

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-III Regular / Remedial Examination December 2010****Subject code: 130704****Subject Name: Computer Organization and Architecture****Date: 18 /12 /2010****Time: 10.30 am – 01.00 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) Explain the Common Bus System with its diagram. **07**
(b) Discuss the phases of Instruction Cycle with flowchart. **07**
- Q.2** (a) What is the difference between microprocessor and micro program? Is it possible to design a microprocessor without a micro program? Are all micro programmed computers also microprocessors? Define micro operation, micro instruction, micro program and micro code in short. **07**
(b) Derive the control gate structure associated with the Address Register (AR) in the basic computer. **07**
- OR**
- (b) Explain the following instructions: SPA, SNA, SZA, SZE. **07**
- Q.3** (a) Explain the different addressing modes with suitable examples. **07**
(b) Explain the basic working principle of the Control Unit of basic computer using diagram. **07**
- OR**
- Q.3** (a) Explain the design of Accumulator logic. **07**
(b) List all the three address, two address, one address, zero address and RISC instructions with its examples. **07**
- Q.4** (a) Explain the working of Second Pass Assembler with its flowchart. **07**
(b) Write the program to multiply two positive numbers. by a repeated addition method. For ex., to multiply 5×4 , the program evaluates the product by adding 5 four times, or $5+5+5+5$. **07**
- OR**
- Q.4** (a) Give the basic computer instruction format and explain Memory reference, Register reference and Input-output instructions. **07**
(b) Write the program to logically OR the two numbers without using “OR” instruction. **07**
- Q.5** (a) Explain the Booth Multiplication Algorithm in detail. **07**
(b) Explain the Instruction Pipelining with example. **07**
- OR**
- Q.5** (a) Explain the procedure for addition and subtraction with signed-magnitude data with the help of flowchart. **07**
(b) Draw the diagram of Micro programmed sequencer for a control memory and explain it. **07**
