

Total No. of Questions : 8]

SEAT No. :

P-459

[Total No. of Pages : 2

[60031-566

T.E.

(Honors in Internet of Things)

EMBEDDED SYSTEMS AND INTERNET OF THINGS

(2019 Pattern) (Semester-I) (310601)

Time : 2½ Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7, or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Assume suitable data, if necessary.
- 4) Use of Non-Programming scientific Calculator is allowed.

Q1) a) What are the active and passive types of sensors? Discuss and provide suitable examples. [6]

b) Draw and describe the components of Raspberry Pi development board. [6]

c) What is the need of interfacing of sensors with development boards? How is it done? [5]

OR

Q2) a) List and explain various features of the Arduino board in detail. [6]

b) What are the analog digital types of sensors? Discuss and provide suitable example. [6]

c) Explain the working of pressure sensor with neat block diagram. [5]

Q3) a) What is the need of Integrated Development Platform for application development? Explain with suitable example. [6]

b) Describe any one open-source IDE for ES application development. [6]

c) List the phases of SDLC. Explain SDLC requirements in detail. [5]

OR

Q4) a) What are the limitations of IDEs for ES applications? Discuss disadvantages of open source IDEs for ES applications. [5]

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- b) Explain Design, Components and Coding requirements of embedded systems applications? [6]
  - c) What are the testing and deployment requirements of embedded systems applications? [6]
- Q5)** a) Define Internet of Things (IoT). Enlist and explain its characteristics.[6]
- b) With the help of neat diagram, explain technical building blocks of IOT. [6]
  - c) Write a brief note on communication models of IOT and Communication APIs [6]

OR

- Q6)** a) Draw and distinguish between physical design and logical design of IoT. [6]
- b) Enlist and explain issues and challenges of IOT. [6]
  - c) Explain IoT functional blocks in detail. [6]
- Q7)** a) Explain the usability of MQTT protocol for IoT applications. Comment on the QoS supported in MQTT [6]
- b) Define Radio-Frequency Identification. Explain the role of Radio-Frequency Identification in Internet of Things. [6]
  - c) List different IoT enabling technologies which play a key-role and explain any one of them. [6]

OR

- Q8)** a) What is CoAP? How it is suitable for IoT applications? Discuss in detail. [6]
- b) Write a short note on AMQP protocol for IoT. [6]
  - c) Write a short note on “Zigbee” protocol. [6]

