

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-1 EXAMINATION (FEB 2018)
B-Tech (8rd SEM)

Course Code: 14M1WCI431

Max. Marks: 15

Course Name: Parallel Programming Techniques

Max. Time: 1 HRS

Course Credit: 3

Note: All questions are compulsory

Q1.

[2 x2 Marks]

- a) Explain All-to-All Broadcast on a Mesh network and derive the complexity?
- b) Explain the effect of scalability on a parallel program using efficient and speedup as a performance matrix?

Q2. Design and compare Butterfly and Fat tree Network for 15 nodes?
Explain the functioning of Block-Cyclic data distribution technique?
[3 Marks]

Q3. Explain various decomposition techniques for data decomposition if the tasks are 100% independent? Suggest a decomposition technique for chess game to be executed in parallel and why?
[3 Marks]

Q4. Design a parallel max heap algorithm for 'n' elements and 'p' processors? Suggest suitable network architecture for least overhead? Find speed-up, efficiency and is the algorithm cost efficient?
[5 Marks]