Paper : SEC-A-2

(IoT)

Full Marks : 80

Answer question no. 1 and any four questions from the rest.

1. Answer *any ten* questions : 2×10

    (a) What is Network Function Virtualization (NFV)?

    (b) What is GPIO?

    (c) What do you mean by APIs?

    (d) List the basic building blocks of an embedded system.

    (e) Write the different characteristics of IoT.

    (f) Why are physical addresses required in case of smart sensors?

    (g) Differentiate between smart sensor and normal sensors.

    (h) What is SDN? How different is it from the traditional network architectures?

    (i) Name a few IoT tools.

    (j) Explain the role of Web Servers in IoT.

    (k) Describe briefly about MAC protocols for IoT devices.

    (l) Define the term 'Digital Twin' in the context of IoT.

    (m) How can we improve the health sector using IoT techniques?

    (n) Define the term 'Smart home' in the context of IoT.

2. (a) Draw the basic diagram of a Sensor node and explain with proper diagram.

    (b) Explain in brief about the different interfacing and communicating techniques used in Raspberry Pi with suitable example. 8+7

3. (a) What is the role of Cloud computing in IoT devices? Describe in detail.

    (b) What is the importance of sensors in IoT? Explain with proper illustration. 8+7

4. (a) What do you mean by Fog? Why is it required? Describe it with appropriate diagram.

    (b) What are the different cloud model deployments? 7+8

5. (a) Explain the flooding protocol for routing in wireless sensor network with proper illustration.

    (b) Draw the IoT reference model and explain each layer in brief. 8+7

Please Turn Over

6. (a) Why is I2C communication preferred over UART and SPI? Explain with suitable example.

    (b) What are the different problems associated with wireless networks?

    (c) What is exposed and hidden node problem in Wireless Sensor Network (WSN)?   6+5+4

7. (a) Examine the role of Python web application frameworks in IoT development.

    (b) Describe the Wireless Sensor Network (WSN) architecture in brief along with suitable diagram.

    (c) How different is ad-hoc mobile network from wireless sensor network?   5+5+5

8. (a) Differentiate between IoT and machine to machine communication.

    (b) Highlight the advantages of SaaS.

    (c) What do you understand by Data Aggregation in IoT?   6+5+4

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