

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: M.TECH
BRANCH: ECE**

**SEMESTER: II
SESSION: SP/2024**

SUBJECT: EC561 APPLIED INDUSTRIAL INSTRUMENTATION

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data handbook/Graph paper etc. to be supplied to the candidates in the examination hall.
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			CO	BL
Q.1(a)	With the help of neat diagram, explain the architecture of the automation system. Also, explain the signal conditioning with proper example.	[5]	CO1	
Q.1(b)	Illustrate the basic principle of optical pyrometers. Write demerits of the optical pyrometer.	[5]	CO2	
Q.2(a)	With a neat graph of error and controller output, discuss the working of PID controller.	[5]	CO3	
Q.2(b)	Differentiate between feed-forward control and ratio control. Discuss selective control with suitable application.	[5]	CO2	
Q.3(a)	Explain the architecture of Programmable Logic Controller with suitable diagram.	[5]	CO3	
Q.3(b)	What is PLC scan cycle? Explain.	[5]	CO2	
Q.4(a)	Describe the actuator and classification of final control elements.	[5]	CO2	
Q.4(b)	What are drives? Discuss the different types of drives and explain working of servo drives in detail.	[5]	CO3	
Q.5(a)	What are the communication protocols used in automation system architecture? Explain anyone.	[5]	CO2	
Q.5(b)	Explain the designing steps in networking of sensors and actuators using field bus.	[5]	CO4	

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