B.E.(with Credits)-Regular-Semester 2012-Computer Technology Sem III

CT 302 - Computer Architecture & Organization

P. Pages : 1 **GUG/S/18/3706**

Time : Three Hours * 0 8 7 5 * Max. Marks : 80

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

1. a) Draw and explain basic functional units of a computer? **8**

b) Explain single bus structure with neat sketch? **8**

OR

2. a) What do you mean by an instruction and instruction sequencing? Enlist and explain its four types of operations? **8**

b) Write short notes on **8**
i) Stacks ii) Queues.

3. a) Explain execution of a complete instruction. Write and explain control sequence for execution of the instruction ADD (R3), R1. **8**

b) Explain hardwired control in detail? **8**

OR

4. a) Write steps for execution of a complete instruction Branch < 0. **8**

b) Write short notes on: **8**
i) Array Processor. ii) Input Devices.

5. a) Explain microprogram sequencing with example. **8**

b) Explain microinstructions with its format for field encoded microinstructions? **8**

OR

6. a) Explain microinstruction with next-address field with help of a diagram? **8**

b) Write shorts notes on: **8**
i) Bit slices. ii) Emulation.

7. a) Multiply M = 1101 Q = 1011 using sequential binary multiplier. Assume A = 0000 & C =0? **8**

b) Multiply using Booth Algorithm or Bit recording of multiplier. **8**
a) $(-13)\times(+12)$ ii) $(+14)\times(-05)$

OR

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

b) Multiply using bit pair recording of multiplier. $(+43)\times(-07)$. **8**

9. a) Explain static RAM with neat diagram? **8**

b) What is cache memory? Explain locality of reference and cache operations? **8**

OR

10. Write short notes on: **16**
a) Synchronous DRAM. b) A synchronous DRAM.

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