Total No. of Questions : 8]

SEAT No. : ____

P6519

[Total No. of Pages : 2

[5870]-1208

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 Calculators 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) 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]**

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

OR

Q4) 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]**

P.T.O.

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

OR

Q8) a) What is CoAP? How it is suitable for IoT application? Discuss in detail. **[6]**

b) Write a short note on AMQP protocol for IoT. **[6]**

c) Write a short note on "Zigbee" protocol. **[6]**

❖ ❖ ❖