JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-1 EXAMINATION- FEBRUARY-2018
B.Tech (CSE/IT) 8th Semester

COURSE CODE: 10B1WCI834
COURSE NAME: Parallel Processing
COURSE CREDITS: 03

MAX. MARKS: 15

MAX. TIME: 1 HR

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

1. Distinguish between multiprocessors and multicomputers based on their structures, resource sharing, and interprocessor communications. Also explain the difference among UMA, NUMA, and NORMA computers.
   [3 marks]

2. Analyze the data dependences among the following statements in a given program:

S1:	Load R1, 1024	/R1 ← 1024/
S2:	Load R2, M(10)	/R2 ← Memory(10)/
S3:	Add R1, R2	/R1 ← (R1) + (R2)/
S4:	Store M(1024), R1	/Memory(1024) ← (R1)/
S5:	Store M(R2), 1024	/Memory(64) ← 1024/

   [3 marks]

3. Explain the concept of grain packing and node duplication in parallel processing with suitable example(s).
   [3 marks]

4. Explain the concept of speed up by applying Amdahl's law. What is speed up if no part of the code can be parallelized? What is speed up if 50% of the code can be parallelized?
   [3 marks]

5. Define the following terms for various system interconnect architectures:
   i.   Node degree
   ii. Network diameter
   iii. Bisection bandwidth
   [3 marks]