Hall Ticket Number:

Code No. : 14213

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (CSE: CBCS) IV-Semester Main Examinations, May-2019

Microprocessors and Interfacing

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

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

Q.No.	Stem of the question	M	L	CO	PO
	Part-A (10 × 2 = 20 Marks)				
1.	What is the purpose of the ALE signal in an 8086 microprocessor?	2	1	1	1
2.	Differentiate minimum and maximum mode operation in 8086 Microprocessor.	2	2	1	1
3.	How the Procedures are different from macros in assembly language programming.	2	2	2	1,2
4.	What is the purpose of the assembler directives DB and DQ in 8086 Microprocessor?	2	2	2	1
5.	Show the mode set control word needed to initialize an 8255A as follows: Port A-Input, Port B-Output and Port C- bits PC6, PC7 as Output.	2	3	3	1,2
6.	Determine the Seven-Segment codes to display the letters HELP on the Seven-Segment LED display Unit using 8086 Microprocessor.	2	3	3	1,2
7.	Differentiate between a Microprocessor and a Microcontroller.	2	2	4	1
8.	If the Accumulator A=01010011, Register B=11110000 and a carry flag CY=1 then determine the value of A, B and CY after execution of the following instructions. i) RL A,#03H ii) RRC B,#02H	2	3	4	1,2
9.	Write various register banks and their addresses in 8051 Microcontroller.	2	1	5	1
10.	Distinguish between synchronous and asynchronous serial communication.	2	2	5	1
	Part-B (5 ×8 = 40 Marks)				
11. a)	Draw the 8086 microprocessor Architecture and explain each block in it.	4	2	1	1
b)	If the segment registers DS=1000H,SS=2000H,ES=3000H, BX=4000H,SI=5000H,DI=6000H and BP=7000H find the address location from where the following instructions will fetch the data. i) MOV AX,[BX] ii) MOV AX,[BX+DI] iii) MOV BX,[BP+DI+5] iv) MOV AH,[BX=10H] v) MOV BX,[SI-5]	4	3	1	1,2

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12. a)	What is an Interrupt? Write the 8086 Interrupt response sequence when an interrupt is requested.	4	2	2	1
b)	What will be the content of AX after executing the following instructions? And also identify which flags are affected? if(AL=63H) I1:MOV CL,03H I2:SAL AL.CL	4	3	2	1,2
13. a)	Draw the 8257 DMA Controller architecture and explain its operation along with register organization of DMA.	4	2	3	1
b)	Write an assembly language program to convert a packed BCD number into its binary Equivalent using procedures.	4	3	3	1,2
14. a)	Draw the architecture of 8051 Microcontroller and explain its features in detail.	4	2	4	1
b)	Write an assembly language program to transfer the data in internal RAM locations 10h to 20h to internal RAM location 30h to 40h.	4	3	4	1,2
15. a)	Explain the Data transfer instructions with examples.	4	2	5	1
b)	Draw the interfacing circuit of a stepper motor to rotate the stepper motor in Anti-Clockwise direction using 8051 microcontroller.	4	2	5	1,2
16. a)	Explain different addressing modes of 8086 with suitable examples.	4	2	1	1
b)	What is PSW? Which flags will affect by the following Mnemonics: If AX=1010H, CX=1111H and CY=1. i) RCL AX,01H ii) ROL AX,01H iii) XOR CX,CX iv) ADD AX,CX	4	3	2	1,2
17.	Answer any ***two*** of the following:				
a)	Draw the Interfacing circuit diagram of 8086 with keyboard.	4	2	3	1
b)	Explain the interrupt structure of 8051 Microcontroller.	4	2	4	1
c)	Write 3 different instructions to clear the content of the A register using 8051.	4	3	5	1,2

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

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	60
2	Knowledge on application and analysis (Level-3 & 4)	40
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	-