

# GBCS SCHEME



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15EC752

## Seventh Semester B.E. Degree Examination, Feb./Mar. 2022 IoT and Wireless Sensor Networks

Time: 3 hrs.

Max. Marks: 80

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Define IoT. Explain modified OSI model for IoT/M2M systems. (08 Marks)  
b. With a neat block diagram discuss several functions of IoT or M2M Gateway. (08 Marks)

OR

- 2 a. With a neat block diagram, discuss the message interchange between M2M/IoT device objects and web objects using MQTT Broker. (10 Marks)  
b. Explain Constrained Application Protocol for IoT/M2M. (06 Marks)

### Module-2

- 3 a. Discuss briefly 6 LOWPAN protocol stack. (08 Marks)  
b. With a neat block diagram discuss briefly IoT clause based data collection, storage and computing services using Nimbits. (08 Marks)

OR

- 4 a. Discuss various fields of IPV4 datagram. (08 Marks)  
b. List essential features, concern and deployment models of cloud computing. (08 Marks)

### Module-3

- 5 a. Explain traffic light control program using Arduino uno. (08 Marks)  
b. Discuss briefly the functional components of security as defined in IoT reference architecture. (08 Marks)

OR

- 6 a. Explain briefly layered attacker model and possible attacks using IETF model for IoT/M2M. (08 Marks)  
b. Discuss the steps for communicating sensed data to the applications and central controller for control of street lights using Eclipse implementation of MQTT. (08 Marks)

### Module-4

- 7 With a neat diagram of single sensor mode architecture briefly explain the Hardware components, Energy consumption, Operating system and execution environments. (16 Marks)

OR

- 8 a. Explain briefly the optimization goals and figure of merit of WSN. (08 Marks)  
b. Explain different types of service interface of WSN and their requirements. (08 Marks)

### Module-5

- 9 a. Discuss briefly physical layer and transceiver design considerations in WSN. (10 Marks)  
b. Explain briefly Address and name management in WSN. (06 Marks)

OR

- 10 a. Explain briefly  
(i) Design considerations for MAC protocols in WSN. (10 Marks)  
(ii) Low duty cycle protocol and wake up concepts. (10 Marks)  
b. With a neat diagram briefly explain the organization of rounds in LEACH protocol. (06 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.