



# VIT

Vellore Institute of Technology  
(Chartered to be University under section 3 of UGC Act, 1956)

School of Electronics Engineering  
CONTINUOUS ASSESSMENT TEST - I  
WINTER SEMESTER 2024-2025

SLOT:D1+TD1

**Programme Name & Branch** : B.Tech ECE  
**Course Code and Course Name** : BECE204L-Microprocessors and Microcontrollers  
**Faculty Name(s)** : Dr.S.Sundar(Course Coordinator)  
**Class Number(s)** : VL2024250502420/2422/4687/4689/4690  
**Date of Examination** : 30/1/2025  
**Exam Duration** : 90 minutes **Maximum Marks: 50**

**General instruction(s):**

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)
- Course Outcomes  
 CO3 - Comprehend the architectures and programming of 8051 microcontroller  
 CO4 - Deploy the implementation of various peripherals such as general purpose input/output, timers, serial communication, LCD, keypad and ADC with 8051 microcontroller

Q. No	Question	M	CO	BL
1	<p>a). Identify, if the following 8051 instructions have any error.If so give the correct instructions:</p> <p>(i) MUL A, B            (ii) PUSH A            (iii) ANL R0,A            (iv) MOV A,@R7            (v) MOV R2, R1</p> <p>b). Identify the Addressing Mode of the following instructions:</p> <p>MOV 03H, 05H            MOV 03H, #05H            MOV A, R7            MOVC A,@A+DPTR            ADD A,@R0</p>	5	3	2
2.	<p>Write an assembly language program to add the following BCD numbers together and store the lower byte of the result in R3 and higher byte of the result in R4 . Assume that the numbers are stored in the ROM space starting from 250H onwards.</p> <pre>           ORG 250H           DATA_1: DB 54H,76H,65H,98H,88H,99H           </pre> <p>Notice that you must first bring the data from ROM space into the RAM and then add them together.</p>	10	3	3
3.	<p>Develop an 8051-assembly language program to do the following task: Assume a switch is connected to port pin P1.0 and monitor its status continuously. If the status of the switch is high, transfer data from Port P0 to Port P2 and blink an LED connected to P3.1. If the switch status is low, transfer data from Port P0 to Port P3 and trigger a buzzer connected to P2.1. Use a delay subroutine for blinking the LED or triggering the buzzer.</p>	10	4	3



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4.	<p>Show the output of the following code after the execution and fill the results in Table 1</p> <pre> MOV R0,#30H MOV 30H,#23 MOV A,@R0 MOV R1,A PUSH 0 PUSH 1 INC R1 PUSH 2 PUSH 1 POP 3 POP 7 MOV A,R3 PUSH 3 POP 6 END </pre> <p style="text-align: center;">Table -1</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Reg/Location</th> <th>Value in Hex</th> </tr> </thead> <tbody> <tr><td>R0</td><td></td></tr> <tr><td>R1</td><td></td></tr> <tr><td>R3</td><td></td></tr> <tr><td>R7</td><td></td></tr> <tr><td>R6</td><td></td></tr> </tbody> </table>	Reg/Location	Value in Hex	R0		R1		R3		R7		R6				
Reg/Location	Value in Hex															
R0																
R1																
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5.	<p>(i) Analyse the following assembly code</p> <pre> SETB PSW.4 MOV R2, #78H MOV A, R2 SETB PSW.3 MOV R4,#0A4H ADD A,R4 END </pre> <p>(a) Specify the address of the RAM locations, where the data 78H and A4H are stored.</p> <p>(b) Specify the data stored in accumulator and the status of flags after the addition instruction.</p> <p>(ii) State the contents of accumulator A in hex, after executing the instruction at each line of the following program. Assume register B has a value of 04H.</p> <pre> ANL A, #00H MOV A, # 3AH SWAP A ANL A, #23H DIV AB END </pre>	5	3	2												

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