Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree (S,FE) Examination January 2022 (2015 Scheme)

Course Code: EC305

Course Name: MICROPROCESSOR & MICROCONTROLLER

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

			Marks
1	a)	How the instructions are classified in 8085? Explain each type with suitable examples.	(10)
	b)	Explain the generation of control signals for external operations in 8085 with a neat block diagram.	(5)
2	a)	Draw the timing diagram for instruction STA 2000 H. Explain the operations in each machine cycle.	(8)
	b)	What is the need of 8279 interface in 8085? List out the features of 8279. What are the functions of the following signals in interfacing 8279 with 8085? i) IRQ ii) CNTL/STB iii) A_0 iv) $\overline{BD}$	(7)
3	a)	Explain the architecture of 8085 with neat diagram	(10)
	b)	What are the functions of following signals in 8085 i) HOLD ii) READY iii) $IO/\bar{M}$ iv) ALE v) RESETOUT	(5)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	The contents of some registers of 8086 are given below. Then find out the physical address of the instructions given below. SS = 3675H, DS = 2344H, BX = 0500 H, BP = 1367H , SI = 6327H i) MOV CL, 1234H[SI] ii) MOV AL, 5[SI][BP]	(5)
	b)	Explain the addressing modes in 8051 with suitable examples.	(10)
5	a)	Draw and explain the components of execution unit in 8086.	(10)

b) Write the functions of following instructions (5)

i) ANL C, /bit

ii) MOC A, @A+DPTR

iii) MOVX @Rp, A

iv) PUSH 01H

v) SUBB A, #n

6 a) What are subroutines? What are they used for in 8051? How they work? (5)

b) Write an 8051 assembly language program to multiply two numbers without using the instruction MUL AB (10)

PART C

Answer any two full questions, each carries 20 marks.

7 a) Write an assembly language program to generate a square wave with 75% duty cycle and frequency 1 MHz using 8051. Assume the crystal frequency to be 11.0592MHz and use Mode 1 timer programming. (10)

b) What are the methods to double the baud rate in 8051? (5)

c) Which are the interrupt sources in 8051. Explain their functions in a sentence. Also show the ISR address of those interrupts (5)

8 a) A traffic signal uses a seven-segment display that counts from 10 to 0. The display is controlled using 8051 microcontroller. Explain how the seven-segment display can be interfaced to 8051 and write the assembly language program for displaying numbers from 10 to 0 (10)

b) Explain Mode 1 timer programming of 8051. (10)

9 a) If serial communication is done with the help of interrupts, how reception and transmission be distinguished? Explain the programming of serial communication interrupt in 8051 (10)

b) How can an 8 input DAC be interfaced with 8051? Draw the block diagram and explain. Write an assembly language program to generate a staircase waveform (10)

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