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KAMALA INSTITUTE OF TECHNOLOGY & SCIENCE, SINGAPUR
23EE28PC503

III.B. Tech. I. Semester Regular Examinations, November- 2025

MICROPROCESSORS & MICROCONTROLLERS

(EEE)

Time: 3 Hours

Max. Marks: 60

Note: Question paper consists of Part-A & Part-B.

i) **Part-A** for 10M, ii) **Part-B** for 50marks

- **Part A** is compulsory, consists of 10 sub questions from all units carrying equal marks.
- **Part-B** consists of **10 questions** (numbered from 2 to 11) carrying **10marks** each. From each unit there are 2 questions and the students should answer one of them. Hence the student should answer **5 questions** from **Part-B**.

PART-A		(10Marks)	
Q. No	Questions	Marks	BTL
1.a)	What is the need for a flag register in 8086?	1	1
1.b)	Classify the program control instructions available in 8086	1	2
1.c)	Why the 8255A is designed so that only the bits in PORT C can be set/reset?	1	2
1.d)	What is the use of address enable (AEN) pin of 8257 DMA Controller?	1	1
1.e)	What are the serial communication modes available in 8051?	1	1
1.f)	List the uses of USART	1	1
1.g)	Identify the different operand types used in 8051	1	
1.h)	Find out any two instructions which affects all flags of 8051 Microcontroller?	1	2
1.i)	Write the types of ADC?	1	2
1.j)	What is the need to use a driver IC to interface stepper motor with 8051 microcontroller?	1	3
PART-B		(50Marks)	
Q.No	Questions	Marks	BTL
2. a)	List the salient features of 8086 microprocessor.	5M	1
b)	Draw and explain the flag register of 8086 microprocessor.	5M	2
OR			
3. a)	What is an assembler directive?	3M	1
b)	Explain any 5-assembler directive with an example	7M	3
4. a)	Draw the internal architecture of 8255 PPI and explain its operation.	5M	1
b)	Explain about the mode 2 operation used in 8255 PPI in detail.	5M	2
OR			
5. a)	Draw the Block diagram of 8257 DMA controller and explain its	5M	3

	operations.		
b)	Draw the interfacing diagram of A/D convertor with 8086 microprocessor and explain its operation.	5M	3
6. a)	Explain the difference between synchronous and asynchronous serial communication with suitable timing diagrams.	5M	4
b)	Discuss the features and applications of USART in serial data communication.	5M	2
OR			
7. a)	Draw and explain the RS-232 signal levels and pin configuration for DB-9 or DB-25 connectors.	5M	3
b)	Explain the architecture, bus structure, and data transfer modes of the IEEE-488 interface.	5M	2
8. a)	Draw the internal architecture of 8051 Microcontroller and explain its operation.	5M	3
b)	What are the interrupts available in 8051? Explain about the Interrupt Structure.	5M	1
OR			
9. a)	Draw the Pin diagram of 8051 Microcontroller and explain the functions of each pin.	5M	3
b)	Discuss in detail about the Addressing Modes of 8051 Microcontroller.	5M	1
10.a)	Explain the interfacing of ADC and DAC with the 8051 microcontroller	5M	2
b)	With a neat diagram, explain how a seven-segment display is interfaced with the 8051 microcontroller	5M	2
OR			
11.a)	Write an assembly language program for LED blinking in 8051 microcontroller.	5M	4
b)	With the help of a diagram, explain the stepper motor interfacing with 8051 and write an assembly program to rotate the motor one revolution clockwise	5M	2

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