



VIT

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

REG.NO.:

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

SLOT: A2+TA2

Programme Name & Branch :B.Tech (CSE)
Course Code and Course Name : BCSE305L- Embedded Systems
Faculty Name(s) : ALL
Class Number(s) : ALL
Date of Examination :16/03/2025
Exam Duration : 90 minutes Maximum Marks: 50

Answer all the questions

CO3.To examine the working principle and interface of typical embedded system components, create programme models, apply various optimization approaches including simulation environment and demonstration using debugging tools.

Q. No	Question	M	CO	BL
1.	An autonomous car is programmed to move from VIT to CMC,Bagayam, The car will follow all the traffic rules and would be guided by the inbuilt Googlemap. Construct an FSM and a CDFG for the same .	10	3	3
2.	A. Make use of the various optimisation techniques in the given code and present the modified code <pre>#include <stdio.h> int main() { int i, j, isPrime; for (i = 2; i <= 100; i++) { isPrime = 1; printf("Prime numbers up to 100: "); for (j = 2; j < i; j++) { int a=i%j; if (i % j == 0) { isPrime = 0; break; } } if (isPrime) { printf("%d ", i); } } if(isPrime) { printf("\n"); } return 0; }</pre>	6	3	
	B. Differentiate hardware and software development tools with an example for each	4		



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3.	<p>A car manufacturing industry has various tasks to be carried out . Task 1 takes 2 secs and is repeated every 4 secs , Task 2 takes 3 secs and is carried out every 8 secs . Task 3 takes 4 secs and is repeated every 24 secs . Assume all the tasks arrive at time 0 . Schedule the tasks based on any 2 models and analyse the CPU utilization and the constraints for each model with the time graph.</p>	10	3	4
4.	<p>A smart city project has huge data which is collected and used for prediction and analysis. There are 3 processes which happens simultaneously. Build the 3 processes using POSIX and also incorporate scheduling .</p>	10	3	3
5.	<p>A. "All embedded systems are not Real time systems ". Justify the same with an example for each .</p>	5	3	3
	<p>B. Identify if the following systems are Soft RTS or Hard RTS with justification</p> <ol style="list-style-type: none"> 1. A Cruise control system 2. An ATM machine 3. A Pacemaker 4. A fitbit watch 5. A smart fridge 	5		
