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

Computer Architecture Organization

P. Pages : 2 **NRJ/KW/17/4500**

Time : Three Hours * 0 4 2 3 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Explain Von Neumann architecture in detail. **6**

b) Represent 1264.27 in IEEE single point and double point precision formats. **8**

OR

2. a) Perform the 8/3 integer division using: **10**

i) Restoring division method

ii) Non-Restoring division method.

b) Explain how arithmetic operations are performed in floating point numbers. **4**

3. a) Draw and explain RISC architecture in detail. **5**

b) Explain about instruction and arithmetic pipeline concept. **8**

OR

4. a) Explain combinational ALU's and sequential ALU's in detail. **5**

b) Discuss 3-address, 2-address, 1-address and zero address instruction formats with examples. **8**

5. a) Write the differences between Hardwired and micro programmed control unit. **6**

b) Why control signals are needed in a CPU to execute an instruction? Write a control signal generation for ADD R_0, R_1, where result is stored in R_0. **7**

OR

6. a) Explain single bus structure. How synchronization in achieved between fast processor and slow input and output devices. **7**

b) Differentiate between Vertical and Horizontal micro instruction. **6**

7.	a)	What is Virtual memory? Explain how virtual address is translated into physical address.	**7**
	b)	Write a short note on: RAID and optical memory.	**6**

OR

8.	a)	What is cache memory? Explain various mapping techniques used in cache memory.	**7**
	b)	Write a short note on characteristics of memory system.	**6**
9.	a)	Differentiate between programmed I/O and interrupt driven I/O.	**7**
	b)	Explain the working principle of Touch screen panel.	**6**

OR

10.	a)	What is DMA? Explain the block diagram of two channel DMA controller.	**7**
	b)	Explain the importance of memory mapped I/O and I/O mapped I/O.	**6**
11.	a)	What is the use of cluster configuration? Explain with a neat diagram.	**7**
	b)	What is Bus? Explain various bus allocation schemes.	**7**

OR

12.	a)	Give a brief note on:	**7**
		i) Symmetric multiprocessors.	
		ii) Non uniform memory access.	
	b)	Compare and contrast CISC and RISC processors.	**7**

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