

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2017

Subject Code: 2140707

Date: 21/11/2017

Subject Name: Computer Organization

Time: 02:30 PM TO 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) What is a Digital Computer System? Explain the role of binary number system in it. **03**
(b) Define RTL. Give an example of register transfer of data through accumulator. **04**
(c) What is Register Stack? Explain it with example **07**
- Q.2** (a) Explain the role of tri-state buffer with example. **03**
(b) Write micro operations for ADD instruction. **04**
(c) What is multiplexing? Explain the multiplexing of control signals in ALU. **07**
- OR**
- (c) List and explain types of shift operations on accumulator. **07**
- Q.3** (a) What is Interrupt? How it is useful for a system? **03**
(b) Differentiate MRI and non-MRI. **04**
(c) Write an ALP for multiplying 3 integers stored in register stack. **07**
- OR**
- Q.3** (a) What is machine language? How it differs from assembly language? **03**
(b) List various addressing modes. Explain any TWO with example. **04**
(c) Explain instruction fetching, decoding and executing in pipeline processing. **07**
- Q.4** (a) What is PSW? Explain each bit of it. **03**
(b) Draw flow graph of second pass of assembler. **04**
(c) Differentiate synchronous and asynchronous data transfer with examples. **07**
- OR**
- Q.4** (a) Signify the cache coherence in memory. **03**
(b) What is micro-programmed control architecture? **04**
(c) What is the use of IOP? Explain its communication with CPU. **07**
- Q.5** (a) How virtual memory helps in increasing the storage capacity of a system? **03**
(b) Give the use and role of CAM. **04**
(c) Draw and explain shared memory architecture of multiprocessor system **07**
- OR**
- Q.5** (a) Explain the role of associative memory. **03**
(b) Differentiate tightly coupled and loosely coupled systems. **04**
(c) Give the features of a multiprocessor system. **07**
