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DCEL503

Reg. No.

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V Semester B.Sc. Degree Examination, March/April - 2024

**ELECTRONICS**  
**Embedded controllers**  
**(NEP Scheme 2020)**



**Paper : VI**

**Time : 2½ Hours**

**Maximum Marks :60**

**Instructions to Candidates:**

Answer ALL the questions from Part--A, any FOUR questions from Part-B and any FOUR questions from Part-C.

**Note:** It is required to answer all the questions of Part-A in any one page and to be answered only once. In this Part, answering the same question multiple times will not be considered for evaluation.

**PART-A**

Answer All the questions.

(12×1=12)

1. i) \_\_\_\_\_ architecture is followed in general purpose microprocessors.
- a) Harvard                      b) Von Neumann  
c) Both (a) and (b)          d) None of the above
- ii) Which of the following is the hardware components of embedded system?
- a) Computer processor      b) Device peripheral  
c) Computer Memory        d) All the above
- iii) 8051 microcontroller has \_\_\_\_\_ number of I/O Pins
- a) 4                                b) 8  
c) 16                              d) 32
- iv) After the execution of PUSH instruction in 8051, the stack pointer is
- a) incremented by 1        b) decremented by 1  
c) incremented by 2        d) decremented by 2

[P.T.O.]



- v) Which of the following is not a data transfer instruction?
  - a) MOV
  - b) PUSH
  - c) DAA
  - d) POP
- vi) The interrupt that has the lowest priority among the following is
  - a) IEO
  - b) TF1
  - c) TFO
  - d) RI
- vii) P I C18F458 is \_\_\_\_\_ bit Microcontroller
  - a) 8
  - b) 16
  - c) 32
  - d) 64
- viii) Which instruction is used to clear single bit in P I C 18F458?
  - a) BSF
  - b) BCF
  - c) BTFSS
  - d) BTFSC
- ix) Timer 1 module of PIC18F458 uses
  - a) 8 bit/16 bit timer/counter with 8 bit prescaler
  - b) 16 bit timer/counter
  - c) 8 bit timer/counter with 8 bit period register
  - d) 8 bit timer/counter
- x) SPI stands for
  - a) Serial Peripheral Interface
  - b) Side Peripheral Interface
  - c) Serial Parallel Interface
  - d) None of the above
- xi) Magnitude of Unsigned char data type in embedded C is
  - a) 0 to 256
  - b) 0 to 255
  - c) -128 to +127
  - d) -127 to +128



- xii) The filters in signal conditioning system is used to
- Remove noise and fluctuation
  - Increase noise in system
  - Reduce the signal strength
  - None of the above.

**PART-B**

Answer any FOUR questions.

(4×7=28)

- What is Microprocessor? Compare RISC and CISC processor architecture. (5)
  - Mention any four design parameters of embedded system (2)
- Explain the internal memory organization in 8051 microcontroller.
- With an example, explain the different Addressing modes of 8051.
- Explain short, long and relative jump instructions of 8051 with an example.
- With a block diagram, explain the architecture of PIC18F458 microcontroller.
- With a diagram, explain the interfacing of LM35 to P I C 18F458.

**PART-C**

Answer any FOUR questions.

(4×5=20)

- Explain the bit pattern of IE register in 8051.
  - Write an assembly language program to add two 8-bit Number and store the results in subsequent memory locations.
  - Write an assembly language program to find the largest in an array of N 8bit numbers.
  - Write an assembly language program to find the given number is prime or not.
  - Write any five peripheral features of PIC18F458 microcontroller.
  - Write the program and circuit to interface Switch and LED to P I C microcontroller.
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