Duration: 3 Hours **[Marks:80]**

N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required, and state it clearly.

1		Attempt **any FOUR**	[20]
	a	Compare Harvard and Von Neumann architecture.	
	b	Explain cache memory.	
	c	Compare microprocessor and microcontroller.	
	d	List the features of ARM7.	
	e	List the features of ATMEGA 328P.	
2	a	Explain addressing modes of 8051 with one example each.	[10]
	b	Differentiate between: i) Static and Dynamic RAM. ii) Paging and segmentation.	[10]
3	a	Explain with diagram Interfacing of electric kettle operating on 230V/ 5A to 8051 microcontroller. Write a program to make it ON and OFF depending on the status of bit, with an address 09H.	[10]
	b	Explain exceptions handling in ARM7 with reference to exception entry, return and exception priorities.	[10]
4	a	Explain serial communication in 8051 with the help of SCON register.	[10]
	b	Explain the concepts of program counter, stack and stack pointer.	[10]
5	a	What are the factors to consider while selecting microcontroller for a given application.	[10]
	b	Explain in detail with diagrams ports of microcontroller 8051.	[10]
6	a	Write an 8051 program to convert hexadecimal number stored in location 20H to unpacked decimal. Store the result at 21H, 22H and 23H.	[10]
	b	Explain ARMs programmers' model with neat diagram.	[10]