

**BACHELOR OF VOCATION**  
**Robotics and Automation**  
**Subject: Microprocessor & Microcontroller**  
**Subject Code: DBEC-203**  
**Semester: Third**  
**January 2021**  
**Theory (External): 35 Marks**  
**Time: 03 Hours**

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**Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

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**SECTION -A (SHORT/OBJECTIVE TYPE QUESTIONS)**

**(10x1=10 Marks)**

- A. Why is the data bus bi-directional?
- B. Why are the program counter and the stack pointer 16-bit registers?
- C. Explain the function of ALU and IO/M signals in the 8085 architecture?
- D. Name different addressing modes of 8085.
- E. What do you understand by the term pipelining?
- F. What are the different operating modes of 8255?
- G. What is interrupt? Name the interrupts of 8051 microcontroller?
- H. Explain in brief the Base Index addressing mode of 8051 microcontroller.
- I. Explain Monotonicity in terms of D/A converter?
- J. What are the different flags in 8085 microprocessor.

## SECTION -B (ESSAY TYPE QUESTIONS)

(5X5=25 Marks)

1. What is the difference between the Microprocessors and Microcontrollers?
2. Explain five interrupt inputs of 8085 with priority.
3. Explain the pin diagram of 8085.
4. Explain the function of ALU and IO/M signals in the 8085 architecture?
5. Explain the memory structure of 8051
6. Write a short note on 8259? What are its features?
7. Explain R2R ladder D/A converter with example.
8. Assume the following values for the ADC clock frequency = 1 MHz,  $V_T = 0.1$  mV, D/A converter has full scale output = 10.23 V and a 10-bit input. Determine the following values.
  - a. The digital equivalent obtained for  $V_a = 3.728$  V.
  - b. The conversion time.
  - c. The resolution of this converter.

\*\*\*\*\*END OF PAPER\*\*\*\*\*