Printed Pages: 01 **Sub Code: KCA-043**

Paper Id: 236598 **Roll No.** | | | | | | | | | | |

MCA
(SEM IV) THEORY EXAMINATION 2022-23
INTERNET OF THINGS

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

(a) What are the components of IoT.
(b) What is wireless sensor network?
(c) Which of the communication protocols are used by IoT?
(d) Why we use arduino?
(e) Explain Smart Metering in brief.
(f) What is IoT? Describe in detail about IoT ecosystem
(g) Define Actuator.
(h) What is data aggregation.
(i) How to declare a function in arduino programming?
(j) Explain E-health.

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

(a) Explain about Industrial Internet of things (or IoT).
(b) Discuss the different types of sensors used in IoT network?
(c) Discuss the protocol used to link all the devices in the IoT? Explain in detail.
(d) Explain about the Arduino IDE.
(e) Explain the design challenge in IoT.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the various emerging IoT applications.
(b) Explain the characteristics of wireless sensor network.

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) Describe in detail with suitable example CoAP and MQTT protocols used in application layer.
(b) Explain the all the features provided by python in IoT development.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the security challenges in IoT.
(b) Express how to organizing and analytics in IoT/M2M?

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain wireless sensor network architecture and its applications.
(b) Discuss the issues in scaling up the software for large scale IOT devices.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) Discuss control statements? Explain all the arduino control statements with syntax.
(b) Discuss environmental cost of internet service for IOT device and its the solution?

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