

## Unit 7 - Week 5

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## Week 5 Assignment 5

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

**Due on 2020-10-21, 23:59 IST.**

- 1) MPI\_REDUCE reduces a variable from the local values in all processors and the reduced value is stored as global variable 1 point
- a. True  
b. False
- a.  
 b.
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
b.
- 2) One processor is sending number of data packets to another processor through successive send command. How can the receiving processor identify a particular data packet and receive it in the desired buffer? 1 point
- a. using line number of the send process  
b. through status variable  
c. by matching message tag  
d. program should contain receive immediately after send
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
c.
- 3) What happens if an MPI\_RECV call is not matched by a MPI\_SEND call? 1 point
- a. The program stalls at the receiving processor  
b. Program gives wrong output  
c. Compiler fetches data from the designated processor with latency  
d. None of the above
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
a.
- 4) Which of this send-receive operation can overlap communication with computation and reduce latency? 1 point
- a. MPI\_SEND & MPI\_RECV  
b. MPI\_SENDE & MPI\_SRECV  
c. MPI\_SENDE & MPI\_RECV  
d. None of the above
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
d.
- 5) A matrix-vector multiplication is done using a distributed MPI program where each process multiplied for few rows of the matrix and obtained few rows of the product vector. Now, the product vector has to be assembled from its distributed components in different processors. Which communication call should be used for best efficiency? 1 point
- a. MPI\_SEND & MPI\_RECV  
b. MPI\_ALLEDUCEV  
c. MPI\_GATHER  
d. MPI\_GATHERV
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
d.
- 6) The accuracy of a numerical method for PDE-s depends on the number of finite points/volumes on which the equation is solved 1 point
- a. True  
b. False
- a.  
 b.
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
a.
- 7) Due to which factor, an iterative solver is preferred over a direct solver for matrix equations? 1 point
- a. Less number of floating-point operations  
b. Approximate solutions can be obtained fast  
c. Less numerical error  
d. Less storage
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
c.
- 8) Interdomain data communication in a domain decomposition method ensures continuity of the solution across domains. 1 point
- a. True  
b. False
- a.  
 b.
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
a.
- 9) How does one ensure global convergence in a domain decomposition based solver implementation? 1 point
- a. Values at an interdomain boundary from both sides are same  
b. Convergence is obtained in all subdomains  
c. Convergence is obtained in at least one subdomain  
d. The iterations work without the send-receive calls
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
b.
- 10) Overheads in a domain decomposition method MPI program is not due to 1 point
- a. Load balancing in assigning subdomains to each process  
b. Communication among the subdomains for boundary value and convergence check  
c. Synchronization before finding global residual for convergence  
d. False sharing while updating boundary values
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
d.