

- Note: 1. Question 1 is compulsory
2. Answer any three out of remaining questions
3. Assume suitable data where required

Q1 Solve any 4

- a) Explain Bluetooth Low Energy(BLE) role 5
- b) Briefly elaborate the COAP 5
- c) Explain data retention strategy. 5
- d) Explain the concept of I-IoT and its similarity with IoT 5
- e) Explain the characteristic of IoT 5

Q2

- a) How can IoT analytics be effectively utilized within IoT-based healthcare systems? Additionally, what are some essential parameters that should be incorporated into the patient dashboard for comprehensive monitoring and management of health data? 10
- b) Evaluate long-range communication systems and protocols such as LTE, LTE-A, LoRa, and LoRaWAN in the context of IoT connectivity. Discuss their suitability for different IoT use cases based on factors like coverage, data rate, power consumption, and scalability. 10

Q3

- a) Define the role of analytics in IoT technology and elaborate the challenges associated with it. 10
- b) Elaborate the need of new network architecture in IoT. 10

Q4

- a) Compare edge, fog and cloud computing w.r.to its hierarchy. 10
- b) Consider smart smoke detection system. Elaborate its working and list down the different types of sensors and actuators required during the deployment scenario. 10

Q5

- a) Explain the role of HTTP, WebSocket, and MQTT in IoT communication. Compare and contrast these protocols in terms of their characteristics, suitability for different IoT scenarios, and support for real-time data transmission. 10
- b) Discuss the functional blocks of IoT architecture, highlighting their roles and interactions. Provide examples to illustrate the importance of each block in the overall functionality of IoT systems. 10

Q6

- a) Elaborate the Smart Object with diagram and describe its characteristics. 10
- b) Explain the following access technologies with applications area of each 10
 - 1) IEEE 802.15.4 2) Z-wave 3) LTE-A
