C2

VIT

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

SCHOOL OF ELECTRONICS ENGINEERING (SENSE)

Winter Semester 2019 ~ 20

Continuous Assessment Test - I

B.Tech. (BIS,BML &BSW)

Course: ECE3031– Microcontroller and Embedded Systems **Duration :** 90 Minutes

Max.Marks:50 **Slot :** C2

Answer all Questions

1. Identify and rectify the error in the following instructions (5)

a) MULA,B b) MOV R0,#255H c) CJNB A,#10H d) ADD R7,A e) MOV PC,#0FFFFH

2. What will be the content of Accumulator after executing the following code? (5)

```
MOV R0,#30H
MOV 30H,#22
MOV A,@R0
INC R0
MOV A,@R0
END
```

3. Write a program to transfer the content of ROM location starting from 200H to RAM location 40H. After execution of the program, memory content should be as follows (10)

ROM location	RAM location
200H: 10H	40H: 10H
201H: 20H	41H: 30H
202H: 30H	42H: 50H
203H: 40H	
204H: 50H	
205H: 60H	

4. Show the contents of various locations after executing each and every instruction of the following code. (10)

Line No.	Program	Contents
1.	MOV 00H,#29H	00H : ; SP :
2.	MOV 10 H,#30H	10H : ;SP :
3.	MOV 18H,#31H	18H : ; SP :
4.	MOV SP.#29H	SP :
5.	PUSH 00H	00H : ; SP :
6.	PUSH 18H	18H : ; SP :
7.	PUSH 30H	30H : ; SP :
8.	POP 31H	31H : ; SP :
9.	POP 18H	18H : ; SP :
10.	PUSH 18H	18H : ; SP :
11.	POP 19H	19H : ; SP :
12.	END	

5. Write an ALP to illustrate addition, subtraction, multiplication and division of two 8 bit numbers. (10)

Assume

Input:
Bank 0 Registers
R0 ->0FFh, R1 ->10h

Output:
Results must be stored in BANK 2 registers

Addition Result -> R1, CY in R0

Subtraction Result ->R2

Multiplication Result ->R3 & R4

Division Result -> R5 & R6

Status of PSW register?

6. Find the size of delay in the following program, if the crystal frequency of 8051 microcontroller is 11.0592 MHz. (5)

Label	Opcode	Machine Cycle
	MOV R0,#0C0h	1
L3:	MOV R1,#30h	1
L2:	MOV R3,#20h	1
L1:	DJNZ R3, L1	2
	DJNZ R2,L2	2
	DJNZ R0,L3	2
	RET	2

7. Show the content of PSW after performing $(FF)_{16} - (1F)_{16}$ (5)