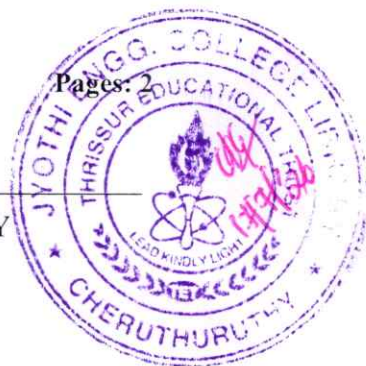


Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S4 (S,FE) Examinations May 2026 (2019 Scheme)



Course Code: MRT206

Course Name: MICROPROCESSOR AND EMBEDDED SYSTEMS

Max. Marks: 100

Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks)

		Marks
1	Mention the different types of addressing modes in 8085 with example.	3
2	Write an assembly language program to find the 2's complement of a number.	3
3	What are the machine cycles required to execute the instruction MVI C,00H? Also state the number of T states required.	3
4	What are the basic modes of operation on 8255?	3
5	List the characteristics of embedded system.	3
6	Define compiler. What are the operations performed by a compiler in an embedded processor?	3
7	Write an assembly language program to add two 8-bit numbers using 8051.	3
8	Interpret the usage of CALL statement in 8051 microcontroller.	3
9	List out some 'Include' header files used in 'C' language in embedded system?	3
10	State the differences between a timer and counter.	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

- | | | |
|----|---|----|
| 11 | a) Explain any three addressing modes of 8085 with examples taken from the instruction set. | 9 |
| | b) Explain the flag register in 8085. | 5 |
| 12 | a) Write an assembly language program to add the five decimal numbers 65, 46, 35, 87 and 98. The numbers are placed in memory locations 2501 to 2505 H. The sum is to be stored in the memory locations 2450 and 2451H. | 14 |

Module -2

- | | | |
|----|---|----|
| 13 | a) Draw the timing diagram for the instruction INR M. | 14 |
| 14 | a) Write short notes on memory and I/O interfacing. | 6 |

- b) With a neat diagram, explain how a seven segment LED display is interfaced with an 8085 microprocessor. 8

Module -3

- 15 a) Explain the water fall model of embedded product life cycle management. 14
16 a) Differentiate microprocessor and microcontroller. 5
b) Explain in detail the hard and soft embedded systems. 9

Module -4

- 17 a) Explain the architecture of 8051 microcontroller with a neat diagram. 14
18 a) Write an assembly language program using 8051 to multiply the numbers 48H and 35H. 7
b) Write an assembly language program using 8051 to divide two 8 bit numbers. 7

Module -5

- 19 a) Explain briefly the basic structure of embedded C programming. 6
b) Write an embedded C program to blink LEDs connected to PORT1 of the microcontroller. 8
20 a) With the help of a neat diagram and pseudocode, explain how a stepper motor is interfaced to a microcontroller. 14
