

CBCS SCHEME

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15NT72

Seventh Semester B.E. Degree Examination, Jan./Feb. 2021 Microcontrollers and Interface

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. With neat functional block diagram, explain the architecture of 8051 in brief. (10 Marks)
b. Explain the concept of Von-Neumann and Harvard architecture in brief. (06 Marks)

OR

- 2 a. With an example program, explain the concept of stacks working in 8051 microcontroller. (08 Marks)
b. Explain the concept of memory organization of 8051 microcontroller with proper schematical diagrams of memory. (08 Marks)

Module-2

- 3 a. Explain in brief about relative addressing mode with proper flow diagram. (08 Marks)
b. Explain Immediate, register and direct addressing modes in brief with example each. (08 Marks)

OR

- 4 a. Write a short note on Subroutines and data types of 8051 Microcontroller. (08 Marks)
b. Explain bit inherent, indexed and absolute addressing modes in brief with example each. (08 Marks)

Module-3

- 5 a. Explain the arithmetic instructions in brief along with sub classified ADD and SUB group of instruction with examples. (08 Marks)
b. Write an ALP program to start A/D conversion and Store the results in registers. (08 Marks)

OR

- 6 a. Mention the different types of branch instructions and explain each with an example. (08 Marks)
b. Interface stepper motor and write ALP program to rotate the stepper motor in clockwise direction. (08 Marks)

Module-4

- 7 a. Explain about PIC microcontroller and describe the specification of microcontroller PIC16F84 in brief. (08 Marks)
b. Define interrupt and explain the working of INTCON register with neat schematic. (08 Marks)

OR

- 8 a. Discuss about data transfer instructions of PIC16CXX microcontroller family with examples. (08 Marks)
b. With instruction pipeline flow diagram, explain the pipeline concept of microcontroller PIC16F84 in detail. (08 Marks)

Module-5

- 9 a. Discuss in brief about history and features of AVR microcontroller. (08 Marks)
b. Write short notes on assembler directives and AVR data type. (08 Marks)

OR

- 10 a. Explain LDS and STS instruction under instructions with data memory in brief. (08 Marks)
b. Explain the concept of AVR status register with neat schematic in brief. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg; 42+8 = 50, will be treated as malpractice.