VIT

Vellore Institute of Technology

Continuous Assessment Test -I (CAT-I) Winter Semester (2023-24)

Programme Name & Branch : B.Tech (Computer Science and Engineering)
Course Code : BCSE305L
Course Name : Embedded Systems
Class Number(s) : VL2023240501066, 1050, 1090, 1058, 1070, 1046, 1033, 1096, 1053, 1064, 1091, 1010, 1041, 1094, 1005
Slot : A2+TA2
Date of the Exam :11.02.2024
Exam Duration : 90 minutes **Maximum Marks: 50**

General instruction(s):

Answer all questions

Q.No.	Questions	Max Marks
1.	Enumerate the special features of ARM. With a neat diagram explain the architecture of ARM processor	10
2.	Train accidents has caused loss of human lives, Classify the real time system. As an embedded engineer what could be the preventive measures that can be incorporated in a train to save lives. Explain the development of your model train using the embedded design cycle	10
3.	Write a short note on serial communication in 8051 and what are the SFRs used for configuring the UART. Write a program for 8051 to transfer "SCOPE" serially at 9600 baud rate, 8 bit data, 1 stop bit and repeat continuously	10
4.	With necessary circuit diagram explain the DAC and illustrate the characteristics of the same.	10
5.	Explain how DC motor is interfaced with 8051 for different duty cycle.	10

BCSE305L $A_2 + TA_2$

1) features of ARM — 3M
Architecture & explanation — 7M

Load & Store
Single Cycle Execution
3 types of Instruction set
7 modes

2) Signalling & Control Systems. — 2M
Automatic braking system
Smart electronic sensors - nearby trains — 2M
Types of RTS — 6M
Console Transmitter & Receiver

3) SCON, (TCON / TMOD), PCON, SBUF — 4M
9600, -3 — FD
Program with Initialization — 6M

4) DAC & characteristics — 7M+3M

5) DC motor Interfacing — 7M
PWM — 3M