2021

COMPUTER SCIENCE — HONOURS

Paper : SEC-A-2

(IoT)

Full Marks : 80

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Answer ***question number*** **1** and ***any four*** from the rest.

1. Answer ***any ten*** questions : 2×10

(a) Define cloud computing.

(b) List layers of IoT protocol stack.

(c) What is data aggregation?

(d) State the advantages of PaaS.

(e) What is the role of Network Service Capability Layer (NSCL)?

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

(g) Defferentiate between smart sensor and simple sensors.

(h) Define GPIO.

(i) What is MQTT?

(j) What is Nimbits?

(k) What are the basic blocks in an embedded system?

(l) What is an API?

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

(n) Name a few modules and packages in Python.

2. (a) Briefly explain the concept of internet of things with a suitable example.

(b) Explain different cloud Service Models.

(c) Explain in brief about the different interfacing and communicating techniques used in Raspberry Pi with suitable example. 5+5+5

3. (a) Describe the secure authentication and access control in constrained devices.

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

(c) What is IoT? Describe in detail about IoT ecosystem. 5+5+5

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

(b) Explain how List dictionary are used in Python.

(c) Describe any two web communication protocol. 5+5+5

5. (a) Write short notes on IoT platforms and Operating systems.

(b) Name different routing protocols in wireless Sensor Network.

(c) Explain different cloud Service Models. 5+5+5

6. (a) Differentiate between Rasphberry Pi and Ardunio with respect to IoT applications.

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

(c) Discuss key challenges of Fog based IoT. 5+5+5

7. (a) Explain how IoT techniques have improved surveillance.

(b) Write short notes on security challenges in IoT.

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

8. (a) How are different modules available in Python can be used in implementation of IoT?

(b) Explain the significance of using scheduler in RTOS.

(c) Explain a sensor node with neat diagram. 5+5+5