Vivekanand Education Society's Institute of Technology

An Autonomous Institute Affiliated to University of Mumbai

End Semester Examination
Summer 2024

Max marks: 60 Duration: 2 hours
Branch: Automation & Robotics Semester: IV
Name of the Course: Embedded Systems QP Code: R23-ARC402_012023-24
Course code: ARC402

N.B. (1) Attempt any three out of the five questions.
(2) Figures to the right indicate full marks.
(3) Assume suitable data if necessary

			Marks
Q.1	(a)	Explain design metrics along with latest design trends of embedded systems.	10
	(b)	Explain the addressing modes of the 8051 microcontroller with examples.	10
Q.2	(a)	Calculate the value to be loaded in the timer register in mode 2 for a 100us delay using a 12 Mhz crystal.	10
	(b)	Explain the process of interfacing DAC with 8051. Can we generate a triangular waveform and sine waveform using a DAC?	10
Q.3	(a)	(i) Explain following instructions with appropriate example: 1. SWAP 2. MOVC	5
		(ii) Explain the Program Status Flag of 8051 with an example.	5
	(b)	Explain SPI protocol along with basic signals used for communication.	10
Q.4	(a)	Explain with example the pipeline architecture of ARM processors.	10
	(b)	Write a program to transmit "Healthy World" on serial communication port of 8051 at a baud rate of 9600 with crystal oscillator frequency of 11.0592 MHz.	10
Q.5	(a)	Explain interfacing of LCD with 8051. Write steps to configure it and send your college name for display.	10
	(b)	Explain Interrupt structure of 8051.What is the difference between RET and RETI instructions?	10

CO - COURSE OUTCOMES
BT - BLOOM'S TAXONOMY

X------X------X-----X