Code No: **RT42101** **R13** **Set No. 1**

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

INDUSTRIAL AUTOMATION

(Electronics and Instumentation Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
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PART–A ***(22 Marks)***

1.	a)	List the major classifications of input/output (I/O) modules.	[3]
	b)	What is the timer instruction of a PLC?	[3]
	c)	Define the six basic COMPARE functions.	[4]
	d)	Differentiate between discrete and analog operation of a PLC.	[4]
	e)	Write DCS applications in power plants.	[4]
	f)	What is smart actuator?	[4]

PART–B ***(3x16 = 48 Marks)***

2.	a)	Explain the advantages of PLC's over PC's.	[8]
	b)	Describe how an AC-in/DC-out power supply functions. Explain isolators.	[8]
3.	a)	List and describe eight major timing functions that are commonly used in circuits and processes.	[8]
	b)	Write a ladder diagram program for tank level control.	[8]
4.	a)	Explain (i) Sequencer functions (ii) Matrix functions.	[8]
	b)	Describe the operation of the SKIP and MCR function.	[8]
5.	a)	Describe the typical PID functions.	[8]
	b)	Differentiate between wide area networks and local area networks.	[8]
6.	a)	What are the differences between centralized control system and DCS?	[8]
	b)	Explain the application of DCS in cement plants.	[8]
7.	a)	Explain the applications of HART protocol.	[8]
	b)	Write short notes on smart transmitters.	[8]