) Explain the key components of SDD in detail. | 7,K2,CO1 |
| (ii) Describe the scope and techniques of automation. | 6,K2,CO1 |
| OR | |
| b) With the help of a neat sketch show the basic components of a robot connected as a system. | 13,K2,CO1 |
| 12. a) Explain different variables available in RPA panel. | 13,K2,CO2 |
| OR | |
| b) Write in detail about automated storage/ retrieval systems. | 13,K2,CO2 |
| 13. a) Explain recording and its types in detail. | 13,K2,CO3 |

OR

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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- b) Describe in detail the Input and output methods of Uipath with an example. *13,K2,CO3*
14. a) Explain the working of velocity and acceleration sensor with neat diagram. *13,K2,CO4*
- OR**
- b) Describe in detail about Trajectory Planning for robot manipulators. *13,K2,CO5*
15. a) Explain in detail about the uses of robots in household applications *13,K2,CO6*
- OR**
- b) Explain the applications of robotics in defence field and how robots are used when disaster happens. *13,K2,CO6*

PART - C (1 × 15 = 15 Marks)

16. a) (i) Explain the purpose of range finding in robotics and how it is done. *8,K2,CO4*
- (ii) Explain about working of IR proximity sensor in detail. *7,K2,CO4*
- OR**
- b) Explain in detail about the Singularities and Jacobian of Robotics. *15,K2,CO5*