KUMARAGURU
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B.E DEGREE EXAMINATIONS: NOV/DEC 2024

(Regulation 2018)

Sixth Semester

ELECTRONICS AND COMMUNICATION ENGINEERING

U18ECI6202: Microcontrollers

COURSE OUTCOMES

CO1: Explain the architecture of 8051 microcontroller and develop C code for the given application.

CO2: Design and implement applications using 8051 microcontroller.

CO3: Describe the architecture of peripherals of ARM Cortex and write C code for the given application.

CO4: Build and verify real time applications using microprocessor/microcontroller.

CO5:

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	Locate the function of the pins PSEN and EA of 8051	CO1	[K2]
2.	Describe the two-power saving mode of operation.	CO1	[K2]
3.	State the modes used in keyboard interface.	CO2	[K2]
4.	Tabulate the vectored and non vectored interrupts?	CO2	[K2]
5.	State Program Counter.	CO1	[K2]
6.	List out the difference between 8051 architecture and ARM architecture	CO3	[K1]
7.	Compare RISC and CISC processor architectures in short.	CO3	[K1]
8.	Mention 4 different branching Instructions used in ARM Cortex processor.	CO4	[K2]
9.	List the SFR registers of ARM Cortex processor.	CO4	[K2]
10.	Mention the use of a watchdog timer in an embedded system?	CO3	[K2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Draw and explain the pin configurations of the 8051 micro controllers.	6	CO1	[K2]
	b)	With the diagram explain how 8051 interfaced to external memory.	10	CO1	[K2]
12.		Describe the structure of four parallel ports in 8051 microcontrollers with necessary diagram.	16	CO1	[K2]

13.		Identify the registers and pins of LCD and write an ALP to display message "HELLO" as LCD Displays.	16	CO4	[K_3]
14.	a)	Using 8051 microcontroller ALP, how to generate 50% duty cycle square waveform.	8	CO2	[K_3]
	b)	Write a program to toggle all the bits of port 0 (P0) continuously using 8051 microcontrollers.	8	CO2	[K_3]
15.	a)	With the neat diagram, Elaborate the architecture of ARM Cortex Processor in detail.	10	CO3	[K_2]
	b)	Describe the operation modes and privilege levels in Cortex M3 Processor	6	CO3	[K_2]
16.	a)	Analyze the need for pipelining in advanced ARM architectures.	10	CO3	[K_3]
	b)	Explain the 5-stage pipelining in ARM with a neat sketch.	6	CO3	[K_2]

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