Hall Ticket Number:

Code No. : 15344 S O

VASAVI COLLEGE OF ENGINEERING *(AUTONOMOUS)*, HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (E.E.E.) V-Semester Supplementary Examinations, June-2023

Microprocessors and Microcontrollers Applications

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

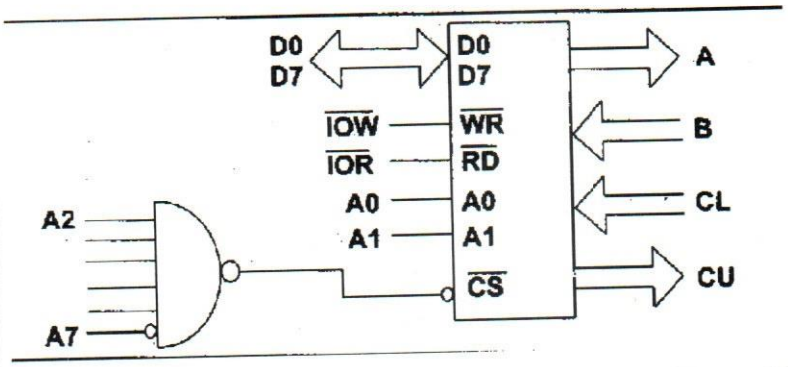
*Note: Answer all questions from **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	If the 8086 data segment Register Contains 4000H. What Physical address will the instruction MOV AL,[234BH] read ? What is the name of the addressing Mode for the above Instruction?	2	2	1	1,3
2.	Describe the difference between the instructions MOV AX,2437H and MOV AX,[2437H] and name the addressing Modes of these instructions	2	1	1	1,3
3.	Explain the following Assembler Directive with and example i)EQU ii) ORG	2	1	2	2,3,5
4.	Explain the difference between ROL and RCL instructions	2	1	2	2,3,5
5.	How many 128*8 RAM chips are needed to provide a memory capacity of 2048 bytes ? A)8 B)16 C)24 D)32	2	2	3	1,3
6.	Explain the purpose of HOLD and HLDA Pins in 8086	2	1	3	1,3
7.	How are the bits of the register PSW affected if we select Bank2 of 8051? A) PSW.5=0 and PSW.4=1 B) PSW.2=0 and PSW.3=1 C) PSW.3=1 and PSW.4=1 D) PSW.3=0 and PSW.4=1	2	1	4	2,3,5
8.	On power up, the 8051 uses which RAM locations for register R0- R7 A) 00-2F B) 00-07 C) 00-7F D) 00-0F	2	1	4	2,3,5
9.	What is the default value of stack once after the system undergo the reset condition? A) 07H B) 08H C) 09H D) 00H	2	1	4	2,3,5
10.	What kind of PSW flags remain unaffected by the data transfer instructions? A) Auxillary Carry Flags B) Overflow Flags C) Parity Flags D) All of the above	2	1	4	2,3,5
	Part-B (5 × 8 = 40 Marks)				
11. a)	With the help of neat block diagram, describe the functionality of Bus interface unit and Execution unit of 8086 μP	4	3	1	1,2
b)	Draw and explain the flag register of 8086 microprocessor	4	2	1	1,2

Contd... 2

12. a)	Write an Assembly Language Program to move a string from one location to another location in the same segment memory	4	4	2	1,3
b)	Differentiate between Procedure and Macro with an Example	4	2	2	1,3
13. a)	Explain the Block Diagram of USART (8251)	4	3	3	2,3,5
b)	The 8255 Shown in Fig, Find a) Find the Port address for the Figure shown b) Find The Control Word if PA = OUT, PB = IN,PC0-PC3 = IN and PC4-PC7 = OUT c) Program the 8255 to get Data from PORTA and Send it to PORTB. In addition, data from PCL (PORT C Lower) is send out to the PCU (PORT C Upper).	4	4	3	2,3,5
14. a)	List the Various Addressing Modes in 8051 and Explain them with an Example	4	2	4	2,3,5
b)	Explain pin configuration with circuit diagram for all port of 8051 microcontroller.	4	2	4	2,3,5
15. a)	Explain different modes of Timer for 8051 microcontroller.	4	2	4	2,3,5
b)	Explain interfacing of stepper motor with microcontroller. Write program to rotate stepper motor in clockwise direction continuously in full step mode.	4	4	4	2,3,5
16. a)	Draw and Explain Minimum Mode Block Diagram of 8086	4	3	1	1,2
b)	Mention any four Data Transfer Instructions of 8086 with Examples	4	2	2	1,3
17.	Answer any ***two*** of the following:				
a)	Draw and explain 8086 Interrupt vector table	4	4	3	2,3,5
b)	List all the registers used in 8051 microcontroller in brief	4	2	4	2,3,5
c)	Write 8051 based assembly Program to generate a square wave on P1.0 of 10Khz frequency and 50% duty cycle.	4	4	4	2,3,5



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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