B.E.Fourth Semester (Information Technology) (C.B.S.)

Computer Architecture & Organization

P. Pages : 2 **NKT/KS/17/7301**

Time : Three Hours * 0 3 1 4 * 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) Explain the various addressing modes with example. **7**

b) Differentiate between multiprocessors & multi-computers. **6**

OR

2. a) Differentiate between Stack and Queue with proper example. **6**

b) Explain Big Endian and Little Endian assignment. **7**

3. a) What is single, two & three Bus Architecture? Provide advantages of three Bus over two Bus architecture. **7**

b) Explain the instruction formats of M68000 machine. **6**

OR

4. a) What considerations we need to take for High Level Language? **4**

b) Enlist various instruction formats? **4**

c) Explain sequencing of control signals. **5**

5. a) Discuss Horizontal and vertical microinstruction formats indicating their advantages and disadvantages. **7**

b) With the help of example, explain Bit slice. **4**

c) Why grouping of control signal is necessary? Explain in brief. **3**

OR

6. a) Give the microprogrammed control signals for the following instructions : **10**
i) ADD R_1 (Single operand)
ii) ADD R_1, R_2 (Double operand)
iii) ADD R_1, R_2, R_3
iv) MOV R_2, R_1

b) What is Emulation? Explain in brief with example. **4**

7. a) Perform the 8/3 Integer division using **14**
i) Restoring Division Method.
ii) Non-Restoring Division Method.

OR

8. a) What is Booth's multiplication? Provide solution of – 13X11 using Booth's method. **8**

b) Explain how arithmetic operations are performed in floating point numbers. **6**

9. a) Consider a direct mapped cache with 64 blocks, 64 block size of 16 bytes. To what block numbers does byte address 1200 maps. **7**

b) Discuss the advantages of dynamic RAM over static RAM cell. **6**

OR

10. a) Define virtual memory? Explain virtual to physical address translation in virtual memory. **6**

b) Design a 8K X8 bit RAM system using a 1K X4 bits RAM IC's & appropriate decoders. **4**

c) Explain memory interleaving with diagram. **3**

11. a) Explain pipelining with two & four sequences. **7**

b) Explain working of DMA in detail. **6**

OR

12. a) Differentiate between RISC & CISC Architecture. **7**

b) Write short notes on :- **6**
i) Vector processor.
ii) Flynn's classification or parallel structure.

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