Roll No:.....

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- September 2018

M.Tech. I Semester

COURSE CODE: 10M11CI114 MAX. MARKS: 15

COURSE NAME: HIGH PERFORMANCE COMPUTER ARCHITECTURE

COURSE CREDITS: 03 MAX. TIME: 1Hr

***Note:** All questions are compulsory. Each question carries equal marks. Carrying of mobile phone during examinations will be treated as case of unfair means.*

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1. (a) How can we Improve Performance of a Computer?

   (b) A computer (3.06 GHz) has the following CPI

Instruction Type	A	B	C
CPI	1	2	3

An algorithm may be implemented in 2 ways I1 and I2, for each implementation the number of instructions used (in million) are as follows:

Instruction Type	A	B	C
I1	0	2	2
I2	2	2	1

Which implementation has lesser number of instructions?
What is average CPI for both implementations? Which implementation is faster?
What is the total time taken for executing I1 and I2?
What can you say about the MIPS rating?

2. (a) What is Moore's Law?
   (b) Explain the two approaches of Parallel programming.
   a. Implicit parallelism
   b. Explicit parallelism

3. What is the difference between Multiprocessor and Multicomputer? Explain the following architectures:
   i. Two NUMA models for Multiprocessor SYSTEMS
   ii. Generic model a massage passing Multicomputer