Muli-core Architectures and Programming MCQs [set-1]

Chapter: *Distributed Memory Programming*

1. MPI specifies the functionality of _____ communication routines.

    A. High-level

    B. Low-level

    C. Intermediate-level

    D. Expert-level

Answer: A

2. _____ generate log files of MPI calls.

    A. mpicxx

    B. mpilog

    C. mpitrace

    D. mpianim

Answer: B

3. A collective communication in which data belonging to a single process is sent to all of the processes in the communicator is called a _____.

    A. Scatter

    B. Gather

    C. Broadcast

    D. Allgather

Answer: C

4. _____ is a nonnegative integer that the destination can use to selectively screen messages.

    A. Dest

    B. Type

    C. Address

    D. length

Answer: B

5. The routine _____ combines data from all processes by adding them in this case and returning the result to a single process.

A. MPI _ Reduce

B. MPI_ Bcast

C. MPI_ Finalize

D. MPI_ Comm size

Answer: A

6. The easiest way to create communicators with new groups is with_____.

A. MPI_Comm_rank

B. MPI_Comm_create

C. MPI_Comm_Split

D. MPI_Comm_group

Answer: C

7. _____ is an object that holds information about the received message, including, for example, it's actually count.

A. buff

B. count

C. tag

D. status

Answer: D

8. The _____ operation similarly computes an element-wise reduction of vectors, but this time leaves the result scattered among the processes.

A. Reduce-scatter

B. Reduce (to-one)

C. Allreduce

D. None of the above

Answer: A

9. _____is the principal alternative to shared memory parallel programming.

A. Multiple passing

B. Message passing

C. Message programming

D. None of the above

Answer: B

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10. _____ may complete even if less than count elements have been received.

   A. MPI_Recv

   B. MPI_Send

   C. MPI_Get_count

   D. MPI_Any_Source

Answer: A

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11. A _____ is a script whose main purpose is to run some program. In this case, the program is the C compiler.

   A. wrapper script

   B. communication functions

   C. wrapper simplifies

   D. type definitions

Answer: A

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12. _____ returns in its second argument the number of processes in the communicator.

   A. MPI_Init

   B. MPI_Comm_size

   C. MPI_Finalize

   D. MPI_Comm_rank

Answer: B

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13. _____ always blocks until a matching message has been received.

   A. MPI_TAG

   B. MPI_ SOURCE

   C. MPI Recv

   D. MPI_ERROR

Answer: C

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14. Communication functions that involve all the processes in a communicator are called _____

   A. MPI_Get_count

   B. collective communications

C. buffer the message

D. nonovertaking

Answer: B

15. MPI_Send and MPI_Recv are called _____ communications.

A. Collective Communication

B. Tree-Structured Communication

C. point-to-point

D. Collective Computation

Answer: C

16. The processes exchange partial results instead of using oneway communications. Such a communication pattern is sometimes called a _____.

A. butterfly

B. broadcast

C. Data Movement

D. Synchronization

Answer: A

17. A collective communication in which data belonging to a single process is sent to all of the processes in the communicator is called a _____.

A. broadcast

B. reductions

C. Scatter

D. Gather

Answer: A

18. In MPI, a _____ can be used to represent any collection of data items in memory by storing both the types of the items and their relative locations in memory.

A. Allgather

B. derived datatype

C. displacement

D. beginning

Answer: B

19. MPI provides a function, _____ that returns the number of seconds that have elapsed since some time in the past.

    A. MPI_Wtime

    B. MPI_Barrier

    C. MPI_Scatter

    D. MPI_Comm

Answer: A

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20. Programs that can maintain a constant efficiency without increasing the problem size are sometimes said to be _____.

    A. weakly scalable

    B. strongly scalable

    C. send_buf

    D. recv_buf

Answer: B

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21. Parallelism can be used to increase the (parallel) size of the problem is applicable in _____.

    A. Amdahl's Law

    B. Gustafson-Barsis's Law

    C. Newton's Law

    D. Pascal's Law

Answer: B

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22. Synchronization is one of the common issues in parallel programming. The issues related to synchronization include the followings, EXCEPT:

    A. Deadlock

    B. Livelock

    C. Fairness

    D. Correctness

Answer: D

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23. Considering to use weak or strong scaling is part of _____ in addressing the challenges of distributed memory programming.

    A. Splitting the problem

    B. Speeding up computations

    C. Speeding up communication

D. Speeding up hardware

Answer: B

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24. Which of the followings is the BEST description of Message Passing Interface (MPI)?

A. A specification of a shared memory library

B. MPI uses objects called communicators and groups to define which collection of processes may communicate with each other

C. Only communicators and not groups are accessible to the programmer only by a "handle"

D. A communicator is an ordered set of processes

Answer: B