

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST - 2 EXAMINATION - 2026

B.Tech-VIII Semester (Open Elective)

COURSE CODE(CREDITS): 25B1WEC831(2)

MAX. MARKS: 25

COURSE NAME: Industrial Automation

COURSE INSTRUCTOR: Salman Raju Talluri

MAX. TIME: 1 Hour 30 Min.

Note: (a) All questions are compulsory. (b) The candidate is allowed to make suitable numeric assumptions wherever required for solving problems. (c) Use of calculator is not allowed.

Q.No	Question	CO	Marks
Q.1	Draw the ladder diagram and functional block diagram for the following task: A signal lamp is required to be switched on if a pump is running and the pressure is satisfactory, or if the lamp test switch is closed.	CO-2	4
Q.2	What are the rules that are to be followed in drawing/preparing a Sequential Function Chart? Explain this with an example by drawing an SFC for an application of your choice.	CO-2	4
Q.3	Differentiate between Internal Relay and MC-MCR with an example of each. Draw neat ladder diagrams for each functionality.	CO-2	4
Q.4	Draw the timing diagram for On-Delay, Off-Delay and Pulse timer along with the different types of data inputs and outputs present on a Timer function block / instruction.	CO-3	4
Q.5	Devise ladder programs for systems that will carry out the following task: Count 10 objects passing along a conveyor belt and close a deflecting gate when that number have been deflected into a chute, allowing a time of 5 s between the tenth object being counted and closing the deflector.	CO-3	4
Q.6	Give the application(or explain) of each device/instruction. a. Retentive timer(ST) b. BMOVP c. SM412 d. SET e. >= D100 D102	CO-3	5