

2022

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

1. Answer **any ten** questions : 2×10
- (a) Define IoT.
 - (b) Discuss two important characteristics of IoT.
 - (c) Explain what is thing in context of IoT.
 - (d) How M2M Systems and IoT are different in terms of communication protocol?
 - (e) Explain two shortcomings of traditional networks that are improved by SDN.
 - (f) What is the difference between Python packages and modules?
 - (g) What is GPIO?
 - (h) Mention two sensors and their use.
 - (i) List the basic building blocks of an embedded system.
 - (j) Explain local analytics in context to IoT.
 - (k) List two tools of IoT, briefly describing the usage.
 - (l) Does IoT Devices need MAC Address? Discuss.
 - (m) What are the roles of IoT Devices?
2. (a) Describe the functional blocks of an IoT system with a neat diagram.
(b) Explain the applications of IoT in home automation. 8+7
3. (a) Explain the key elements of SDN.
(b) Explain the basic building element of IoT Devices. 7+8
4. (a) Describe briefly about cloud storage model.
(b) Why is the Python most preferred in IoT implementations?
(c) Mention the different wireless medium access issues. 4+6+5

Please Turn Over

5. (a) How is virtualization of IoT devices done using NVF?
(b) Explain UART communication in Raspberry Pi using suitable example.
(c) How are databases used by IoT devices? 5+8+2
6. (a) How are IoT devices and applications used for the purpose of surveillance?
(b) Explain the different security challenges in IoT systems. 8+7
7. (a) Discuss about different IoT Operating Systems and platforms.
(b) Describe a sensor node with a diagram.
(c) Briefly discuss some of the Industry applications of IoT. 7+5+3
8. (a) Discuss about the physical design of an IoT Device.
(b) Why edge connectivity is required for IoT Devices?
(c) Are routing protocols different for IoT? Discuss. 6+6+3
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