END SEMESTER /RETEST EXAMINATION, 2020

(NEW SYLLABUS)

Semester: 6th Semester

Subject code: ET-603

Subject: MICOCONTROLLER & EMBEDDED SYSTEM

Full Marks: 70 = (Part A-25 + Part B-45)

Duration: 3 hours

Questions on Part A are compulsory

Answer any five questions from Part B

Questions no.	Questions	Marks
Question1	Fill in the blanks:	1x5=5
1a	A _____ is a small computer on a single metal-oxide-semiconductor integrated circuit chip.	
1b	The register used to access the stack is known as the _____ register.	
1c	_____ are defined as an array of characters.	
1d	In 8051 There are_____ types of addressing modes.	
1e	The 8051 assembly language programming is based on the_____.	
Question no.2	Write true or false:	1x5=5
2a	8051 Microcontroller consists of a CPU, RAM (SFRs and Data Memory), Flash (EEPROM), I/O Ports and control logic for communication between the peripherals.	
2b	8051 Microcontroller Pins 1 to 8 – These pins are known as Port 1. This port doesn't serve any other functions.	
2c	The 8051 Microcontroller Assembly Language is a combination of English like words called Mnemonics and Hexadecimal codes.	
2d	The instructions ANL, ORL, and XRL perform the logical functions AND, OR; and/or Exclusive-OR on the two byte variables indicated, leaving the results in the first. No flags are affected.	
2e	Interrupt Enable (IE) Register: This register is responsible for enabling and disabling the interrupt.	
Question no. 3	Answer in one sentence / Draw figure	1x5=5
3a	It is also possible to change the priority levels of the interrupts by setting or clearing the corresponding bit in which register?	
3b	Which important concepts in microcontroller 8051 because the microcontroller is a CPU that can perform some operation on a data and gives the output.	
3c	There are two 16-bit timers and counters in 8051 microcontroller: what are the timers?	

3d	These registers contain all peripheral related registers like P0, P1, P2, P3, timers or counters, serial port and interrupts-related registers. The SFR memory address starts from which location to which location?		
3e	The Program Memory of the 8051 Microcontroller is used for storing the?		
Question no. 4	Match the following		1x5=5
4a	Feature of 8051 Microcontroller.	Label, Instruction and Comments.	
4b	These pins are known as Port 3.	8051 Instruction	
4c	Each line or statement of the assembly language program of 8051 Microcontroller consists of three fields:	128 Bytes RAM	
4d	The 8051 has three very general types of memory.	Pins 10 to 17	
4e	Data Transfer Instructions, Arithmetic Instructions, Logical Instructions, Boolean or Bit Manipulation Instructions, Program Branching Instructions.	They are: On-Chip Memory, External Code Memory, and External RAM.	
Question no. 5	Choose the correct answer		1x5=5
5a	What is the required baud rate for an efficient operation of serial port devices in 8051 microcontroller?		
i) 1200	ii) 2400		
iii) 4800	iv) 9600		
5b	Which among the below stated registers does not belong to the category of special function registers?		
i) TCON & TMOD	ii) TH0 & TL0		
iii) P0 & P1	iv) SP & PC		
5c	Which operations are performed by stack pointer during its incremental phase?		
i) Push	ii) Pop		
iii) Return	iv) All of the above		
5d	Which register usually store the output generated by ALU in several arithmetic and logical operations?		
i) Accumulator	ii) Special Function Register		
iii) Timer Register	iv) Stack Pointer		
5e	Which commands are used for addressing the off-chip data and associated codes respectively by data pointer?		
i) MOVX & MOVC	ii) MOVY & MOVB		
iii) MOVZ & MOVA	iv) MOVC & MOVY		

PART-B, MARK-45		
Questions no.	Questions	marks
Question no. 6		9
Q6a	Compare microprocessor and microcontroller.	3
Q6b	Define assembler, cross assembler, compiler and cross compiler.	3
Q6c	Define strings, arrays, pointers.	3
Question no.7		9
Q7a	Discuss the data types, memory types for 8051 C programming.	3
Q7b	Define IE and IP registers.	3
Q7c	Explain SBUF & SCON registers.	3
Question no. 8		9
Q8a	Describe the general features of 8051 Microcontroller.	4.5
Q8b	Discuss the use of arithmetic & logical operators.	4.5
Question no. 9		9
Q9a	Explain how to execute a interrupt.	4.5
Q9b	Describe the operation of interfacing DC motor.	4.5
Question no. 10	Describe the Block diagram of 8051 with suitable sketch.	9
Question no. 11	Explain various addressing modes with examples.	9
Question no. 12	Explain the operation of interfacing Seven Segment Display with 8051 along with suitable sketch.	9

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