B.E. (Computer Technology) Third Semester (C.B.S.)

Computer Architecture & Organization

P. Pages : 2 **NRT/KS/19/3321**

Time : Three Hours * 0 1 9 6 * 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. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Write an Assembly language program to add five numbers stored in memory. **4**

b) What is addressing mode? Explain different Addressing modes with example. **9**

OR

2. a) Draw and explain stored program architecture. **4**

b) Explain Assembler Directives & its significance with an example of program. **5**

c) differentiate big endian and little endian with example. **4**

3. a) Explain in detail with an example of an instruction execution generating sequence of control signals. **7**

b) Draw and explain instruction format of IBM 360/370 system. **7**

OR

4. a) Write control sequence for execution of SUB $(R_1)+, 1000$. **7**

b) Explain the limitations of short word length machines. **7**

5. a) Differentiate between hardwired and micro programmed control unit in detail. **6**

b) Explain following **7**

a) Bit slice technique **4**

b) Micro Instruction. **3**

OR

6.	a)	Explain Horizontal & Vertical organization used in microprogrammed control unit.	**7**
	b)	Write short note on Micro instruction with next address field.	**3**
	c)	Explain Emulation.	**3**
7.	a)	What are guard bits? State their necessity. How they are removed?	**4**
	b)	What are the exceptions in floating point arithmetic? Represent $\frac{1}{32}$ and $\frac{1}{16}$ in IEEE single & Double precession format.	**5**
	c)	Perform 22/4 integer division by non restoring division algorithm.	**5**

OR

8.	a)	Multiply 47x (-3) using Booth's multiplication.	**6**
	b)	Represent 1365.125 in IEEE single & Double precision format.	**3**
	c)	Divide 38 by 7 using non - restoring division method.	**5**
9.	a)	What is memory interleaving? Explain whether speed of execution is improved with its use.	**7**
	b)	Design 4Mx32 memory using 512kx8 static memory chip.	**6**

OR

10.	a)	Explain Page table.	**3**
	b)	Explain memory mapping technique.	**5**
	c)	What is virtual memory? With suitable diagram explain how logical address is converted to physical address.	**5**
11.		Write short note on **any three.**	**13**

a) Vector processor b) Array Processor

c) Multi core Architecture d) Flynn's classification

OR

12.	a)	Give features of RISC & CISC processor	**7**
	b)	Write short notes **any two.**	**6**

i) Pipelining ii) Data Hazards

iii) Tightly Coupled

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