

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth semester B.Tech degree examinations (S) September 2020

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

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|---|--|-----|
| 1 | Differentiate between 1 byte, 2 byte and 3-byte instructions of 8085 with suitable examples | (5) |
| 2 | Sketch the timing diagram of STA 4500 | (5) |
| 3 | Explain the Mode 1 operation of 8255 | (5) |
| 4 | Compare microprocessor and microcontroller | (5) |
| 5 | List any five bit manipulation instructions of 8051 | (5) |
| 6 | Explain different addressing modes of 8051 | (5) |
| 7 | Explain the TMOD register of 8051 | (5) |
| 8 | Write an ALP in 8051 to divide two numbers and store the result in memory locations 4500 and 4501. | (5) |

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

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|----|---|-----|
| 9 | a) Write an ALP in 8085 to sort an array of numbers in ascending order. | (5) |
| | b) Explain in detail the stack related operations in 8085 | (5) |
| 10 | a) Explain the instruction (i) LDAX Rp (ii) RAL | (5) |
| | b) Find the count to be loaded in a register pair to obtain a delay of 2500 μ s.
Assume clock frequency as 3 MHz | (5) |
| 11 | a) Draw the internal architecture of 8085 | (5) |
| | b) Explain the various machine cycles of 8085 | (5) |

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

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| 12 | a) Illustrate the application of SIM instruction in 8085 microprocessor | (5) |
| | b) List the challenges and current trends in embedded system design | (5) |

- 13 a) Design an interfacing circuit for one 8K RAM and one 8K EPROM with 8085 microprocessor and find the memory address range (5)
- b) Explain compiler, assembler, linker and loader (5)
- 14 a) Explain the interfacing of DAC with 8085 and write a program to generate a saw tooth waveform continuously (8)
- b) What are the demerits of waterfall model (2)

PART D

Answer any two full questions, each carries 10 marks.

- 15 a) List the various registers of 8051 (5)
- b) Explain SCON register 8051 (5)
- 16 a) Differentiate between AJMP, LJMP and SJMP (3)
- b) Write a timer program to output a square pulse at 50% duty cycle through P3.1 (7)
- 17 a) Explain the port structure of 8051. (4)
- b) Write a program to serially output "A" at 9600 baud rate (6)
