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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

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

Course Code: EE309

Course Name: MICROPROCESSOR AND EMBEDDED SYSTEMS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries5 marks. Marks

1 Explain subroutine CALL and RET instructions in 8085 (5)

2 Explain the operation of following instructions (5)

(i) MVI C,05H (ii)INR H (iii)MOV A,B (iv) CMA

3 Explain briefly the control word in 8255 PPI. (5)

4 Differentiate between hard & soft real time systems. (5)

5 Write the 8-bit PSW register in 8051. Explain how register banks are selected using PSW register. (5)

6 Explain I/O ports and its functions in 8051. (5)

7 Write an ALP in 8051 to generate a square wave of 50% duty cycle on bit 0 of port 1 using Timer 0. (5)

8 Find the values of TMOD registers to operate as timers in the following modes (5)

(i)Mode 1 Timer 1 (ii) Mode 2 Timer 0

PART B

Answer any twofull questions, each carries10 marks.

9 a) Explain addressing modes in 8085 with examples. (6)

b) Explain the function of following pins in 8085. (4)

(i)ALE (ii)TRAP

10 Draw the timing diagram of instruction STA $4500_{H.}$ (10)

11 a) Write an ALP in 8085 to find the largest number from an array of numbers. (6)

b) Explain Fetch cycle & Execute cycle in 8085. (4)

PART C

Answer any twofull questions, each carries10 marks.

12 a) Show how a DAC can be interfaced with 8085 Microprocessor. (7)

b) Explain software and hardware interrupts. (3)

13 a) Differentiate between Microprocessor and Microcontroller. (5)

b) List the field of applications for an embedded system. (5)

14 a) Explain with neat functional block diagram the operation in 8255 PPI (6)

b) List out the challenges in Embedded Systems. (4)

PART D

Answer any twofull questions, each carries 10 marks.

15 Explain with neat diagram the Register organisation and SFR in 8051. (10)

16 Write an 8051 C program to toggle all the bits of P0 & P2 continuously with a 250ms delay. (10)

17 a) Write an ALP in 8051 to generate a square wave of 50% duty cycle on the P1.5 bit. Use Timer 0 to generate the time delay. (6)

b) Explain the following instructions in 8051. (4)

(i)MOV A,@R_0(ii) JNB TF_0, again

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