

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 110405

Roll No.

**B.TECH.**

**Theory Examination (Semester-IV) 2015-16**

**COMPUTER ORGANISATION**

*Time : 3 Hours*

*Max. Marks : 100*

**Note: Attempt questions from all sections as per instructions.**

**Section-A**

**1. Attempt all parts. Each part carries 2 marks. (2×10=20)**

- (a) Discuss the Bus Arbitration.
- (b) Give IEEE standard for floating point numbers.
- (c) Define stack. How can it be implemented?
- (d) Write the difference between hardwired and microprogrammed control unit.
- (e) Explain memory operations with control signals.
- (f) Define Micro program and Micro code.

- (g) What are the various phases for executing an instruction?
- (h) What are instruction formats? Give its different categories.
- (i) Write short notes on single bus organization of the data path inside the CPU.
- (j) Represent the following conditional control statement by two register transfer statements with control function:

If (P=1) then (R1 ← R2) else if (Q=1) then (R1 ← R3).

### Section-B

2. Attempt any Five parts. Each part carries 10 marks.

[10×5=50]

- (a) What do you mean by processor organization? Explain various types of processor organization.
- (b) How many 128 bytes RAM chips are required to provide a memory of 2048 bytes . Show detail of connections clearly indicating address, data and decoder configuration.
- (c) What is role of cache memory? Explain different cache mapping schemes.
- (d) What is auxiliary memory? How information is stored in it?
- (e) Explain memory operations with control signals.

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- (f) Explain different type of CPU organization with diagrams.
- (g) An 8 bit register contains the binary value 10011100 .  
What is the register value after arithmetic shift right?  
Starting from the initial number 10011100, determine the register value after an arithmetic shift left and state whether there is an overflow.
- (h) Explain memory hierarchy with diagram.

### Section-C

**Attempt any two questions . each question carries 15 marks.** (15×2=30)

3. What is the difference between hardwired control and micro-programmed control unit? What are the advantages and disadvantages in each control? Discuss in detail.
4. Discuss different addressing modes with proper diagrams.
5. Discuss the required hardware, hardware algorithm for Booth Multiplication. Iterate your algorithm for the product  $(+13) * (-15)$ .