



SM – 423

VI Semester B.Sc. Examination, May/June 2018
(CBCS) (2016-17 and Onwards) (Fresh + Repeaters)
ELECTRONICS – VIII
Microcontrollers

Time : 3 Hours

Max. Marks : 70

Instructions : Answer *all* the questions from Part – A, *any five* from Part – B and *any four* from Part – C.

PART – A

Note : Answer *all* the questions of Part – A in *any one* page, answering the same question multiple times will **not** be considered for evaluation.

Answer **all** the sub-divisions.

(15×1=15)

1. 1) The RAM size of 8052 microcontroller is
 - a) 128 bytes
 - b) 256 bytes
 - c) 64 bytes
 - d) 4K bytes
- 2) The 8051 has _____ 16-bit counter/timers.
 - a) 1
 - b) 4
 - c) 3
 - d) 2
- 3) The SP is of _____ wide register. And this may be defined anywhere in the.
 - a) 8 byte, on-chip 128 byte RAM
 - b) 8 bit, on chip 256 byte RAM
 - c) 16 bit, on-chip 128 byte ROM
 - d) 8 bit, on chip 128 byte RAM
- 4) Which of the following instruction is wrong ?
 - a) INC DPTR
 - b) MOV @DPTR, A
 - c) DEC @DPTR
 - d) MOV A, @A + DPTR

P.T.O.



- 5) The flag register in the 8051 is called _____
- a) Program counter b) Stack pointer
c) Program Status Word d) Accumulator
- 6) The contents of the accumulator after executing the following instructions
- MOV A,#0BH
ANL A,#2CH
- Will be
- a) 00001000 b) 11010111
c) 11011010 d) 00101000
- 7) What is the bit addressing range of addressable individual bits over the on-chip RAM ?
- a) 00H to FFH b) 20H to 2FH
c) 00H to 7FH d) 80H to FFH
- 8) The 8-bit address bus allows access to an address range of
- a) 0000 to FFFFH b) 000 to FFFH
c) 00 to FFH d) None of the above
- 9) Magnitude of the unsigned char data type is
- a) 0 to 255 b) 0 to 256
c) -128 to 127 d) - 127 to 128
- 10) Which of the following instructions will load the value 35H into the high byte of timer 0 ?
- a) MOV TH0, #35H b) MOV TH0, 35H
c) MOV T0, #35H d) MOV T0, 35H
- 11) Which of the following instruction perform jump indirect relative to DPTR ?
- a) JMP @ A+DPTR b) JMP DPTR
c) JMP A+DPTR d) SJMP A+DPTR



- 12) The I/O port that does not have a dual-purpose role is
- a) Port 0
 - b) Port 1
 - c) Port 2
 - d) Port 3
- 13) Which among the below stated registers does not belong to the category of special function registers ?
- a) TCON and TMOD
 - b) TH0 and TL0
 - c) P0 and P1
 - d) SP and PC
- 14) In 8051 which interrupt has highest priority ?
- a) IE 1
 - b) TF0
 - c) IE0
 - d) TF 1
- 15) The total external data memory that can be interfaced to the 8051 is
- a) 32 K
 - b) 64 K
 - c) 128 K
 - d) 256 K

PART – B

Answer **any five** questions :

(5×7=35)

2. With a neat diagram explain briefly the architecture of 8051 microcontroller.
3. Explain how the internal RAM is organized in 8051 microcontroller.
4. With an example, explain :
 - i) Register addressing
 - ii) Direct addressing and
 - iii) Indirect addressing modes of 8051.
5. Explain the operations of the following 8051 instructions :
 - i) RLC A
 - ii) DA A
 - iii) MUL AB
 - iv) AJMP addr.
6. What is a timer ? Explain the timer mode operations.
7. Explain the C-data types for 8051 microcontroller.



8. With necessary diagram, explain the method of interfacing stepper motor 8051.
9. Explain the features of PIC microcontrollers.

PART – C

Answer **any four** questions :

(4×5=20)

10. Explain the bit structure of IE register and IP registers of 8051.
 11. Write a program to sort the given numbers in ascending order.
 12. Write a program to find 2's complement of a 16 bit number.
 13. Write a program to perform the addition of two 8-bit numbers stored in two memory locations and store the results in next two memory locations.
 14. Write an 8051 C program to toggle only one bit P1.5 continuously 5,000 times.
 15. With a necessary diagram, explain the interfacing of LCD to PIC 16F877 A.
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