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# CBCS SCHEME

17EC752

## Seventh Semester B.E. Degree Examination, June/July 2024 IoT and Wireless Sensor Networks

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Define IoT and explain with neat sketch, IoT reference model suggested by IBM? (08 Marks)
- b. Explain 4 layer architectural frameworks developed by CISCO for smart city. (06 Marks)
- c. With a neat sketch explain modified OSI model for the IoT/M2M system. (06 Marks)

OR

- 2 a. Explain Constrained Applications Protocol (COAP) for IoT/M2M applications. (06 Marks)
- b. Describe JAVA Script object example in JAVA (JSON). (06 Marks)
- c. List the features of thing speak and Nimbits. (08 Marks)

### Module-2

- 3 a. With neat sketch explain the internet connectivity protocols where source and end networks layer connected through set of IP routers. (06 Marks)
- b. Explain the features of internet protocol versions-4 (IPv4) and version-6 (IPv6). (08 Marks)
- c. Explain the significance of IP addressing and discuss the types of IP addressing. (06 Marks)

OR

- 4 a. Explain the main characteristics of cloud computing. (06 Marks)
- b. With a neat sketch explain different cloud computing service models. (08 Marks)
- c. Explain IoT cloud based data collection, storage and computing services using Nimbits. (06 Marks)

### Module-3

- 5 a. Write and explain traffic light control programming code. Using Aduino UNO at the road junction without any intervals by considering suitable inputs. (10 Marks)
- b. Explain in Brief Eclipse IoT stack. (10 Marks)

OR

- 6 a. Explain with the help of neat sketch the five levels for software development for applications and services? (10 Marks)
- b. Describe briefly how data is read from the sensors and devices. (10 Marks)

### Module-4

- 7 a. Explain the characteristics requirement of a wireless sensor networks. (10 Marks)
- b. Explain in detail the sensor node hardware components. (10 Marks)

OR

- 8 a. What are the enabling technologies for wireless sensor networks? (10 Marks)
- b. Explain optimization goals and figure of merit referred to WSN. (10 Marks)

Module-5

- 9 a. With relevant diagram explain LEACH protocol. (10 Marks)  
b. Explain the most crucial points influencing physical layer as WSN. (10 Marks)

OR

- 10 a. With neat schematic diagram explain CSMA protocol in detail. (10 Marks)  
b. Explain SMAC protocol in detail. (10 Marks)

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