USN | | | | | | | | | | **15NT72**

Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019
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. **(08 Marks)**
  b. Explain the concept of interfacing of 16k Byte RAM and 32k Byte of EPROM to 8051 with pictorial representation. **(08 Marks)**

OR

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

Module-2

3 a. Explain immediate, register and direct addressing modes in brief with example for each. **(10 Marks)**
  b. Write a short note on long addressing and bit direct addressing. **(06 Marks)**

OR

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

Module-3

5 a. Mention the different types of 8051 instructions and explain the data transfer instructions with an example. **(08 Marks)**
  b. Mention the different types of branch instructions and explain with an example. **(08 Marks)**

OR

6 a. Explain interface stepper motor and write ALP program to rotate the stepper motor in clockwise and anticlock wise direction. **(10 Marks)**
  b. Write an ALP program to generate square wave by interfacing DAC08. **(06 Marks)**

Module-4

7 a. Discuss the concept of clock/instruction cycle and applications of microcontroller PIC16F84 in detail. **(08 Marks)**
  b. With instruction pipeline flow diagram explain pipeline concept of microcontroller PIC16F84 in details. **(08 Marks)**

OR

8 a. Discuss about arithmetic and logical instruction of PIC16CXX microcontroller family with example. (08 Marks)
  b. Discuss about directing a program flow instructions of PIC16CXX microcontroller family with examples. (08 Marks)

Module-5

9 a. Overview the classifications of AVR family in brief. (08 Marks)
  b. Explain the concept of AVR status register with neat schematic in brief. (08 Marks)

OR

10 a. Explain the concept of general purpose registers in the AVR involving data type of 8-bit AVR microcontroller. (08 Marks)
   b. Write a neat block diagram, explain the concept of AVR data memory and its classification within the data memory. (08 Marks)

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