2020

COMPUTER SCIENCE — HONOURS

Paper : SEC-A-2

(Internet of Things)

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 no. 1** and **any four** from the rest.

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

   (a) State any two characteristics of IoT systems.

   (b) State any two wireless protocols used in IoT networks.

   (c) What is SaaS?

   (d) What is SPI?

   (e) What is local analytics in context to IoT?

   (f) Mention few security challenges of IoT.

   (g) What is Nyquist sample rate?

   (h) What do you mean by Edge Computing?

   (i) What do you understand by Software Defined Network (SDN)?

   (j) What are packages in Python?

   (k) Mention two common types of sensor with their use.

   (l) What is a MAC address?

   (m) What is GPIO?

2. (a) Compare the main characteristics of M2M and IoT.

   (b) Explain the issues of IoT security.

   (c) Explain with an example how lists are implemented in Python.   8+4+3

3. (a) Explain the fundamental building/blocks of IoT network.

   (b) Discuss about routing for IoT devices.

   (c) What is the role of databases in IoT Analytics?   5+5+5

Please Turn Over

4. (a) Discuss about some of the industrial applications of IoT.

   (b) Explain the role of gateways for data management in IoT networks.

   (c) What are different communication models of IoT? 5+5+5

5. (a) Discuss about the key differences between SDN and NFV.

   (b) What is IEEE 802.15.4 protocol? How is it related to IoT?

   (c) Briefly discuss about Raspberry Pi and its use in IoT. 5+5+5

6. (a) Discuss on the role of data aggregation in IoT networks.

   (b) Discuss some of the applications of IoT in surveillance.

   (c) What is a sensor node? Explain with proper diagram. 5+5+5

7. (a) Explain different Layers of IoT reference model with example.

   (b) Explain the different service and deployment modes with respect to cloud implementation.

   (c) Explain two key difference between traditional Network and IoT. 5+8+2

8. (a) What do you understand by Embedded syscoms and what is their connection with IoT?

   (b) Explain the I2C interface.

   (c) Explain about IDE programming steps for Raspberry-Pi devices. 6+4+5

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