

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (OLD) EXAMINATION – WINTER 2017

Subject Code:130704

Date:29/11/2017

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) Explain Register Transfer Language and Micro-operation with examples. **07**
(b) Draw and explain the block diagram for transfer of data from R1 to R2 when control p = 0. **07**
- Q.2** (a) What is an interrupt? Explain interrupt cycle with timing diagram. **07**
(b) Explain the difference between hard wired control and micro programmed control. **07**
- OR**
- (b) Convert $(A + B) * [C * (D + E) + F]$ into prefix and postfix notation. **07**
- Q.3** (a) Write ALP for multiplication of two 16 bit numbers. **07**
(b) What is an assembler? Explain its basic functionality with all passes. **07**
- OR**
- Q.3** (a) Write ALP for transferring a block of data from source to destination. **07**
(b) What are status register bits? Draw and explain the block diagram showing all status registers. **07**
- Q.4** (a) What is overlapped register window? How window size and register file size is computed? **07**
(b) Explain MRI and non-MRI instructions with examples. **07**
- OR**
- Q.4** (a) What is a register stack? Explain PUSH and POP operations on it. **07**
(b) Describe the importance of timing and control signal in data transfer with example. **07**
- Q.5** (a) What is BCD? Draw and explain block diagram of BCD adder. **07**
(b) What is pipeline processing? Explain its significance with respect to the processor architecture. **07**
- OR**
- Q.5** (a) Describe the significance of parallel processing with example. **07**
(b) What is memory interleaving? How it is useful in computer architecture? **07**
