

Total No. of Questions : 8]

SEAT No. :

PB4011

[6262]-364

[Total No. of Pages : 2

T.E. (Honors) (Computer Engineering)
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-programmable scientific calculator is allowed.

- Q1)** a) Draw and describe the components of Arduino. [6]
b) What are the analog and digital types of sensors? Discuss and provide suitable examples. [6]
c) Explain the working of sensors and different types of sensors. [5]

OR

- Q2)** 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]

- Q3)** a) What are the limitations of IDEs for ES applications? Discuss disadvantages of open-source IDEs for Es applications. [5]
b) Explain Design, Components and Coding requirements of embedded systems application? [6]
c) What are the testing and deployment requirements of embedded systems applications? [6]

OR

- Q4)** 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) Explain SDLC-Requirements of embedded systems application? [5]

P.T.O.

- Q5)** 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]

OR

- Q6)** 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]

- Q7)** 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]

OR

- Q8)** 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 and explain any 3 communication technologies used in IoT. [6]

