B.E. / B.Tech. Computer Science & Engineering (Model Curriculum) Semester-III

SE103CS - Computer Organization & Architecture

P. Pages : 2 **GUG/S/25/13803**

Time : Three Hours * 2 2 5 6 * Max. Marks : 80

Notes :
1. All questions carry equal marks.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Diagrams and Chemical equation should be given wherever necessary.
5. Illustrate your answers wherever necessary with the help of neat sketches.
6. All questions are compulsory.

1. a) Explain the role of various processor level components in the design of Computer system. **8**

b) What is memory words and byte addressability? How 32-bit word used to encode information? **8**

OR

2. a) What is instruction? Explain instruction execution and straight line sequencing. **8**

d) Explain subroutine, subroutine nesting, parameter passing in subroutine. **8**

3. a) Discuss complete instruction execution step by step. **8**

b) Write short note on RISC processor. **8**

OR

4. a) Write short note on- **8**

i) Lossely coupled system

ii) Tightly coupled system

b) Explain control signal sequencing **8**

5. a) Explain hardwired control and microprogrammed control. **8**

b) Write short note on bit slices. **8**

OR

6. a) What is micro instruction? Why grouping of control signal is important? **8**

b) Write short note on- **8**

i) Pre-fetching ii) Emulation

7. a) Explain floating point arithmetic with suitable example. **8**

b) Multiply using bit recording multiplier. **8**

i) $(-22)\times(-5)$

ii) $(-39)\times 14$

OR

8. a) Explain array multiplication of positive binary operands. **8**

b) Represent following number of IEEE 754 single precision and double precision point format. **8**

i) $4.772*10^3$

ii) 500

9. a) What is Cache memory? Also explain locality of reference and cache operation. **8**

b) Explain memory management and requirements of memory management. **8**

OR

10. a) Explain set associative mapping function of cache memory, with suitable example. **8**

b) Explain semiconductor ROM memories. **8**

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