

Unit 4 - Week 2

Course outline

How does an NPTEL online course work?

Week 0 Assignment 0

Week 1

Week 2

● Lecture 07 : Parallel Algorithms

○ Lecture 08 : Parallel Algorithms (continued)

● Lecture 09 : Parallel Algorithms (continued)

○ Lecture 10 : Performance Metrics of Parallel Systems

● Lecture 11 : Performance Metrics of Parallel Systems (continued)

● Week 2 Lecture material

○ Quiz : Week 2 Assignment 2

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Week 2 Assignment 2

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-09-30, 23:59 IST.

1) Consider a matrix vector multiplication with $n \times m$ matrix. What is the maximum number of concurrent tasks in which it can be decomposed without any task dependency? 1 point

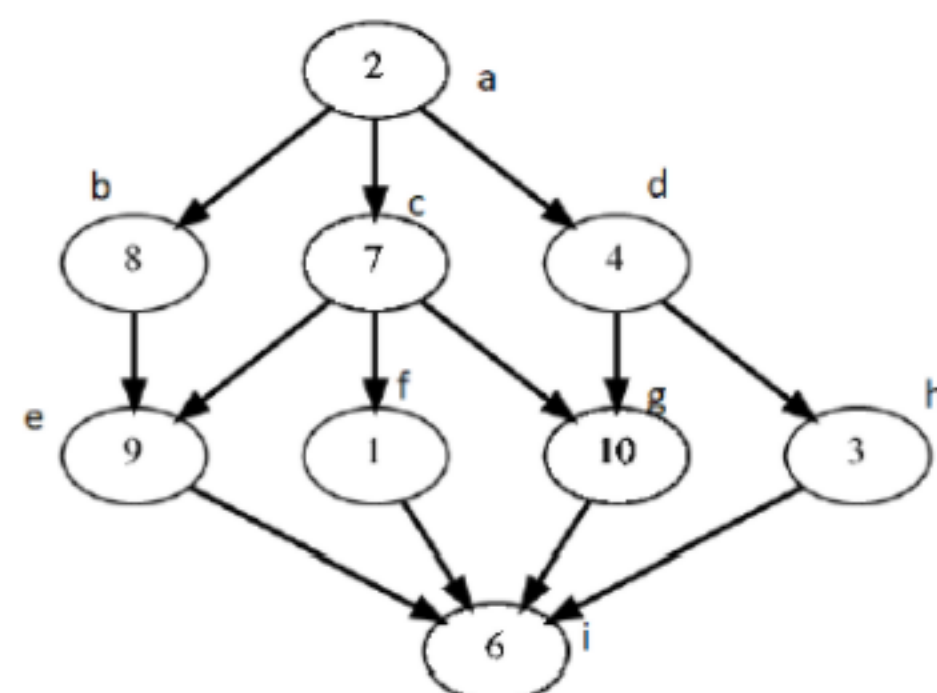
- a. n
b. m
c. $n \times m$
d. None of the above

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
a.

2) Consider the task dependency graph. Which one is the critical path? 0 points



- a. a-b-e-i
b. a-c-g-i
c. a-b-c-g-i
d. a-c-f-i

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
b.

3) Consider the task dependency graph in question-2. Find the maximum degree of concurrency and average concurrency. 1 point

- a. maximum-2, average-2
b. maximum-4, average-3.5
c. maximum-4, average -2
d. None of the above

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
c.

4) Which of these factors may not be considered for mapping of tasks in processes in design of parallel implementation? 1 point

- a. Load balancing
b. Interaction between the tasks
c. Data locality
d. Accuracy of the solution

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
d.

5) Two of the decompositions, A & B, show same degree of maximum concurrency and average concurrency. However, A gives better parallel performance over large number of processors. This might be due to the reason 1 point

- a. B has less data transfer among the processes
b. A & B may have same data transfer but frequency of data transfer is less in B
c. Different processes in B write to same memory locations, but this does not happen in A
d. None of the above

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
c.

6) Cost of computation in parallel computing is always greater than the sequential cost. 1 point

- a. True
b. False

- a.
 b.

No, the answer is incorrect.
Score: 0

Accepted Answers:
a.

7) A parallel job gives a speed-up of 6 in 8 processors. If the sequential computing time is 15 secs, find the overhead: 1 point

- a. 5 sec
b. 15%
c. 33 sec
d. none of the above

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
a.

8) A parallel job gives a speed-up of 6 in 8 processors. The same job gives a speed-up of 10 when solved using 12 processors 1 point

- a. True
b. False

- a.
 b.

No, the answer is incorrect.
Score: 0

Accepted Answers:
b.

9) A recursion algorithm cannot be parallelized using a data parallel model: 1 point

- a. True
b. False

- a.
 b.

No, the answer is incorrect.
Score: 0

Accepted Answers:
a.

10) A parallel algorithm has 15% sequential component. Find its maximum efficiency with 12 processors: 1 point

- a. 0.85
b. 0.071
c. 0.377
d. 0.221

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
c.