HPC MCQ QB for Mock Insem Examination

Unit I

1. Conventional architectures coarsely comprise of a_

A. A processor

B. Memory system

C Data path.

D All of Above

2. Data intensive applications utilize_

A **High aggregate throughput**

B High aggregate network bandwidth

C High processing and memory system performance.

D None of above

3. A pipeline is like_

A Overlaps various stages of instruction execution to achieve performance.

B House pipeline

C Both a and b

D A gas line

4. Scheduling of instructions is determined_

A True Data Dependency

B Resource Dependency

C Branch Dependency

D All of above

5. VLIW processors rely on_

A **Compile time analysis**

B Initial time analysis

C Final time analysis

D Mid time analysis

6. Memory system performance is largely captured by_

A Latency

B Bandwidth

C Both a and b

D none of above

7. The fraction of data references satisfied by the cache is called_

A Cache *hit ratio*

B Cache *fit ratio*

B Cache *best ratio*

C none of above

8. A single control unit that dispatches the same Instruction to various processors is__

A SIMD

B SPMD

C MIMD

D None of above

9. The primary forms of data exchange between parallel tasks are_

A Accessing a shared data space

B Exchanging messages.

C Both A and B

D None of Above

10. Switches map a fixed number of inputs to outputs.

A True

B False

Unit 2

1. The First step in developing a parallel algorithm is_

A. **To Decompose the problem into tasks that can be executed concurrently**

B. Execute directly

C. Execute indirectly

D. None of Above

2. The number of tasks into which a problem is decomposed determines its_

A. **Granularity**

B. Priority

C. Modernity

D. None of above

3. The length of the longest path in a task dependency graph is called_

A. **the critical path length**

B. the critical data length

C. the critical bit length

D. None of above

4. The graph of tasks (nodes) and their interactions/data exchange (edges)_

A. **Is referred to as a *task interaction graph***

B. Is referred to as a *task Communication graph*

C. Is referred to as a *task interface graph*

D. None of Above

5. Mappings are determined by_

A. task dependency

B. task interaction graphs

C. **Both A and B**

D. None of Above

6. Decomposition Techniques are_

A. recursive decomposition

B. data decomposition

C. exploratory decomposition

D. speculative decomposition

E. **All of Above**

7. The *Owner Computes Rule* generally states that the process assigned a particular data item is responsible for_

A. **All computation associated with it**

B. Only one computation

C. Only two computation

D. Only occasionally computation

8. A simple application of exploratory decomposition is_

A. **The solution to a 15 puzzle**

B. The solution to 20 puzzle

C. The solution to any puzzle

D. None of Above

9. Speculative Decomposition consist of _

A. conservative approaches

B. optimistic approaches

C. **Both A and B**

D. Only B

10. task characteristics include:

A. Task generation.

B. Task sizes.

C. Size of data associated with tasks.

D. **All of Above**

Unit 3

1. Group communication operations are built using point-to-point messaging primitives

A. **True**

B. False

2. Communicating a message of size m over an uncongested network takes time ts + tmw

A. **True**

B. False

3. The dual of one-to-all broadcast is_

A. ***All-to-one reduction***

B. All-to-one receiver

C. All-to-one Sum

D. None of Above

4. A hypercube has_

A. **2^d nodes**

B. 2d nodes

C. 2n Nodes

D. N Nodes

5. A binary tree in which processors are (logically) at the leaves and internal nodes are routing nodes.

A. **True**

B. False

6. In All-to-All Broadcast each processor is the source as well as destination.

A. **True**

B. False

7. The Prefix Sum Operation can be implemented using the_

A. **All-to-all broadcast kernel.**

B. All-to-one broadcast kernel.

C. One-to-all broadcast Kernel

D. Scatter Kernel

8. In the *scatter* operation_

A. **Single node send a unique message of size m to every other node**

B. Single node send a same message of size m to every other node

C. Single node send a unique message of size m to next node

D. None of Above

9. The gather operation is exactly the inverse of the_

A. **Scatter operation**

B. Broadcast operation

C. Prefix Sum

D. Reduction operation

10. In All-to-All Personalized Communication Each node has a distinct message of size m for every other node

A. **True**

B. False