



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

PAPER ID : 131402 Roll No.

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B.Tech.

(SEM. IV) THEORY EXAMINATION 2013-14

(**COMPUTER ARCHITECTURE AND ORGANIZATION**

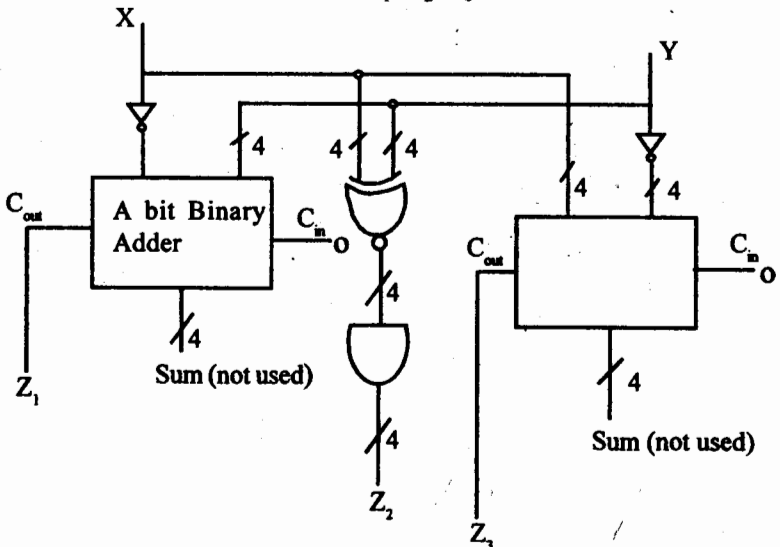
Time : 3 Hours

Total Marks : 100

Note :- Attempt all questions. All questions carry equal marks.

1. Attempt any two parts of the following : (2×10=20)

(a) Name the circuit shown in figure 1, and relation between Input X, Y and output Z_1, Z_2, Z_3 .



(b) Draw Truth table of full subtractor and implement using multiplexes.

(c) Implement the sequential circuit Sc using D flip-flop and NAND gates. Also draw the Truth table.

2. Attempt any **two** parts of the following : (2×10=20)

- (a) Draw the functional block diagram of accumulator based CPU. Explain its operation and enumerate its instruction set.
- (b) Differentiate between RISC and CISC type processor. How the performance of accumulator based CPU can be improved ?
- (c) Draw the block diagram (organizational) of ARM 6 processor and explain its working.

3. Attempt any **two** parts of the following : (2×10=20)

- (a) Draw the circuit diagram of two's complement multiplier and explain its working.
- (b) Design a complete Two's complement adder subtractor.
- (c) Construct a divider array for 3 bit unsigned numbers using call D, and explain its working.

4. Attempt any **two** parts of the following : (2×10=20)

- (a) What do you mean by Hardwired and micro programmed control unit ? Show the organization of a Hard wired control unit for accumulator based architecture.
- (b) Implement a multiplier control unit, take multiplier of your choice.
- (c) Draw the basic structure of microprogrammed control unit and explain its working.

5. Attempt any **two** parts of the following : (2×10=20)

- (a) Differentiate between look aside and look through type organization of Caches. Draw the block diagram and explain the working.
- (b) What do you mean by address mapping ? List the various stages at which the address mapping takes place. Draw the block diagram of dynamic address translation system and explain it.
- (c) Discuss the architecture of 8085. Explain its any two applications.



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