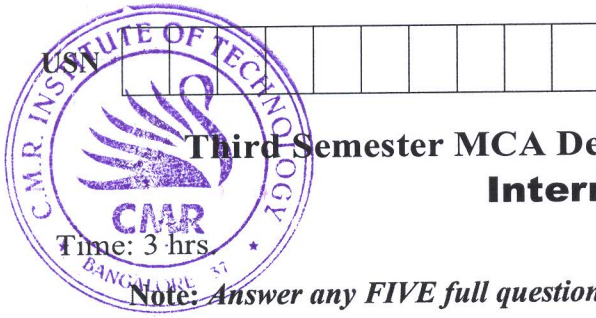


CBCS SCHEME

20MCA32



Third Semester MCA Degree Examination, June/July 2023 Internet of Things

Max. Marks: 100

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

Module-1

- 1 a. Define IOT. Explain Evolutionary phases of Internet. (10 Marks)
b. Explain one M2M IOT standardized architecture with a neat diagram. (10 Marks)

OR

- 2 a. With a neat diagram, explain a simplified IOT architecture. (10 Marks)
b. Illustrate the challenges of IOT and their impact, with any 1 example. (10 Marks)

Module-2

- 3 a. Discuss and explain different types of sensors. (12 Marks)
b. Define smart objects. Explain its characteristic. (08 Marks)

OR

- 4 a. What is Zigbee? Explain 802.15.4 physical layer, MAC layer and security. (10 Marks)
b. Define Wireless Sensor Network (WSNs). Discuss the limitations of the smart object in WSNs. (05 Marks)
c. With a neat diagram, explain data aggregation in wireless sensor network. (05 Marks)

Module-3

- 5 a. List and explain the key advantage of internet protocol. (10 Marks)
b. What is COAP? Draw COAP message format? Explain its field. (10 Marks)

OR

- 6 a. With a neat diagram, explain 6 LOWPAN protocol header compression and fragmentation. (10 Marks)
b. Describe MQTT framework and message format in detail. (10 Marks)

Module-4

- 7 a. Discuss Bigdata analytics tools and technology. (10 Marks)
b. Explain neural network in machine learning with a detailed example. (10 Marks)

OR

- 8 a. Describe the components of flexible Net Flow Architecture (FNF). (10 Marks)
b. Discuss some of the common challenges in OT security. (10 Marks)

Module-5

- 9 a. Write a python program on Raspberry Pi to blink an LED. (08 Marks)
b. Explain Arduino uno micro controller. List technical specification of Arduino uno. (06 Marks)
c. Explain the interfaces of Raspberry Pi. (06 Marks)

OR

- 10 a. Explain the following with respect to Arduino programming:
i) Structure ii) Functions iii) Variables iv) Flow control statements v) Digital I/O
vi) Constants. (12 Marks)
b. Explain in detail about smart city IOT architecture. (08 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.