B.E. (Computer Engineering) Fifth Semester (C.B.S.)

Computer Architecture & Organization

P. Pages: 2 NRT/KS/19/3445 Time: Three Hours Max. Marks: 80 Notes: 1. All questions carry marks as indicated. Solve Question 1 OR Questions No. 2. 2. Solve Question 3 OR Questions No. 4. 3. Solve Question 5 OR Questions No. 6. 4. Solve Question 7 OR Questions No. 8. 5. Solve Question 9 OR Questions No. 10. 6. Solve Question 11 OR Questions No. 12. 7. Due credit will be given to neatness and adequate dimensions. 8. Assume suitable data whenever necessary. 9. Illustrate your answers whenever necessary with the help of neat sketches. 10. Explain Booth's algorithm in brief perform the following multiplications using Booth's 1. 8 a) algorithm. $(7) \times (-15)$ $(-16) \times (-8)$ i) ii) Explain in detail about floating point arithmetic. b) 6 OR Explain Von Neumann architecture in detail. 2. a) 6 Perform the 8/3 integer division using 8 b) i) Restoring division method Non-restoring division method. ii) 3. Explain combinational ALU's and sequential ALU's in detail. 7 a) Draw and explain RISC architecture in detail. b) 6 OR Explain about instruction and arithmetic pipeline concept. 7 4. a) Discuss 3-Address, 2-Address 1-address and zero address instruction formats with b) examples. Differentiate between vertical and Horizontal micro-instructions. 5. a) 6 Explain single bus structure. How synchronization is achieved between fast processor 7 b) and slow input and output devices. OR

NRT/KS/19/3445 1 P.T.O

6.	a)	Write the differences between Hardwired and microprogrammed control unit.	6
	b)	Why control signals are needed in a CPU to execute an instruction? Write control signal generation for. ADD R_0 , R_1 where result is stored in R_0 .	7
7.	a)	Explain the concept of locality of reference.	4
	b)	Explain how address translation is done in virtual memory.	6
	c)	Write a short note on RAID.	3
		OR	
8.	a)	Explain the need of cache memory.	7
	b)	Discuss various memory allocation techniques in detail.	6
9.	a)	Explain	8
		i) Vectored interrupt	
		ii) Buses	
		iii) Programmed I/O system.	
	b)	Explain different interrupts handling techniques.	5
		OR	
10.	a)	Explain how data transfer takes place using DMA technique.	5
	b)	Explain about	8
		i) PCI	
		ii) SCS I	
		iii) DOT	
		Matrix printers	
11.	a)	Differentiate between uniform and non uniform memory access.	7
	b)	Explain various Bus allocation schemes.	7
		OR	
12.		Write a short notes on	14
		i) Multiprocessors ii) Super scalar processors	
		iii) Clusters iv) Compare CISC and RISC.	
