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## SARDAR PATEL UNIVERSITY M.Sc. (Semester IV) (CBCS) EXAMINATION 2018 P S 0 4 C E L C 0 2

8051 Microcontroller Programming and its applications

Date	Ü	12-04-2018
$ho \Lambda$	9	Thursday

Time: 2.00 PM TO 5.00 PM

		Date: 12 on 22 23  Date: Total Marks: 70  Date: Total Marks: 70	Total Marks: 70		
Q1		Choose the correct answer.	[08]		
	1	The address space for the on – chip ROM of AT89C51 is  a) 00H – 7FH  b) 80H – FFH  c) 0000H – 0FFFH  d) 1000H – FFFFH			
	2	Which of the following instruction is invalid? a) PUSH 0E0H b) PUSH A			
	3	c) PUSH 03 In the 8051, the program counter and DPTR register is bit wide a) 4 b) 8 c) 16 d) None bit wide c) 16 d) 32			
-	4	Which of the following is illegal to move data to register? a) MOV $R_2$ , # 456 b) MOV $R_2$ , # 2BH c) MOV $R_0$ , # 00H d) MOV $R_2$ , # 00H			
	5	For crystal frequency 22 MHz, what will be the baud rate for TH1=-3 with SMOD = 1? a) 9546 b) 38186 c) 4773 d) 19093			
	6	Which register holds the serial data interrupt bits TI and RI a) SCON b) PCON c) TCON d) TMOD			
	7	Which serial data transmission mode is selected by the programmer by setting SM0 and SM1 in SCON to 00b.  a) Shift register mode b) Standard UART c) Multiprocessor mode d) Serial data mode 3	÷		
	8	In the instruction "MOV TH1,#-200H", the hex value for the TH register is  a) 35H b) 36H c) 37H d) 38H			
Q2	1 2 3 4	Describe the function of DPTR register.  Describe the ACALL and LCALL instructions.	[14		
		A			

- 6 Draw the PSW register for 8051.
- 7 Explain Special function resister TMOD in detail
- 8 Discuss the interrupt priority used in 8051.
- 9 Which register has the TI and RI bit, and what is its bit address?

Q3 Q3 Q3	A B	Discuss in detail the architecture of 8051 microcontroller.  What is addressing mode? Explain different addressing modes of 8051.  OR  Write a program to multiply two 16 bit numbers stored in RAM locations.	[06] [06] [06]
Q4 Q4 Q4	A B	Enlist the different JUMP instructions and explain each in detail.  Write a program to add first ten natural numbers.  OR  Explain Rotate instructions used in 8051 microcontroller.	[06] [06]
Q5 Q5	A B	Explain the timer counter modes of operation in 8051.  Generate a square wave with a duty cycle of 33% for time period 10 ms on all pins of Port0.  Assume an XTAL of 11.0592 MHz.  OR  Explain the programming of 8051 to transfer data serially.	[06] [06]
Q6 Q6 Q6	A B	Explain in detail Input/Output ports of 8051.  What is an interrupt? Explain types of interrupts in 8051.  OR  Write a program to generate a sine wave. Show necessary calculations.	[06] [06]