POKHARA UNIVERSITY

Level: Bachelor | Semester: Spring | Year : 2019
Programme: BE | Full Marks: 100
Course: Embedded System | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1.	a)	List and define the three main characteristics of embedded system that distinguish such systems from other computing system.	7
	b)	State the differences between combinational and sequential circuits? Describe sequential circuit design process with a suitable example.	8
2.	a)	Define datapath and control units with its sub operations.	7
	b)	Design a custom single-purpose processor to calculate LCM (least common multiple) between two integers.	8
3.	a)	Why is cache memory needed? Explain the principle of operation of EPROM with necessary illustrations.	8
	b)	Describe how the memory modules can be composed. Use a suitable example describing all the three cases.	7
4.	a)	What do you understand by interrupt handler? Explain three method by which RTOS handles interrupt.	8
	b)	What do you mean by kernel? Describe the types of RT kernel.	7
5.	a)	Define Debugger, Downloader and Cross-Assembler.	7
	b)	Write an assembly language program for 8051 micro controller to display the number from 0 to 9 in a seven segment display so that the number is updated in every 1 sec. User internal timer of the 8051 to generate 1 sec delay. Show necessary connection diagram and calculation.	8
6.	a)	Write a VHDL program for which output will be 1 when the sequence 1101 is detected considering overlapping condition.	8
	b)	Write a program in VHDL implement 8:1 multiplexer.	7
7.	Write short notes on: (**Any two**)		2×5
	a)	Cross compiler and Native Compiler	
	b)	DMA	
	c)	Types of memory	