Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIFTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019

Course Code: EC305

Course Name: MICROPROCESSOR AND MICROCONTROLLERS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) Define machine cycle and instruction cycle (5)

b) Draw and Explain 8085 Architecture (10)

2 a) Illustrate with relevant timing diagram, the sequence of operations involved in 8085 for fetching and Executing the instruction MVI A, 08H from external memory location 2005H and 2006H (Assume that Opcode for MVI A is DE) (10)

b) Draw the bit pattern for 8085 flag register (5)

3 a) Bring out the significance of control and status signals with reference to various operations of 8085 microprocessor (7.5)

b) Explain the addressing modes of 8085 with examples (7.5)

PART B

Answer any two full questions, each carries 15 marks.

4 a) Draw and Explain 8051 Architecture (10)

b) Draw the bit pattern for 8051 flag register (PSW) (5)

5 a) Explain the addressing modes of 8051 with examples (7.5)

b) Write an 8051 assembly language program to add two 32 bit numbers (7.5)

6 a) Draw and Explain the memory organization of 8051 (7.5)

b) Explain the classification of 8051 instruction set with examples (7.5)

PART C

Answer any two full questions, each carries 20 marks.

7 a) Explain TMOD SFR (Special Function Register) (5)

b) Explain TCON SFR (Special Function Register) (5)

c) Write an assembly language program in 8051 to toggle bit P1.5 continuously every 50ms. Use timer 0, Mode 1 to create the delay. (assume that XTAL = 12 MHZ) (10)

8 a) What is the difference between edge triggered and level triggered interrupts (5)

b) Explain difference in counter and timer operation (5)

c) Draw a block diagram to interface stepper motor with 8051 with a step angle of 2 degree. Also write an assembly language program to rotate a motor 64 degree in clock wise direction. Use 4 step sequence (10)

9 a) What is an interrupt? List the interrupt sources of 8051 (5)

b) Draw the schematic to connect an LED to the P1.0 and develop an assembly language program to blink the LED continuously (5)

c) Write an 8051-assembly language program to generate two square waves one of 5 KHz frequency at P1.3, and another of frequency 25 KHz at pin P2.3. Assume XTAL=22 MHz (10)

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