22679

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answer with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1.   **Attempt any FIVE of the following:**   **10**

a) Define IoT.

b) Define middleware.

c) List the steps involved in the designing of an IoT system.

d) List any four IoT devices.

e) Draw a labelled diagram of IoT based smart lighting w.r.t., home automation system.

f) List any four security challenges of IoT.

g) Draw the block diagram of RFID system components.

Marks

2. Attempt any THREE of the following: 12

a) Explain IoT functional block with neat diagram.

b) Explain SCADA middleware architecture with neat diagram.

c) State the "Purpose and Requirements Specification" for IoT design Methodology.

d) State and explain any four parts which will be used on the Raspberry Pi board for any given application.

3. Attempt any THREE of the following: 12

a) Explain IoT Level 4 with neat diagram w.r.t. home automation.

b) Draw and explain the WSN middleware architecture.

c) Explain domain model specification w.r.t., IoT design methodology.

d) List and Explain Raspberry Pi interface.

4. Attempt any THREE of the following: 12

a) Explain REST based API.

b) Explain operational view specification w.r.t., IoT design methodology.

c) Explain building block of IOT device with neat block diagram.

d) List and Explain Raspberry Pi interfaces.

5. Attempt any TWO of the following: 12

a) Explain IoT level 6 with neat diagram w.r.t. IoT based home automation based application.

b) List RFID frequency ranges for different applications.

c) i) Write a program for controlling / switching LEDs with Raspberry Pi.

ii) "Turn on LED for 1 sec after every 2 seconds" For a given problem statement, list the frequently used commands on Raspberry Pi with its function.

Marks

6. **Attempt any TWO of the following:** **12**

a) Explain the following key concepts of WAMP.

   i) Transport

   ii) Section

   iii) Client

   iv) Router.

b) To make a smart city, IoT based smart water management system is installed. Explain its working with neat diagram.

c) Explain IoT-based Renewable Energy System with neat diagram.

————