

University of Mumbai

Program: **Electronics Engineering**  
Curriculum Scheme: Rev. 2019 'C' Scheme  
Examination: SE Semester IV

Course Code: ELC403 Course Name: Microcontrollers Applications

Time: 2.30-hour

Max. Marks: 80

Que 1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	If we push data onto the stack then the stack pointer
<b>Option A:</b>	Increases with every push
<b>Option B:</b>	Decreases with every push
<b>Option C:</b>	Increases & decreases with every push
<b>Option D:</b>	Decreases by two with every push
2.	How can we control the speed of a stepper motor?
<b>Option A:</b>	By controlling its switching rate
<b>Option B:</b>	By controlling its torque
<b>Option C:</b>	By controlling its wave drive 4 step sequence
<b>Option D:</b>	Can't be controlled
3.	What is the order decided by a processor or the CPU of a controller to execute an instruction?
<b>Option A:</b>	Decode, fetch, execute
<b>Option B:</b>	Execute, fetch, decode
<b>Option C:</b>	Fetch, execute, decode
<b>Option D:</b>	Fetch, decode, execute
4.	Which out of the four ports of 8051 needs a pull-up resistor for using it as an input or an output port?
<b>Option A:</b>	PORT 0
<b>Option B:</b>	PORT 1
<b>Option C:</b>	PORT 2
<b>Option D:</b>	PORT 3
5.	Which addressing mode is used in pushing or popping any element on or from the stack?
<b>Option A:</b>	Immediate
<b>Option B:</b>	Direct
<b>Option C:</b>	Indirect
<b>Option D:</b>	Register
6.	The number of address lines and data lines available on 8051 are
<b>Option A:</b>	8-bit & 16-bit each
<b>Option B:</b>	8-bit & 8-bit each
<b>Option C:</b>	16-bit & 8-bit each

<b>Option D:</b>	16-bit & 16-bit each
7.	What is the frequency of the clock that is being used as the clock source for the timer?
<b>Option A:</b>	Some externally applied frequency f
<b>Option B:</b>	Controller's crystal frequency f
<b>Option C:</b>	Controller's crystal frequency /12
<b>Option D:</b>	Externally applied frequency/12
8.	What is the function of the TMOD register?
<b>Option A:</b>	TMOD register is used to load the count of the timer
<b>Option B:</b>	Is the destination or the final register where the result is obtained after the operation of the timer
<b>Option C:</b>	Is used to interrupt the timer
<b>Option D:</b>	TMOD register is used to set various operation modes of timer/counter
9.	Which of the following is used for header files?
<b>Option A:</b>	# include
<b>Option B:</b>	File
<b>Option C:</b>	Struct()
<b>Option D:</b>	Proc()
10.	Which pin of the external hardware is said to exhibit INT0 interrupt?
<b>Option A:</b>	pin no 12
<b>Option B:</b>	pin no 11
<b>Option C:</b>	pin no 10
<b>Option D:</b>	pin no 13

<b>Que 2 (20 Marks)</b>	<b>Solve any Four</b>	<b>5 marks each</b>
A	Write short note on Assembler directives in 8051	
B	Explain following instructions of 8051. 1) ORL A, #05H 2) DJNZ R0, UP	
C	Draw and explain the PSW register of 8051 microcontroller.	
D	Explain various addressing modes of 8051.	
E	Compare RISC and CISC architecture.	
F	Explain Data types and Modifiers in Embedded C	

<b>Que 3 (20 Marks)</b>	<b>Solve any Two</b>	<b>10 marks each</b>
A	Draw and explain the internal RAM memory structure of 8051 microcontroller.	
B	Draw and explain the port structure of 8051 microcontroller	
C	Explain the Interrupt structure of 8051 Microcontroller with register used.	

<b>Que 4 (20 Marks)</b>	<b>Solve any Two</b>	<b>10 marks each</b>
A	Draw and Interfacing diagram of 8051 microcontroller with DAC and write an embedded C program to generate rectangular waveform.	
B	Explain various timer modes for 8051 microcontroller.	
C	Interface a 7-segment led display with 8051, draw the logic interface diagram and write assembly language program to display numbers from 0 to 9 continuously.	

[www.muquestionpapers.com](http://www.muquestionpapers.com)