NATIONAL INSTITUTE OF TECHNOLOGY KURUKSHETRA

THEORY EXAMINATION

Question paper

Roll No: _____

Month and Year of the Examination: Dec, 2019 **Branch:** COMPUTER ENGINEERING

Subject: Computer Organization and Architecture **Subject Code:** CSPC-29

Course: B.Tech **Semester:** III

Time Duration: Three (3) Hours **Maximum Marks:** 50

Note:

*I. **Attempted all questions** and all parts of question together **at one place**. Marks allotted for each question are shown on the right hand margin. **Write your answer with question no.***

II. The Candidates, before starting to write the solutions, should please check the question paper for any discrepancy, and also ensure that they have been delivered the question paper of right course no. and right subject title.

*III. Unless stated otherwise, the symbols have their usual meanings in context with the subject. **Assume suitably and state, additional data required, if any.***

No.	QUESTIONS	Marks
Q1.	(i) What is control function? Explain and show the block diagram & timing diagram for implementing the following register transfer operation. If **(a = 1) then** R1 ← R2, where a is control variable or signal. (ii) Explain the pipeline stall with suitable example and diagram.	5+5 = 10
Q2.	(i) What is register? Explain the purpose of different register with suitable example and diagram. (ii) Write merit and demerit of subroutines and program interrupt with example. ***OR*** (ii) Differentiate between hardwired control and micro programmed control. Is it possible to have a hardwired control associated with a control memory?	5+5 = 10
Q3.	(i) Explain the following instructions: **SPA, SNA, SZA** and **SZE**. (ii) Explain the basic working principle of the Control Unit of basic computer using diagram. ***OR*** (ii) Explain the design of Control Unit with decoding of microoperation fields using necessary diagram.	2+8 = 10

Q4.	(i) Evaluate the following arithmetic statement **F = (W + X) * (Y + Z)** in Zero, One, Two and Three address machines. (ii) Discuss the mapping of instruction?	**7+3 = 10**
Q5.	(i) Explain briefly using necessary diagram for multi-processor system. (ii) Explain the mapping of virtual address to physical address with necessary diagram. ***OR*** (ii) What is the merit and demerit of strobe method? Can you overcome this demerit? Describe in details with necessary diagrams.	**5+5 = 10**

***** **THE END** *****