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MANIPAL INSTITUTE OF TECHNOLOGY  
Manipal University



**SIXTH SEMESTER B.Tech. (E & C) DEGREE END SEMESTER EXAMINATION  
MAY/JUNE 2016  
SUBJECT: BUILDING AUTOMATION SYSTEM (ECE - 338)**

**TIME: 3 HOURS**

**MAX. MARKS: 50**

**Instructions to candidates**

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

- 1A. Explain Dry pipe and Wet Pipe Sprinkler systems. Also mention their advantages and disadvantages.  
1B. Explain the Facility management used in the Intelligent Buildings.  
1C. Give the important features of Building Management System for Alarm Routing.  
(5+3+2)
- 2A. Explain the functions of each layer in OSI reference model.  
2B. Explain the application of wireless technologies in BAS.  
2C. Describe Energy Management functions in BAS.  
(5+3+2)
- 3A. Describe Query – Response cycle in Modbus communication protocol.  
3B. Explain how interoperability is achieved in BAS.  
3C. Explain the typical benefits of Dimming fluorescent lamps in commercial lighting systems.  
(5+3+2)
- 4A. With technical specifications, explain the DMX512-A lighting control protocol.  
4B. Describe the technologies and options employed for energy-effective lighting control.  
4C. Explain the significance of different fields of error frame in CAN bus.  
(5+3+2)
- 5A. Explain the functions of different types of card readers. Also describe Wiegand protocol  
5B. Describe the functions of i) Heat detectors and ii) Ionization detectors.  
5C. Describe any four benefits of sprinklers in BAS.  
(5+3+2)
- 6A. Describe all the processes involved in full air-conditioning.  
6B. Explain dual duct variable air volume HVAC system.  
6C. What are the advantages of using Internet technologies in the development of BAS.  
(5+3+2)