Hall Ticket Number:

Code No. : 15633 S

VASAVI COLLEGE OF ENGINEERING *(AUTONOMOUS)*, HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (I.T.) V-Semester Supplementary Examinations, June-2022

Microprocessors and Interfacing

Time: **3 hours** Max. Marks: **60**

*Note: Answer all questions from **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	Why are the program counter and stack pointer 16 bit registers in 8085?	2	1	1	1
2.	Explain the function of ALE and IO/M signals of 8085 microprocessor.	2	1	1	1
3.	Explain the function of following signals of 8086: a) TEST b) BHE	2	1	2	1
4.	Explain the concept of segmented memory in 8086 processor.	2	1	2	1
5.	List the different modes of operation of 8255.	2	1	3	1
6.	Explain the functions of the following signals of 8279: a) RL0-RL7 b) BD	2	1	3	1
7.	List the different modes of operation of 8253 (programmable interval timer).	2	1	4	1
8.	Explain the functions of following pins of 8259A: CAS0-CAS2	2	1	4	1
9.	Explain the different modes of data transmission.	2	2	5	1
10.	Explain the functions of the following signals of 8257: a) HRQ b)HLDA	2	2	5	1
	Part-B (5 × 8 = 40 Marks)				
11. a)	Draw and explain briefly the architecture of 8085 processor.	4	2	1	1
b)	The following block of data is stored in the memory locations from XX55H to XX5AH. Transfer the data to the locations XX80H to XX85H in the reverse order. (eg data byte 22H should be stored at XX85H and 37H at XX80H) **Data(H): 22 , A5, B2, 99, 7F, 37.** Write an assembly language program using 8085 for the above problem.	4	3	1	3

Contd... 2

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12. a)	Draw the register organization of 8086 and explain the typical applications of each registers.	4	2	2	1
b)	Write an assembly language program using 8086, using assembler directives, wherever required, to count the number of even and odd numbers from a given series of 16 bit hexa decimal numbers. Assume the numbers as: 2357H, 0A579H, 0C322H, 0C91EH, 0C000H, 0957H	4	3	2	3
13. a)	Explain the different modes of operation of 8255. Also illustrate using the control word format how you can configure it to operate the different modes of operation in I/O and BSR modes.	4	3	3	1
b)	Write an assembly language program to rotate the shaft of a 4 phase stepper motor in clockwise 5 rotations. Assume the Delay sub routine is available(Need not write the delay subroutine code)	4	3	3	3
14. a)	Draw and discuss the architecture of 8253 programmable interval timer.	4	2	4	1
b)	Design a programmable timer using 8253 and 8086. Interface 8253 at an address 0040Hfor counter 0 and write the assembly language program(ALP) for the following. The 8086 and 8253 run at 6MHz and 1.5 MHz respectively. The ALP should generate a square wave of period 1ms.	4	4	4	3
15. a)	Draw and discuss the architecture of DMA controller 8257.	4	2	5	1
b)	Draw and discuss the status register of 8257.	4	3	5	1
16. a)	Draw and explain in detail the flag register configuration of 8085.	4	2	1	1
b)	Explain in detail the use of atleast 4 assembler directives which are used in assembly language programming of 8086.	4	2	2	1
17.	Answer any ***two*** of the following:				
a)	Interface two 4K X 8 EPROMS and two 4K X 8 RAM chips with 8086. select suitable memory maps.	4	4	3	3
b)	Draw the flow chart and explain the initialization sequence of 8259A programmable interrupt controller.	4	3	4	1
c)	Draw and explain the architecture of programmable communication interface 8251 USART.	4	2	5	1

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	40%
iii)	Blooms Taxonomy Level – 3 & 4	40%

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