Registration No : | | | | | | | | | | |

Total Number of Pages : 02 **B.Tech**
RIT7D001

7th Semester Reg/Back Examination: 2025-26
Internet of Things
AE, AEIE, AERO, BIOMED, BIOTECH, C&EE, CIVIL, CSE, CSEAIML, CSEDS, CSIT, CST, ECE, EEE, EIE, ELECTRICAL, ELECTRONICS & C.E, ETC, IT, MANUTECH, MECH, METTA, MINERAL, MME, MMEAM, PLASTIC
Time : 3 Hour
Max Marks : 100
Q. Code : U048
Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.
The figures in the right hand margin indicate marks.

Part-I

Q1 **Answer the following questions:** **(2 x 10)**

a) Define the Internet of Things (IoT).
b) List any two characteristics of IoT.
c) What are “things” in IoT?
d) Name any two IoT communication models.
e) Write the meaning of IoE (Internet of Everything).
f) Define Wireless Sensor Network (WSN).
g) Give two examples of Smart City-based IoT applications.
h) Define “IoT Deployment Template”.
i) What do understand by Embedded Systems?
j) What is Bluetooth Low Energy (BLE)?

Part-II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** **(6 × 8)**

a) Explain the Communication Protocols used for IoT?
b) How in Surveillance and Emergency Response IoT can be useful?
c) Discuss IoT enabling technologies with examples.
d) Explain smart home IoT applications.
e) Illustrate the role of IoT in retail and logistics.
f) Describe smart agriculture using IoT with examples.
g) Compare IoT and M2M with proper justification.
h) Explain the role of visualization tools in IoT data analytics.
i) What are the usefulness of range extension techniques like data mining and mesh networking.
j) Explain information model specification with an example.
k) Explain different IoT devices: BeagleBone Black, Cubieboard, pcDuino.
l) Explain how to interface an LED and LDR with Raspberry Pi.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3 Explain the complete IoT architecture starting from physical devices to cloud-based analytics. Include protocols, APIs, enabling technologies, and deployment levels with diagrams. **(16)**

Q4 Describe the architecture and programming of Raspberry Pi in IoT. Include: **(16)**

- Hardware architecture
- Serial, SPI, I2C interfaces
- Python programming examples
- Sensors and actuator interfacing diagrams

Q5 Explain Industry 4.0, data-intensive IoT, mesh networking, and RFID. Discuss how these technologies together enable modern large-scale IoT deployments. **(16)**

Q6 Explain how Big Data, Cloud Computing, SDN, and NFV integrate to form a scalable IoT ecosystem. Provide a layered reference architecture and discuss challenges. **(16)**