

GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER-IV (NEW) EXAMINATION – WINTER 2020

Subject Code:3140707**Date:15/02/2021****Subject Name:Computer Organization & Architecture****Time:02:30 PM TO 04:30 PM****Total Marks:56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

	MARKS
Q.1 (a) What is PSW? Explain each bit of it	03
(b) Write ALP for addition of 10 numbers	04
(c) List and explain Memory reference instructions in detail	07
Q.2 (a) Design a digital circuit for 4-bit binary adder	03
(b) Explain 4 bit arithmetic circuit with suitable diagram.	04
(c) Draw and briefly explain flowchart for second pass of assembler.	07
Q.3 (a) Explain any three register reference instruction in detail.	03
(b) Explain BCD adder in brief	04
(c) Draw and explain micro program sequencer circuit with diagram.	07
Q.4 (a) State the differences between hardwired control and micro programmed control.	03
(b) Explain hardware implementation of common bus system using three-State buffers. Mention assumptions if required.	04
(c) Explain delay load and delay branch with respect to RISC pipeline.	07
Q.5 (a) Draw and briefly explain flowchart for first pass of assembler	03
(b) State the major characteristics of RISC processor	04
(c) Elaborate 4-segment instruction pipeline with neat sketches.	07
Q.6 (a) State the major characteristics of CISC processor	03
(b) List various types of addressing modes and explain any four of them.	04
(c) What is virtual memory? Explain relation between address space and memory space in virtual memory system.	07
Q.7 (a) Briefly explain source initiated transfer using handshaking.	03
(b) Differentiate Programmed I/O and Interrupt initiated I/O	04
(c) Write a short note on associative memory.	07
Q.8 (a) How main memory is useful in computer system? Explain the memory address map of RAM and ROM.	03
(b) Explain daisy chain priority interrupt	04
(c) Explain CPU-IOP communication with diagram.	07
