

Unit 2 - Week 0 Assignment 0

Course outline
How does an NPTEL online course work?
Week 0 Assignment 0
<input type="radio"/> Quiz : Assignment 0
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Download Videos
Detail Solution
Live Interactive Session
Text Transcripts

Assignment 0

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

Due on 2020-09-14, 23:59 IST.

- 1) High performance computing is in general refers to the practice of 1 point
- a. Using CPU-s of high processor speed
b. Utilizing a large RAM size
c. Deploying a number of processors in parallel to solve a large problem
d. Writing cache aware programs
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
c.
- 2) Which of these problems cannot be solved using HPC methods? 1 point
- a. Iterative matrix solvers
b. Finding vector dot products
c. Recursive algorithms
d. None of the above
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
c.
- 3) Cost of computation is defined as the aggregate of the run-time of all the computers in a HPC system for solving a problem. As we increase the number of processors to get faster solution in a HPC system, the cost of computation 1 point
- a. Increases
b. Decreases
c. Remains same
d. Cannot be said apriori
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
a.
- 4) Parallel cost is obtained as multiplication of parallel computing time with number of processors. Parallel efficiency is defined as ratio of sequential computing time and parallel cost and is always less than one. This indicates that the speed-up (i.e., sequential time divided by parallel time) vs number of processor curve is 1 point
- a. Monotonically increasing
b. Monotonically decreasing
c. Slope zero
d. Slope less than 45°
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
d.
- 5) Speed-up (ratio of sequential time/parallel time) is always less than number of processors. In other words, if we increase number of processors to solve a problem, the computational time does not reduce by same factor. This is due to the following factor: 1 point
- a. Non-uniform load balancing
b. Communication overhead
c. Synchronization time
d. Sequential component in the program
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
a.
b.
c.
d.
- 6) Which of these systems do not need to consider cache coherency? 1 point
- a. Shared memory multiprocessors
b. GPU-s
c. Distributed memory clusters
d. None of the above
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
c.
- 7) Which programming API is not suitable for shared memory systems? 1 point
- a. OpenMP
b. CUDA
c. MPI
d. None of the above
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
d.
- 8) The performance of an HPC system in solving scientific computing problem is quantified in 1 point
- a. RAM size
b. Processor speed
c. Number of tasks executed concurrently
d. Floating point operations per second (FLOPS)
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
d.
- 9) Which of these steps are present in a distributed memory parallel program but not in a shared memory program 1 point
- a. load balancing or evenly distributing the tasks to different processors
b. Synchronization across the processors
c. Message passing across the processors
d. None of the above
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
c.
- 10) The fastest supercomputers are: 1 point
- a. Distributed memory systems
b. Hybrid CPU clusters
c. Shared memory NUMA multiprocessors
d. Hybrid CPU-GPU clusters
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
d.