B.E. Computer Science & Engineering (MODEL CURRICULUM) Sem-III

SE103CS : Computer Architecture & Organization

P. Pages : 1 **GUG/W/22/13803**

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

Notes : 1. All questions carry equal marks.
2. Assume suitable data wherever necessary.

1. a) What are different bus structures ? Explain 3-tier Bus structure. **8**

b) Explain functional units in detail with diagram. **8**

OR

2. a) Explain in details different addressing modes with example. **8**

b) Compare hardwired control and microprogrammed control. **8**

3. a) Multiply using Booth's algorithm i.e. bit recording of multiplier. **8**
i) $(-13) \times (12)$ ii) $14 \times (-9)$

b) Write the steps for execution of instruction for ADD (R_3), R_1. **8**

OR

4. a) List and explain characteristics of loosely coupled and tightly coupled system. **8**

b) What is pipelining ? Explain different stages of pipelining ? **8**

5. a) Explain microprogrammed control with neat sketch. **8**

b) Explain micro instruction with next-address field with the help of a diagram. **8**

OR

6. a) Explain virtual memory address translation with diagram. **8**

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

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

b) Multiply using Bit Recording of multiplier $(+14) * (-5)$. **8**

OR

8. a) Explain full adder with the help of neat block diagram. **8**

b) Represent following number in IEEE single precision floating point format. **8**
i) 0.1010010 ii) 1365.125

9. a) Draw and explain synchronous DRAM. **8**

b) Explain direct mapping function of cache memory. **8**

OR

10. a) Write a short note on :
i) Inter leaving. **4**
ii) Virtual memory. **8**
iii) Multiple module memories. **4**

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