Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 30149

M.C.A. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Third Semester

MC 4302 – INTERNET OF THINGS

(Regulations 2021)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the role of controller service in an Iot system?

2. What is the difference between embedded sys and IoT system?

3. List few protocols used in M2M.

4. Mention any two major issues relevant to IoT standardization.

5. What is Raspbian OS?

6. What is Broadcom Numbering (BCM) of Raspberry Pi?

7. Why is data aggregation needed for IoT applications?

8. What are FP7 projects?

9. List some features on smart manufacturing.

10. What is a middleware in Iot?

PART B — (5 × 13 = 65 marks)

11. (a) List the two communication APIs of IoT. Explain the them in detail.

Or

(b) Describe an example of IoT service that uses publish subscribe communication model.

12. (a) Explain the communication protocols that are used for M2M local area networks in detail.

Or

(b) What are the purposes of BACNet protocol and KNX. Explain in detail.

13. (a) (i) Explain various interfaces available in Raspberry Pi with appropriate examples. (7)

(ii) Write a simple Arduino program to blink a LED with 500 msec, delay in between 'ON' and OFF'. (6)

Or

(b) (i) What are the differences in hardware and software serial in Arduino? Explain each with appropriate application. (7)

(ii) Write a simple Arduino program to read the analog joystick value and display the direction of joystick on serial Monitor. (6)

14. (a) Discuss the importance of the terminologies 'Trust for IoT' and 'Privacy for Iot'.

Or

(b) Brief a methodology to obtain secured platforms for smart cities. And also explain the process of data aggregation for the Iot in smart cities.

15. (a) What are Iot Smart-X applications? List a few and explain any one in detail with a diagram.

Or

(b) Explain the future factory concept of IoT in detail with appropriate mind map or flow diagram.

PART C — (1 × 15 = 15 marks)

16. (a) Determine the IoT levels for designing home automation IoT systems including smart lighting and intrusion detection. Explain with neat diagram.

Or

(b) Design a simple IoT application using Digital I/O in RPi3 with suitable connection diagram. Write and explain a suitable python script for the same.
