



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 carries 5 marks.*

Marks

- | | | |
|---|---|-----|
| 1 | Explain subroutine CALL and RET instructions in 8085 | (5) |
| 2 | Explain the operation of following instructions
(i) MVI C,05H (ii) INR H (iii) MOV A,B (iv) CMA | (5) |
| 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
(i) Mode 1 Timer 1 (ii) Mode 2 Timer 0 | (5) |

PART B*Answer any two full questions, each carries 10 marks.*

- | | | |
|----|--|------|
| 9 | a) Explain addressing modes in 8085 with examples. | (6) |
| | b) Explain the function of following pins in 8085.
(i) ALE (ii) TRAP | (4) |
| 10 | Draw the timing diagram of instruction STA 4500H. | (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 two full questions, each carries 10 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,@R₀(ii) JNB TF₀, again
