BACHELOR OF VOCATION

Robotics and Automation

Subject: Microprocessor & Microcontroller

Subject Code: DBEC-203

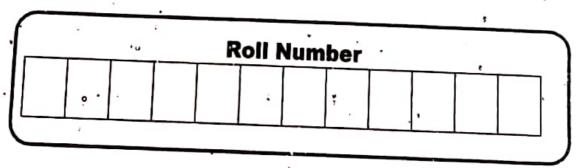
Semester: Third January 2021

Theory (External): 35 Marks

Time: 03 Hours

Instructions to the Students

- This Question paper consists of two Sections. All sections are compulsory.
- Section A comprises 10 questions of objective type in nature. All
 questions are compulsory. Each question carries 1 mark.
- Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
- Read the questions carefully and write the answers in the answer sheets provided.
- Do not write anything on the question paper.
- 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?
- What are the different flags in 8085 microprocessor.

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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.
- 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 $V_a = 3.728 \text{ V}$.
 - b. The conversion time.
 - c. The resolution of this converter.

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