



U.S.N

--	--	--	--	--	--	--	--	--	--

P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Second Semester, M.Tech. - Computer Science and Engineering (MCSE)

Semester End Examination; May / June - 2019

Foundations for Internet of Things

Time: 3 hrs

Max. Marks: 100

Note: Answer FIVE full questions, selecting ONE full question from each unit.

UNIT - I

- 1 a. Discuss in detail the various IoT communication models and communication API's with suitable examples. 10
- b. Discuss how the following concepts are related to IoT with suitable examples; 10
- i) Wireless Sensor Networks (WSN) ii) Cloud computing
- 2 a. Differentiate between M2M and IoT with suitable examples. 10
- b. Explain how IoT can be used in the following industries with suitable examples; 10
- i) Logistics ii) Health and Lifestyle

UNIT - II

- 3 a. Explain in detail the various IoT physical devices and endpoints with suitable examples. 10
- b. Discuss the following key IoT technologies with suitable examples; 10
- i) Communication capabilities ii) Sensor technology iii) RFID technology
- 4 a. Explain the process of interfacing an LED and switch with Raspberry pi. 10
- b. Discuss the concept of controlling the output and reading input from pins of a Raspberry pi. 10

UNIT - III

- 5 a. Explain the concepts of NFC in a healthcare environment setting. 10
- b. Discuss in detail on how Bluetooth can be used as IoT communication reference architecture? 10
- 6 a. Write short notes on; 10
- i) 6Lo WPAN ii) UWB (IEEE 802.15.4)
- b. Explain the IoT application protocol MQTT with a neat sketch. 10

UNIT - IV

- 7 a. Discuss in detail the various cloud storage models with suitable examples. 10
- b. Explain Amazon S3 and Amazon RDS in detail. 10
- 8 a. Discuss the concept of designing a RESTful Web API with a suitable example. 10
- b. Explain how AWS (Amazon Web Services) is used for IoT applications. 10

UNIT - V

- 9 a. Discuss in detail the architecture of Arduino with a neat sketch. 10
- b. Explain how IoT can be used in forest fire detection with suitable examples? 10
- 10 a. Discuss the process of interfacing sensors and actuators using Arduino board. 10
- b. Explain in detail how Arduino can be used in air pollution monitoring with suitable examples? 10

* * * *