



SPRING END SEMESTER EXAMINATION-2023
6th Semester B.Tech

INTERNET OF THINGS

IT 3007

(For 2021 (L.E), 2020 & Previous Admitted Batches)

Time: 3 Hours

Full Marks: 50

Answer any SIX questions.

Question paper consists of four SECTIONS i.e. A, B, C and D.

Section A is compulsory.

Attempt minimum one question each from Sections B, C, D.

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answered at one place only.

SECTION-A

1. Answer the following questions. [1 × 10]
- (a) What is the role of coordinator in a wireless network?
 - (b) Compare between Stateless and Stateful web service. With the help of a real time example.
 - (c) How do data collection and analysis approaches differ in M2M and IOT?
 - (d) Explain the function of service specifications in IOT design methodology with respect to Home Automation System.
 - (e) What are the uses of SPI and I2C interfaces on Raspberry Pi?
 - (f) Classify the various types of cloud deployment models.
 - (g) List any five server side web technologies used in IOT.
 - (h) What are the benefits and limitations of community cloud?

- (i) Define the function of MQTT and XMPP.
- (j) List the various types of sensors used in river flood detection system.

SECTION-B

- 2. (a) What do you mean by communication API? Explain websocket based communication APIs with a neat diagram? Mention one realtime example where websocket API's are used? [4]
- (b) Explain the IOT levels for designing structural health monitoring system.(with appropriate diagram for each step) [4]
- 3. (a) What are the communication protocols used in air pollution monitoring system according to the IoT protocol layer? Explain each protocols [4]
- (b) Explain various IOT communication model along with examples and block diagram. [4]

SECTION-C

- 4. (a) Compare TCP connections with that of UDP connections. Discuss the various components along with block diagram of an IOT device. [4]
- (b) List the various components along with the functions of Arduino UNO board. [4]
- 5. (a) Compare pcDuino, Beaglebone Black with that of Raspberry Pi. Describe each components of Raspberry Pi board. [4]
- (b) Develop a programme for multiple LED pattern blinking with switch and without switch by using Arduino Uno and discuss in details. [4]

6. (a) List the various Data Analytics Techniques and explain the process involved in data analysis. [4]
- (b) Construct a diagram and explain in details WAMP protocol. Discuss features of Big-data with its characteristics and its disadvantages. [4]

SECTION-D

7. (a) Discuss the various impact of IoT on industry sector. Explain with an example. What are the major privacy and security issues in IoT? [4]
- (b) Explain with diagram IoT domain model for smart parking and describe all components. [4]
8. (a) Discuss the various steps involved in IOT design methodology for home intrusion detection system. [4]
- (b) Compare Iaas, Paas and Saas with examples. Discuss the benefits and limitations of Hybrid cloud. [4]
