

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-III Examination-Dec.-2011

Subject code: 130704

Date: 13/12/2011

Subject Name: Computer Organization & Architecture

Time: 2.30 pm -5.00 pm

Total marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Design and explain a common bus system for four register each of 4 bit using multiplexer. **07**

(b) List and explain different types of shift microoperation. **07**

Q.2 (a) Draw and explain the flowchart for Instruction Cycle **07**

(b) Explain all memory reference instruction in detail. **07**

OR

(b)(i) An 8-bit register contains the binary value 10011100. What is the register content after arithmetic shift right? Starting from the initial value 10011100, determine the register content after an arithmetic shift left, and state whether there is an overflow. **03**

(ii) Explain the following terms: **04**

a)SPA b)SNA c)SZA d)SZE

Q.3 (a) Write an assembly language program to multiply two positive numbers. **07**

(b) Explain Address Sequencing process in a microprogrammed control unit using suitable diagram. **07**

OR

Q.3 (a) Explain an Address Symbol Table with a suitable example. **07**

(b) Draw and explain the organization of microprogrammed control unit. **07**

Q.4 (a)(i) Explain different types of Interrupts. **04**

(ii) Derive the RPN for the following expression : **03**

$A*[B+C*(D+E)] / F*(G+H)$

(b) List and explain different types of addressing modes. **07**

OR

Q.4 (a) Explain different types of Instruction Formats with examples. **07**

(b) Give the detailed comparison between RISC and CISC. **07**

Q.5 (a) What is an array processor? Explain the different types of array processor. **07**

(b) Explain Booth multiplication algorithm with the flowchart. **07**

OR

Q.5 (a) What is Instruction Pipeline? Explain the Four-Segment Instruction Pipeline with the suitable diagram. **07**

(b) Explain the Hardware Algorithm for add and subtract operation using flowchart. **07**
