K. K. Wagh Institute of Engineering Education and Research, Nashik

(An Autonomous Institute from A. Y. 2022-23)

Marking Scheme

SET C

END-Sem Examination, Winter 2025

Academic Year: 2025-2026	Semester: II
Class:FYBtech	Program:GFYE
Branch Code:ROB	Pattern:2023
Name of Course: Fundamentals Of Robotics	Course Code: 2300118H

Sr. No.	Full Question	Marks Distribution	Total Marks
1A	Define precision and accuracy in robots. What factors affect them? Explain with suitable examples.	Definitions – 2, Factors – 2, Examples – 2	**6**
2A	Explain the factors considered in gripper selection. Provide suitable examples for each factor.	Factors – 3, Examples – 3	**6**
3A	Explain the image processing steps used in a robot vision system.	Steps – 5, Explanation – 3	**8**
3B	Compare active and passive sensors used in robotics with suitable examples.	Comparison – 4, Examples – 4	**8**
3C	Explain the integration of sensors into robotic	Diagram – 3, Integration	**8**

	systems with suitable block diagrams.	– 5	
3D	Discuss the importance of sensor fusion. Explain techniques used for combining robotic sensor data.	Importance – 4, Techniques – 4	**8**
4A	Explain the robot control system architecture with neat diagram.	Explanation – 4, Diagram – 4	**8**
4B	Discuss the design considerations for robot controllers in industrial applications.	Considerations – 8	**8**
4C	Explain trajectory generation and control in robotic manipulators.	Explanation – 4, Control – 4	**8**
4D	Explain the need for real-time control in robots. Describe how real-time constraints affect controller design.	Explanation – 4, Constraints – 4	**8**
5A	Discuss the role of simulation tools in robot programming. Give examples.	Explanation – 4, Examples – 4	**8**
5B	Describe error handling and debugging techniques in robot programming.	Techniques – 4, Examples – 4	**8**
5C	Explain modular programming in robotics with example applications.	Explanation – 4, Examples – 4	**8**
5D	Explain coordinate systems used in robot programming and their significance.	Types – 4, Significance – 4	**8**