Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

B. Tech (Fifth Semester - Regular) Examinations, November – 2024

22BECPC35001 – Microprocessors and Microcontrollers

(Electronics and Communication Engineering)

Time: 3 hrs Maximum: 70 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. What is a processor? Is it an electronic device, explain briefly?	CO1	K2
b. According to the Intel 8085, what is the instruction format of DAD, give example?	CO1	K1

c. STD;
MOV SI, 3000H;
MOV DI, 4000H;
MOV CX, 64H;
REP MOVSB;
HLT;
After executing this program by 8086 processor, what is the content in CX register?
	CO2	K4

d. Among the following which is universal device? And why? 8251A, 8255, 8257 and 8259A.	CO3	K3
e. Define SFR in 8051 Microcontroller? Explain its importance?	CO4	K1

PART – B **(15 x 4 = 60 Marks)**

Answer ***All*** the questions	Marks	CO #	Blooms Level
2. a. Draw the architecture of 8085 Microprocessor and explain each block?	8	CO1	K1
b. Interface 5KB RAM and 8KB ROM with 8085 Microprocessor and write an ALP to read 10 bytes data from ROM to RAM? Give proper memory mapping for the above task?	7	CO1	K4
(OR)			
c. Illustrate the pin diagram of 8085 Microprocessor and explain each pin?	8	CO1	K2
d. Sketch and explain the timing diagram of the instruction MVI A, B?	7	CO1	K3
3.a. Explain both overlapped and non-overlapped memory segmentation of 8086 Microprocessor? And explain with a minimum of two examples how the physical memory is organised in 8086 Microprocessor?	8	CO2	K2
b. Explain all the addressing modes of 8086 Microprocessor with examples?	7	CO2	K2
(OR)			
c. With a neat sketch draw and explain the maximum mode of operation of 8086 Microprocessor?	8	CO2	K1
d. Write an Assembly Language Program to find the given 16-bit number is an even number or odd number. If it is even number store 00 in 3000H memory location, else store 01. (Assume the user will input the number at 4000H location onwards.)	7	CO2	K4

4.a.	The IC 8255 is a serial data or parallel data interfacing device? Connect three LEDs to Port-A and three switches to Port-B, Port-C to no connection. Write an assembly language program using any processor (8085/8086/8051) to read the switches and operate the LEDs accordingly.	8	CO3	K4
b.	What is the importance of interfacing an 8254 with any processor? And based on its all modes of operation judge the functionality of this IC?	7	CO3	K4
	(OR)			
c.	What is the importance of DMA for a processor? Draw the block diagram of DMA controller and explain its functioning?	8	CO3	K3
d.	Desing the circuit (block diagram level) of 8251A for asynchronous bi-directional communication (both transmitting and receiving) mode with the following specifications. Data Frame length 6 bits, Two stop bits and No parity check, remaining are user choice. Write an ALP to do the control word settings like Mode Instruction, Command Instruction etc. according to above specifications?	7	CO3	K4
5.a.	What is a bit addressable memory in 8051 Microcontroller? Where the bit addressable memory is located, and how much capacity? Write an Assembly Language Program using 8051 Microcontroller to multiply two 8-bit numbers?	8	CO4	K4
b.	With examples explain all the Branching (Jump & Call) Instructions of 8051 Microcontroller?	7	CO4	K2
	(OR)			
c.	What are SFRs in 8051 Microcontroller? Explain any five of them with detailed bit description?	8	CO4	K2
d.	Write an Assembly Language Program using 8051 Microcontroller to sort the given ‘N’ numbers in ascending order? (N and numbers are user choice)	7	CO4	K4

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