

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III(OLD) • EXAMINATION – WINTER 2016

Subject Code:130704

Date:11/01/2017

Subject Name:Computer Organization and Architecture

Time:10:30 AM to 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) Differentiate registration transfer instructions and memory reference instructions with four instructions in each type. **07**

(b) List and Explain different types of shift micro-operation. **07**

Q.2 (a) Explain the common bus system with its diagram. **07**

(b) Draw the block diagram of control unit of basic computer. Explain in detail with control timing diagrams. **07**

OR

(b) Explain micro-program sequencer for a control memory with a diagram. **07**

Q.3 (a) What is the basic functionality of an assembler? Draw and explain its first pass. **07**

(b) Explain four-segment instruction pipeline with diagram. **07**

OR

Q.3 (a) Explain organization of memory stack with related operations. **07**

(b) Write an assembly language program for finding two's complement of an 8 bit number. **07**

Q.4 (a) Describe the microinstruction format for the control memory. **07**

(b) Explain the difference between hardwired control and micro-programmed Control. Is it possible to have a hardwired control associated with a control memory? **07**

OR

Q.4 (a) Define the program interrupt and its operation with diagram. **07**

(b) Describe the addressing modes. How many different types of addressing mode are there? Show general instruction format. **07**

Q.5 (a) What are CISC and RISC architecture? How do they differ from each other? **07**

(b) Multiply the (+15) with (+13) using Booth's algorithm. Give each step. **07**

OR

Q.5 (a) What is vector processing? What is the use of vector processing? **07**

(b) What is the use of booth multiplication algorithm? Describe hardware for booth algorithm. **07**
