

2211000609010001
EXAMINATION NOVEMBER 2024
BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)
(MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 5
YEAR INTEGRATED COURSE) (NINTH SEMESTER)
INTERNET OF THINGS - LEVEL 1

[Time: As Per Schedule]

[Max. Marks: 70]

Instructions:

1. Fill up strictly the following details on your answer book

- a. Name of the Examination : **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) (MASTER OF SCIENCE (INFORMATION TECHNOLOGY) 5 YEAR INTEGRATED COURSE) (NINTH SEMESTER)**
 - b. Name of the Subject : **INTERNET OF THINGS - LEVEL 1**
 - c. Subject Code No : **2211000609010001**
2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.

Seat No:

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Student's Signature

Q.1 Answer the following questions

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A) Answer the following short questions in detail. (Any six)'

(6)

- 1) Which pin carry clock signal in SPI communication?
- 2) Explain "tar" command of Linux kernel based Raspbian Operating System.
- 3) LoRa is use _____ spread spectrum modulation.
- 4) What is the usage of "KILL" command of Linux kernel based Raspbian Operating System.
- 5) Write pin names which are used for UART communication.
- 6) _____ BUS communication is asynchronous communication.
- 7) What is the usage of IR sensor?

B) Answer the following questions (Any two) (12)

- 1) Explain any two sensors in detail with real life application.
- 2) Explain vulnerability issues and solution about insecure mobile interface, poor physical security and insecure software /firmware in context of Internet of Things (IoT).
- 3) (A) Draw IBM referenced Internet of Things (IoT) Architecture framework. (3)
(B) Draw Arm-7 microcontroller architecture. (3)

Q.2 Answer the following questions. (Any Three) 18

- 1) Explain server management and data base management system in detail.
- 2) Write short note on LoRaWAN Technology.
- 3) Explain exception concept of python with the help of example.
- 4) Write short note on Bluetooth Low Energy (BLE).

Q.3 Answer the following questions. 18

A) Answer the following short questions in detail. (Any six) (6)

- 1) What is device real time data?
- 2) How I2C is different than UART?
- 3) What is the usage of TX and GND pins of Arduino Uno board?
- 4) How much communication range for classic Bluetooth network?
- 5) What is the usage of Node Red open source tool of Raspbian os of Raspberry pi?
- 6) What is usage of source node in wireless Sensor Network (WSN)?
- 7) Why is Real-time analytics in IoT?

B) Answer the following short questions in detail. (Any Two) (12)

- 1) Write short note on 8051 microcontroller.
- 2) Write program in python to sense object using IR sensor and when object detected then time stamp should be store in SQLite database which is installed on Raspberry pi and display only last five timestamp records on monitor. Explain each and every line of program by writing comments in code.
- 3) Explain "sudo", "git", "chmod", "date", "cd~" and "mv" linux commands usage in Raspberry pi.

Q.4 Answer the following questions in detail. (Any four)

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- 1) Explain three Quality of Service levels of Message Queuing Telemetry Transport (MQTT) in detail.
- 2) Write short note on file handling concept in python
- 3) How sensor nodes of WSN are deployed in different type of environment?
- 4) Write short note on I2C bus communication.
- 5) How WSN is useful in medicine and health care management system?
