

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE SEM-III Examination May 2012****Subject code: 130704****Subject Name: Computer Organization and Architecture****Date: 08/05/2012****Time: 02.30 pm – 05.00 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 register transfer language with example. **07**  
 (b) What is high impedance state in three-state buffer? Explain three – state gate in detail. **07**
- Q.2** (a) Explain 4-bit incrementer with a necessary diagram. **07**  
 (b) Explain instruction cycle. **07**
- OR**
- (b) Discuss following instruction (i) STA (ii) LDA (iii) ISZ (iv) CIR (v) CIL (vi) SZE (vii) BSA **07**
- Q.3** (a) Explain the design of accumulator logic with block diagram. **07**  
 (b) Explain the first pass of assembler with the help of flowchart and how symbol table is generated using an example. **07**
- OR**
- Q.3** (a) (i) Describe the subroutine write a program which move the block of data. **07**  
 (ii) Write a program which uses the service of an interrupt. **07**  
 (b) Describe the following terms with proper example in each case: **07**  
 Microoperation, microinstruction, microprogram, microcode.
- Q.4** (a) Explain register stack and memory stack with block diagram. **07**  
 (b) List the important characteristics of RISC architecture and explain use of overlapped register window. **07**
- OR**
- Q.4** (a) Explain address sequencing with block diagram. **07**  
 (b) Explain different types of addressing modes in detail. **07**
- Q.5** (a) Explain the booth's algorithm with the help of flowchart. **07**  
 (b) What is pipeline conflict? Explain data dependency and handling of branch instruction in detail. **07**
- OR**
- Q.5** (a) What is dividend alignment? Write short note on pipelining considering space-time diagram. **07**  
 (b) Explain the BCD adder and its working with block diagram. **07**

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