

Time: 3 Hours

Max. Marks: 80

**Instructions:**

- 1) Attempt any Four question out of six questions.
- 2) All question carries equal marks.
- 3) Illustrate your answers with neat sketches wherever necessary.
- 4) Figures to the right indicate full marks.
- 5) Assume suitable additional data, if necessary and clearly state it.
- 6) All sub-questions of the same question should be grouped together.

- Q.1** (a) What is IoT? Compare with suitable criterion between Operational Technology (OT) and Information Technology (IT). 10
- (b) With suitable examples, explain the types of sensors used in IoT systems. 10
- Q.2** (a) Explain the Smart Things: architectural classification considering Layer 1 Things-Sensors and Actuators Layer. 10
- (b) Give the Categories of IoT application protocols and their transport methods. Describe the factors should be considered when selecting a transport layer for an IoT application layer protocol. 10
- Q.3** (a) Discuss the application of IoT in Cities. 10
- (b) Compare with suitable factors Microsoft Azure IoT and Google Cloud IoT used as IoT Software platforms. 10
- Q.4** (a) Give the function of each layer of a seven-layer IoT architectural reference model published by IoTWE architectural committee. world forum 10
- (b) Explain the Enabling IoT Technologies. 10
- Q.5** (a) Explain Gateways and Backhaul Sublayer considering Layer 2: Communications Network Layer in IoT. 10
- (b) Give the key components of a SCADA system. Describe CoAP message fields. 10
- Q.6** (a) Describe the application of IoT in Environment. 10
- (b) Compare with suitable factors Particle Photon with ESP32 used for IoT application development. 10

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