Reg. No.

प्रज्ञानं ब्रह्म Manipal INSPIRED BY LIFE

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



II SEMESTER M.TECH (EMAL / PESC) END SEMESTER EXAMINATIONS, MAY 2016

SUBJECT: BUILDING AUTOMATION SYSTEMS [ELE 536]

(PROGRAM ELECTIVE - III)

REVISED CREDIT SYSTEM

Time: 3 Hours			12 MAY 2016	MAX. MARKS: 50	
Insti	ructio * *	ons to Candidates: Answer ANY FIVE FULL question Missing data may be suitable assu	ıs. ımed.		
1A.	Ment	tion any six points on GRIHA rating sy	vstem	(03)	
1B.	Mention any six points on LEED certification				
1C.	Elaborate on thermal comfort indices – Predicted Mean Vote and Predicted Percentage of Dissatisfied				
2A.	Explain cascaded control structure with an example				
2B.	What is the phenomenon of integrator windup? How is it addressed?				
3A.	What is pH value? What is its importance? Explain the working of potentiometric pH meter				
3B.	Explain temperature measurement technique with the help of RTD and thermistor (0				
4A.	Speed of a fan can be adjusted by varying the pulse width of the control signal which is governed by digital pin 9 in arduino UNO. An analog thermistor sensor module is connected to analog pin 1 of arduino. Program the controller to control the speed of the fan based on ambient temperature (06)				
4B.	What	t are linear actuators and rotary actua	ators? Give examples	(02)	
4C.	What are the benefits of Direct Digital Control?				
5A.	a.	An air mixture supplied to a condition withdrawn from the conditioned roo room is maintained at 25°C. Find the	oned room consists of 40% by-passed om, and 60% chilled air at 13°C. The co resulting dry bulb temperature of the n	return air onditioned nixture	
	b.	A heating coil raises the temperature kg per minute of air flow through the air per hour? (Specific heat of water =	of air flowing through it from 5°C to 4 e heater, how much heat must be supp = 4.18 kJ/kg. K.)	0°C. If 150 lied to the	
	С.	The air emerging from a dryer, with a which is gradually cooled. It is found surface when it is at 21°C. Estimate th	an exit temperature of 30°C, passes over I that the first traces of moisture appe ne relative humidity of the air leaving th	r a surface ear on this ne dryer (06)	
5B.	Justif	fy that wet bulb temperature is an inc	licator of water vapor content in the air	(02)	
5C.	Draw the connection diagram of heat pump components for heating mode (02)				
6A.	Write a short note on Usable Daylight Index(03)				
6B.	What are the factors that govern a glazing material? Explain their significance (
6C.	Explain briefly each of the access control components (04				



Electrical & Electronics Engineering