JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

B.Tech-VII Semester (OE)

COURSE CODE (CREDITS): 20B1WEC731 (3)   MAX. MARKS: 15

COURSE NAME: Automation and Robotics

COURSE INSTRUCTORS: Dr Emjee Puthooran   MAX. TIME: 1 Hour

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	Explain how automation contributes to maximizing profit in an industry by considering various factors in it.	CO-1	2
Q2	Differentiate between 'Economy of Scale' and 'Economy of Scope' in the context of industrial automation.	CO-1	2
Q3.	Describe the different layers of the industrial automation pyramid and explain their specific roles and functions within the overall automation framework. Provide a schematic representation of the pyramid, and discuss how these layers interact and collaborate to create efficient and effective automation solutions in an industrial environment.	CO-1	3
Q4.	Provide brief explanations of the following terminologies related to sensors: (a) Accuracy, (b) Resolution, and (c) Response Time. Highlight their significance in sensor performance and industrial applications.	CO-4	3
Q5	Describe the working principle of a mass-spring type accelerometer, with a diagram. Discuss how the displacement of the mass is measured and converted into an electrical signal. Outline the process of calibrating the accelerometer for accurate measurements.	CO-4	5