

University of Mumbai

Program: **Electronics and Computer Science**
Curriculum Scheme: 2019 'C' Scheme
Examination: SE Semester IV

26/5/2022

Course Code: ECC 404 and Course Name: Microprocessors and Microcontrollers

Max. Marks: 80

Time: 2.5 hours

Choose the correct option for following questions. All the Questions are compulsory and carry equal marks	
Q1.	Which command is used to select the 2 lines and 5*7 matrix of an LCD?
Option A:	0x01
Option B:	0x06
Option C:	0x0e
Option D:	0x38
2.	On power up, the 8051 uses which RAM locations for register R0- R7?
Option A:	00-2F
Option B:	00-07
Option C:	00-7F
Option D:	00-0F
3.	In 8051, which of the ports act as the 16 bit address lines for transferring data through it?
Option A:	PORT 0 and PORT 1
Option B:	PORT 1 and PORT 2
Option C:	PORT 0 and PORT 2
Option D:	PORT 1 and PORT 3
4.	In 8086, as the storing of data words onto the stack is increased, the stack pointer is
Option A:	incremented by 1
Option B:	decremented by 1
Option C:	incremented by 2
Option D:	decremented by 2
5.	Which of the following instruction is not valid?
Option A:	MOV AX, BX
Option B:	MOV DS, 5000H
Option C:	MOV AX, 5000H
Option D:	PUSH AX

6.	When 8051 wakes up then 0x00 is loaded to which register?
Option A:	PSW
Option B:	SP
Option C:	PC
Option D:	A
7.	The directive that directs the assembler to start the memory allotment for a particular segment block code from the declared address is)
Option A:	OFFSET
Option B:	LABEL
Option C:	ORG
Option D:	GROUP
8.	What is the advantage of register indirect addressing mode in the 8051?
Option A:	it makes use of registers R0 and R1
Option B:	it uses the data dynamically
Option C:	it makes use of operator @
Option D:	It is simple
9.	In memory-mapped scheme, the devices are viewed as
Option A:	distinct I/O devices
Option B:	memory locations
Option C:	only input devices
Option D:	only output devices
10.	The maximum count value of 16-bit count register puts a limitation on
Option A:	memory usage
Option B:	storage of address of registers
Option C:	to generate clock pulse
Option D:	to generate maximum delay

Q2. (20 Marks)	
A	Solve any Two 5 marks each
i.	Explain the functions of the following pins of the 8086: TEST(Asserted low), READY, MN/MX(Asserted Low)
ii.	Draw and explain the interfacing of a LCD to the 8051.
iii.	Draw and explain interfacing of 8086 in minimum mode with 8259 in cascaded mode.
B	Solve any One 10 marks each
i.	Explain in detail the Dedicated Interrupts of the 8086.
ii.	Write a program to send a character "A" to the serial port at 9600 baud (make necessary assumptions)

Q3. (Marks)	Solve any Two	
A	5 marks each	
i.	Write a program to transfer block of data (10 bytes) from DS:2000H to ES:2000H using instruction set of 8086 microprocessor.	
ii.	Write a program to generate a square wave on Port Pin 2.0 using Timer 0 in Mode 1 in 8051	
iii.	List and explain the advantages of memory segmentation in the 8086.	
B	Solve any One	
	10 marks each	
i.	Explain the Internal RAM organization of the 8051. Highlight the importance of the Register Banks.	
ii.	Write an assembly language program using 8051 to move the stepper motor by 64 degrees in the anti-clockwise direction. Also, draw the interfacing diagram.	

Q4. (Marks)	Solve any Two	
A	5 marks each	
i.	Write a note on the addressing modes of the 8051 with examples of each.	
ii.	Explain the BSR mode of the 8255 with one application.	
iii.	Explain the generation of the Clock and Reset signals using the 8284 clock generator.	
B	Solve any One	
	10 marks each	
i.	Explain the pin structure (with a neat diagram) of any Port 0 pin of the 8051. Also, explain the need for pull-up resistors for Port 0 of 8051 to be output.	
ii.	Enumerate the various scenarios when the pipeline of the 8086 may get stalled with examples.	