[5353]-588

T.E. (Computer Engineering) (Semester - II)
EMBEDDED SYSTEM & INTERNET OF THINGS
(2015 Pattern)

Time : 2.30 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

   1)   *Answer any five questions Q1 or Q2, Q3 or Q4,Q5 or Q6, Q7 or Q8, Q9 or Q10.*

   2)   *Assume Suitable data wherever necessary.*

   3)   *Figures to the right indicate full marks.*

   4)   *Draw neat & labelled diagram wherever necessary.*

Q1) a)   What are the different characteristics that an embedded system should possess?   **[5]**

    b)   Compare REST-based communication and WebSocket communication API   **[5]**

OR

Q2) a)   Explain the steps involved in the IoT system design methodology.   **[4]**

    b)   Why do IoT systems have to be self-adapting and self-configuring? **[2]**

    c)   Explain WSN (the internet of transducers) pillar of IoT.   **[4]**

Q3) a)   What is SCADA ? What are the different blocks of SCADA   **[5]**

    b)   Explain Functional view specification step of IoT system design methodology, consider smart IoT-based home automation system as an example.   **[5]**

OR

Q4) a)   With the help of appropriate diagram explain WebSocket-based communication APIs   **[3]**

    b)   Draw and explain block diagram of an IoT device.   **[4]**

    c)   What is Raspberry Pi? Explain 4 features of it   **[3]**

Q5) a) What are the different topology of 802.15.4? Explain with suitable diagram. **[6]**

b) What is BACnet? Explain the different layers function **[6]**

c) What are the challenges for securing IoT **[4]**

OR

Q6) a) Explain the Zigbee architecture with suitable diagram **[6]**

b) What are the issues with IoT Standardization, **[4]**

c) What is KNX? Explain KNX-TP features, its Telegram **[6]**

Q7) a) What is Web of Things (WOT) ? What are the two pillars of the web? Explain in brief. **[6]**

b) Explain the key elements of the ETSI M2M architecture. **[6]**

c) Explain Cloud of Things Architecture. **[5]**

OR

Q8) a) Explain Cloud Middleware Architecture. **[6]**

b) Explain RFID middleware standards? **[6]**

c) Explain unified multitier WOT Architecture in details. **[5]**

Q9) a) Design Weather Monitoring system, what are the different components required? draw deployment design for this system **[6]**

b) Write short note on **[6]**

   i) Amazon Auto Scaling

   ii) Xively Cloud for IoT

c) Explain python web application framework - Django. **[5]**

*Q10)*a) Explain WAMP and its key concepts with diagram. **[5]**

b) Explain in brief Model, Template and View in Django architecture **[6]**

c) Design Air Pollution Monitoring(APM) based on followings **[6]**

    i) Define process specification for APM IoT system

    ii) Domain model of APM IoT system

    iii) Information model of APM IoT system

    iv) Controller service of APM IoT system

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