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REG. NO.:

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - II
WINTER SEMESTER 2024-2025

SLOT: B1+TB1

Programme Name & Branch	**: B.Tech CSE**
Course Code and Course Name	**: BECE204L- Microprocessors and Microcontrollers**
Faculty Name(s)	**: Gerardine Immaculate Mary (Course Co-ordinator)**
Class Number(s)	**: VL2024250504038/4040/4042/4045/4047/4049/4051/5054/ 4057/4059/4061/4063/4065/4068/4071/4073/4075/4077/4078 4080/4082/4084/4086/4088/4191/4199**
Date of Examination	**: 17-03-2025**
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 Outcome
  CO4-Deploy the implementation of various peripherals such as general purpose input/output, timers, serial communication, LCD, keypad and ADC with 8051 microcontroller
- Comment the program instructions, explain the format of Special Function Registers (SFRs) used, and provide any necessary calculations.

Q. No	Question	M	CO	BL
1.	Develop an 8051 Assembly Language Program (ALP) for the following scenario. The port P1 receives the data from the user. Based on the nature of the received data do the following: • If the received data at P1 is EVEN then send it to P2 by inverting bits that are in the even position. • If the received data at P1 is ODD then send it to P3 by inverting bits that are in the odd position.	10	4	3
2.	Develop an 8051 ALP to interface a capacitive touch sensor with Port P3.4 and use Timer 0 to detect touch events. When the sensor is touched, increment the count on Port P1 and display the touch count on Port P2 every 1 second using Timer 1.	10	4	3
3.	Develop an 8051 ALP to receive data via the serial port at a baud rate of 9600. The received data should be buffered in Port P1, and the program should send an acknowledgment message ("Data Received") back to the sender using interrupt.	10	4	3
4.	Develop an 8051 ALP to interface 16x2 LCD display with suitable diagram. Assume the string "VIT" is stored in ROM location from 200H onwards and the string "Vellore" is stored in ROM location from 300H onwards. A switch is connected to port pin P0.4. If the switch input is 1, display the string "VIT" in line 1 of the LCD display otherwise display the string "Vellore" in line 2 of the LCD display.	10	4	3
5.	An 8051 microcontroller is connected to linear temperature sensor through ADC0804 which gives 5V when the temperature of the water in boiler at industry is 100°C. Develop an ALP with suitable interfacing diagram to interface ADC0804 with 8051 and compare the value of temperature stored in Accumulator (A) with threshold value T=50°C. If A> 50°C then turn ON buzzer connected to port P1.3 to alarm for 60 ms using timer 0.	10	4	3

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