

[Time: 3 Hours]

[Max. Marks: 80]

**Instructions:**

- 1) Attempt any **Four questions**.
- 2) All questions carry equal marks.
- 3) Figures to the right indicate full marks.
- 4) Illustrate your answers with neat sketches wherever necessary.
- 5) Assume suitable additional data, if necessary and clearly state it.

- Q.1** (a) Discuss IOTWF Standardized Architecture. **10**  
 (b) Define IoT. Explain the characteristics of IoT. **05**  
 (c) Compare and contrast – COAP and MQTT protocol. **05**
- Q.2** (a) Discuss the following IoT Protocols- **10**  
 i.) RFID  
 ii.) WiFi  
 iii.) LowPAN  
 iv.) BLE  
 v.) Zigbee  
 (b) Define - Smart objects in IoT. Discuss characteristics and trends of smart object. **05**  
 (c) Differentiate between Edge Computing and Fog Computing. **05**
- Q.3** (a) Discuss the different strategies to organize data for IoT analytics. **10**  
 (b) Write any 5 points of comparison between – Arduino vs. Raspberry Pi **05**  
 (c) Write short note on – Analytics Vs. Control applications. **05**
- Q.4** (a) Design IoT application for Home Automation considering smart lighting and home intrusion detection. Explain the proposed architecture and different components used for the same. **10**  
 (b) Define IoTAnalytics. Discuss IoT analytics challenges. Also explain IoT analytics for cloud. **05**  
 (c) What is the significance of data visualization in IoT and data analytics? How Dashboarding is it designed for data visualization? **05**
- Q.5** (a) State and explain in brief the 3 layers in Core IoT Functional block with diagram. **10**  
 (b) State and explain -Data Analytics vs. business benefits. **05**  
 (c) Differentiate between IoT and IIoT. **05**
- Q.6** (a) Propose an IoT application design for Smart Cities with respect to smart parking and smart health monitoring. Discuss the components used for its implementation. **10**  
 (b) Explain various IoT data visualization tools and techniques. **05**  
 (c) Write short note on – AMQP. **05**