MICROCONTROLLER

B.Tech 5th Mid-Semester Exam 2018

Q.1. Answer the following questions:-

a.)

Microcontroller	Microprocessor
i.) RAM, ROM, EEPROM embedded in it	External Circuitry are used.
ii.) It is based on Harvard Architecture	It is based on Von. Neumon Architecture

b.)

CALL Instruction	JUMP Instruction
i.) It is always associated with RET instruction.	It is not followed by RET instruction.

c.) Since 8051 microcontroller is 8 bit MC which means most available operations are limited to 8 bits.

d.)

PUSH	POP
i.) It adds entries into the stack	It removes entries from the stack.

e.)

DJNZ	CJNE
Decrement register and Jump if not zero.	Compares the first two operand and branches to the specified destination.

Q.2 There are 128 bytes of RAM in 8051.
Assigned address 00 to 7FH.
128 bytes are divided into three groups.
i.) 32 bytes from 00 to 1F are set for register bank and stack.

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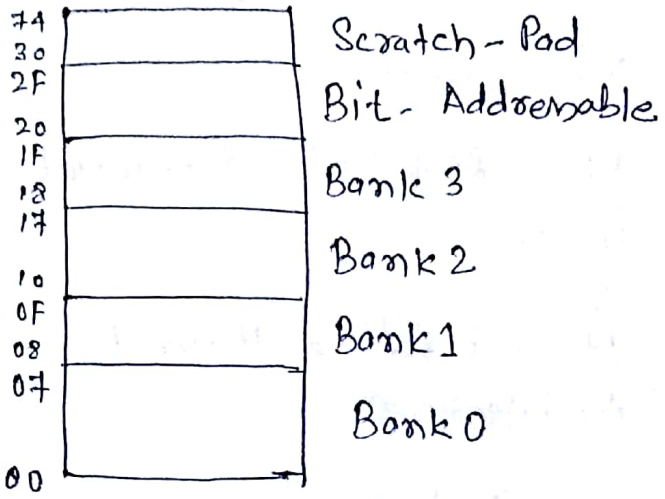
ii) A total of 16 bytes from location 20H to 2FH are set for bit-addressable.

iii) 80 bytes from 30H to 7F are used for read and write.



Q.3.

```
      MOV A, #55H
      MOV R3, #10H
NEXT  MOV R2, #80
AGAIN CPL A
      DJNZ R2, AGAIN
      DJNZ R3, NEXT
```

Q.4.

		Machine Cycle
DELAY :	MOV R3, #250	1
HERE :	NOP	1
	NOP	1
	NOP	1
	DJNZ R3, HERE	2
	RET	2

Time delay :- $[250(1+1+1+2)] \times 1.085 \mu sec$

$= 1356.25 \mu sec.$

Again two instructions outside loop

$1356.25 \mu s + 3 \times 1.085 \mu sec = 1359.505 \mu sec$

Q.5

```
#include <reg51.h>
Void main (void)
  {
unsigned char x, binbyte, d1, d2, d3;
binbyte: 0XFD;
X: binbyte/10;
d1 : binbyte % 10;
d2 :  x % 10;
d3 :  x / 10
P0 = d1;
P1 = d2;
P3 = d3;
}
```

Q.6

```
# include < reg51.h>
  Sbit P1b0 = P1^0;
  Sbit regAMSB = Acc^7;
  void main (void)
  {
  unsigned char conbyte = 0X44;
  unsigned char x;
   Acc = Conbyte;
   for (x=0; x<8; x++)
      {
        P1b0 = regAMSB;
         Acc = Acc<<1;
      }
}
```

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