Reg. No.

VII SEMESTER B.TECH (ELECTRICAL & ELECTRONICS ENGINEERING)

END SEMESTER EXAMINATIONS, NOV/DEC 2016

SUBJECT: INDUSTRIAL AUTOMATION & CONTROL [ELE 437]

REVISED CREDIT SYSTEM

Time:	3 Hours	Date:	06 December 2016	MAX.	MARKS: 50
Instru	 ctions to Candidates: Answer ANY FIVE FULL q Missing data may be suital 	uestions. ole assun	ned.		
1A.	Draw the Automation Pyramic Oil and Gas production indust	d ,identif ry	y the different Layer considering a typic	cal exam	ple of (05)
1B.	A direct acting controller has The set point is 50% and the from the controller has incre- minute (RPM) and reset time	a propo e measur eased by in minute	rtional band of 50% is subjected to a su rement 55%. After 4 minutes, the total 7 30%. What is the reset rate setting is es per repeat (MPR)	stained output n repeat	error. signal ts per (03)
1C.	Which type of controller wou your answer	ıld you r	recommend for control of pH level in a	liquid? J	ustify (02)
2A.	Identify the inputs and output system using PLCs and Programmer pump. The pump is operation becomes full, the circuit should valve, and opening the second automatically and a "sign lamp	its of the ram usin ng manu d autom l valve, a o" is turn	e system shown in Figure 2A, design Prig Ladder logic to fill the two tanks with ally by a push-button "Start". When a tically start to fill the second tank by cl nd when the second tank is full, the pumped on to show that Second tank is full.	th water the first osing th p discor	ontrol c by a c tank e first nects (05)
2B.	Explain Industrial Applications stamping process	on of Sec	quence Control using PLCs taking an e	xample	of die (05)
3A.	Find the Volume flow rate of a $p1 = 9$ bar, $p2 = 2$ bar , $K_v = 20$	cetone (m3/h D	m3/h) with valve fully open Control Valv ensity of acetone is $\rho = 800 \text{ kg/m3}$	'e, press	ure (02)
3B.	With neat diagram explain the	constru	ction of Pilot operated Check Valve		(05)
3C.	State the advantage and disad	vantage	of CNC machines		(03)
4A.	Explain the Architecture of Industry	SCADA s	system considering a typical example	e of Che	emical (05)
4B.	Describe the types of Distribu	ted Cont	rol system employed in Industrial Auton	nation sy	ystem (05)
5A.	Explain how data transfer automation system	takes pl	ace using MODBUS TCP/IP Network	in Indı	ıstrial (05)
5B.	With neat diagram discuss the connect distant actuators and	e differen sensors	nt connection employed in Profibus –DP a	as field	bus to (05)
6A.	With neat diagram Describe v	arious st	tates of the task undertaken by RTOS		(02)
6B.	List the advantage and disadv	vantage o	of Flexible Manufacturing system		(03)
6C.	Write the general architectur	e of SMA	RT Sensor		(05)

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Figure 2A