

2011000604020001
EXAMINATION FEBRUARY-MARCH 2024
B. SC. (I. T.) (M. SC. (I. T.) 5 YEAR INTEGRATED COURSE)
(FOURTH SEMESTER)
FUNDAMENTAL OF EMBEDDED SYSTEM AND
IOT-LEVEL 2

[Time: As Per Schedule]

[Max. Marks: 70]

Instructions:

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

- a. Name of the Examination: **B. SC. (I. T.) (M. SC. (I. T.) 5 YEAR INTEGRATED COURSE) (FOURTH SEMESTER)**
 - b. Name of the Subject : **FUNDAMENTAL OF EMBEDDED SYSTEM AND IOT-LEVEL 2**
 - c. Subject Code No : **2011000604020001**
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 Four)

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- 1) _____ is the RAM address range for register bank-0 in 8051 microcontroller?
- 2) ARM-7 microcontroller is _____ bits microcontroller?
- 3) List out four different applications of Bluetooth based embedded system?
- 4) List out different type of memories are available in 8051 microcontroller?
- 5) What could be the storage capacity of Passive RFID tag?

B) Answer the following questions (Any Two)

12

- 1) Explain Global storage class and static storage class with the help of c-program example.
- 2) Explain humidity sensor and Temperature sensors in detail.
- 3) Explain any three bitwise operators with the help of appropriate example.

Q.2 Answer the following questions (Any Three)

18

- 1) List out different embedded system development tools. Explain simulator and Integrated Development Environment (IDE) in detail.
- 2) Draw 8051 microcontroller block diagram and explain ALU, Stack pointer and program status word(PSW) register in detail.
- 3) List out different stages of water fall development model and describe first two stages in detail.
- 4) Explain Piconet and Scatternet concept of Bluetooth communication in detail.

Q.3 Answer the following questions (Any Three)

18

- 1) Describe UART communication and explain PCON register in detail.
- 2) Write short note on Analog to Digital convertor (ADC).
- 3) Explain all registers of timer device available in 8051 microcontroller.
- 4) Write program to store separated even numbers and odd number from given 10 numbers of arrays and store largest even value in variable named "large_even". Write comments after each and every instruction written in program.

Q.4 Answer the following questions

18

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

6

- 1) How many pins are uses in SPI communication?
- 2) What is the full form of RFID?
- 3) What do you mean by "Internet of Things (IoT)"
- 4) List out different applications of RFID?
- 5) What is Embedded System?
- 6) _____ register of 8051 microcontroller is use to decide which Interrupt get service first when more than two interrupts requested simultaneously.
- 7) What is the difference between static storage class and auto storage class?

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

12

- 1) Write a note on Ethics requirement in Internet of Things (IoT).
- 2) Write short note on I2C communication.
- 3) Draw ARM-7 microcontroller architecture and current program status register(CPSR).
- 4) Write a note on Ultrasonic sensor
