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MANIPAL INSTITUTE OF TECHNOLOGY  
Manipal University

**SIXTH SEMESTER B.TECH (E & C) DEGREE END SEMESTER EXAMINATION**  
**APRIL/MAY 2017**  
**SUBJECT: BUILDING AUTOMATION SYSTEM (ECE - 338)**

**TIME: 3 HOURS**

**MAX. MARKS: 50**

**Instructions to candidates**

- Answer any **FIVE FuLL** questions.
- Missing data may be suitably assumed.

- 1A. With relevant diagrams, describe analog and digital lighting control systems.
- 1B. Explain the different types of LAN topologies and also give their advantages.
- 1C. What are the advantages of Variable Air Volume system over Constant Air Volume HVAC systems?  
(5+3+2)
- 2A. Explain the functions of different types of card readers. Also describe Wiegand protocol
- 2B. Explain how interoperability is achieved in BAS.
- 2C. Give the services-based definition for Intelligent Building and also mentions some of the key issues.  
(5+3+2)
- 3A. Explain Dry pipe and Wet Pipe Sprinkler systems. Also mention their advantages and disadvantages.
- 3B. Describe the technologies and options employed for energy-effective lighting control.
- 3C. Describe Energy Management functions in BAS.  
(5+3+2)
- 4A. Describe Query – Response cycle in Modbus communication protocol.
- 4B. Explain the Facility management used in the Intelligent Buildings.
- 4C. Explain the significance of different fields of error frame in CAN bus.  
(5+3+2)
- 5A. Describe the working of CSMA/CD media access protocol with flow chart.
- 5B. What are the parameters to be considered while choosing actuators? List key parameters to be considered while choosing actuators. Also explain different types of actuators.
- 5C. Give the important features of Building Management System for Alarm Routing.  
(5+3+2)
- 6A. Explain the functions of each layer in OSI reference model.
- 6B. Why do we require dedicated air-conditioning system in operation theatres in hospitals? Give reasons.
- 6C. What are the advantages of having convergence networks in BAS.  
(5+3+2)