

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – SUMMER • 2014****Subject Code: 130704****Date: 23-05-2014****Subject Name: Computer Organization and Architecture****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.

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|------------|------------|--|-----------|
| Q.1 | (a) | Design and Explain Common bus system using multiplexer. | 07 |
| | (b) | Draw and explain the flowchart for instruction cycle. | 07 |
| Q.2 | (a) | Explain Design of Control Unit. | 07 |
| | (b) | Draw and explain first pass assembler. | 07 |
| OR | | | |
| | (b) | Explain the working of Second Pass Assembler with its flowchart and its importance. | 07 |
| Q.3 | (a) | Explain input-output instructions. | 07 |
| | (b) | Write short note on subroutines. | 07 |
| OR | | | |
| Q.3 | (a) | Explain Memory reference instructions. | 07 |
| | (b) | Explain various types of interrupts. | 07 |
| Q.4 | (a) | Define Following Terms: | 07 |
| | | 1) Computer Organization | |
| | | 2) Computer Architecture | |
| | | 3) Accumulator | |
| | | 4) Hardwired control | |
| | | 5) Register Transfer Language | |
| | | 6) Pseudo instructions | |
| | | 7) Micro operation | |
| | (b) | Write an assembly language program to Add two double precision numbers. | 07 |
| OR | | | |
| Q.4 | (a) | Explain the following instructions:
BUN, ISZ, CLA, CLE, CIR, SPA, SKI. | 07 |
| | (b) | Write an assembly language program to multiply two positive numbers. | 07 |
| Q.5 | (a) | Explain booth algorithm for multiplication with a flowchart. | 07 |
| | (b) | Explain the Instruction Pipelining with example. | 07 |
| OR | | | |
| Q.5 | (a) | Multiply the (-9) with (-13) using Booth's algorithm. Give each step. | 07 |
| | (b) | Considering three segment instruction pipeline, illustrate the concepts of delayed load and delayed branch with example. | 07 |
