

Duration: 3hrs

[Max Marks:80]

- N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

- 1** Attempt any FOUR **[20]**
- a List and Draw security functional group components in IoT reference architecture **[5]**
 - b Examine how the following sensors can be used as a part of sensing technology in IoT application design 1) Ultrasonic sensors 2) Accelerometer 3) GPS sensor **[5]**
 - c Describe why connecting smart objects are different from connecting regular devices such as a laptop? **[5]**
 - d Explain features of SQL. **[5]**
 - e Compare IoT deployment level 1 and level 6. **[5]**
- 2** a Considering smart city application explain characteristics of IoT. **[10]**
b Compare and contrast various phases of data analytics. **[10]**
- 3** a Describe how LoRaWAN improves battery lifetime. **[10]**
b Explain various interfaces available in Raspberry Pi. **[10]**
- 4** a Explain IoT security requirements. **[10]**
b Classify IoT communication models and briefly explain each. **[10]**
- 5** a List steps involved in IoT system design methodology. Explain domain model specification for home automation application. **[10]**
b Explain MQTT protocol with an example highlighting functions of broker. **[10]**
- 6** a Describe various cloud service models. **[10]**
b Draw the layered attacker model and explain possible attacks in IoT/M2M **[10]**