

Reg. No.									
----------	--	--	--	--	--	--	--	--	--



**MANIPAL INSTITUTE OF TECHNOLOGY**  
 Manipal University  
**VI SEMESTER B.Tech. (E & C) DEGREE END SEMESTER**  
**EXAMINATION - April/May 2017**  
**SUBJECT: Building Automation Systems (ECE - 4036)**

**TIME: 3 HOURS**

**MAX. MARKS: 50**

**Instructions to candidates**

- Answer **ALL** questions.
- Missing data may be suitably assumed.

1A.	With a neat diagram explain the typical networking architecture of BAS	
1B.	Explain the following display types: Group, Trend and Summary.	
1C.	With typical examples explain Process control and Sequence control	
		(5+3+2)
2A.	Describe Query – Response cycle in Modbus communication protocol.	
2B.	With neat figures explain the working of indirect operated solenoid valve.	
2C.	Describe stability and repeatability of sensors with examples	
		(5+3+2)
3A.	With relevant diagrams describe the Addressable fire panels using Bus and Ring topology.	
3B.	With relevant figure explain the working of Photoelectric smoke detectors	
3C.	What are the benefits of SCADA?	
		(5+3+2)
4A.	Describe the working of Constant volume single zone air conditioning system	
4B.	With a neat diagram explain the working of resistance temperature sensor	
4C.	Write the block diagram and mathematical expression for PID controller	
		(5+3+2)
5A.	Draw and explain the different layers in OSI reference model.	
5B.	What are the advantages and disadvantages of all air systems in air-conditioning	
5C.	Explain the different technologies employed sensing occupancy of a room	
		(5+3+2)