

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|



P.E.S. College of Engineering, Mandya - 571 401
 (An Autonomous Institution affiliated to VTU, Belagavi)
Eighth Semester, B.E. - Electronics and Communication Engineering
Semester End Examination; May / June - 2019
Internet of Things and Applications

Time: 3 hrs

Max. Marks: 100

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

UNIT - I

- | | | |
|------|---|----|
| 1 a. | List all application layer protocols in Internet of Things and explain any four. | 10 |
| b. | Describe how knowledge is inferred from the sensed data? | 5 |
| c. | With a neat sketch, explain Internet of Things functional blocks. | 5 |
| 2 a. | Define Internet of Things (IoT). Explain the characteristics of Internet of Things. | 10 |
| b. | List all the Internet of Things communication model and explain; | 10 |
| | i) Request-Response model ii) Push-Pull model | |

UNIT - II

- | | | |
|------|---|----|
| 3 a. | Describe in brief the structural aspects of Internet of Things. | 10 |
| b. | Discuss the areas requiring standardization in connecting entities across an interface. | 6 |
| c. | List the features defined for Machine-Type communication. | 4 |
| 4 a. | Discuss any four key technologies in Internet of Things. | 8 |
| b. | Write short note on; | 8 |
| | i) ZigBee IP ii) IP in Smart Objects | |
| c. | Mention the features of Constrained Application Protocol (CoAP). | 4 |

UNIT - III

- | | | |
|------|---|---|
| 5 a. | Explain in brief WPAN technologies for IoT and list various network topologies applicable to personal low-power radio networks. | 8 |
| b. | Explain the BLE technology and sketch the structure of a BLE packet. | 8 |
| c. | Depict the Evolved Packet Service Network architecture. | 4 |
| 6 a. | Explain the Near-Field Communications (NFC) technology for IoT / M2M. | 6 |
| b. | With a neat sketch of IPv6 packet, list the basic protocol capabilities. | 6 |
| c. | Explain IPv4 tunneling with relevant figure. | 8 |

UNIT - IV

- | | | |
|------|---|----|
| 7 a. | Explain the steps involved in designing Internet of Things. | 12 |
| b. | Discuss the characteristics of Python programming language. | 8 |
| 8 a. | Explain in brief Python Data types and Data structure. | 10 |
| b. | Discuss the various control flow statements in Python. | 10 |

UNIT - V

- 9 a. With a neat block diagram, explain basic building blocks and attributes of an IoT device. 8
- b. List and brief all the peripherals and key components available on Raspberry Pi board. 6
- c. Explain the different interfaces available in Raspberry pi board and mention the various Linux operating systems it supports. 6
- 10 a. Explain the key concepts of Web Application Messaging Protocol (WAMP). 10
- b. Describe home intrusion system with a neat flow diagram of process specification of home intrusion system. 10

* * * *