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**

1. Data intensive applications utilize\_

A **High aggregate throughput**

B High aggregate network bandwidth

C High processing and memory system performance.

D None of above

1. 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

1. Scheduling of instructions is determined\_

A True Data Dependency

B Resource Dependency

C Branch Dependency

**D All of above**

1. VLIW processors rely on\_

A **Compile time analysis**

B Initial time analysis

C Final time analysis

D Mid time analysis

1. Memory system performance is largely captured by\_

A Latency

B Bandwidth

**C Both a and b**

D none of above

1. 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*

1. A single control unit that dispatches the same Instruction to various processors is\_\_

**A SIMD**

B SPMD

C MIMD

D None of above

1. 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

1. 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\_
2. **To Decompose the problem into tasks that can be executed concurrently**
3. Execute directly
4. Execute indirectly
5. None of Above
6. The number of tasks into which a problem is decomposed determines its\_
7. **Granularity**
8. Priority
9. Modernity
10. None of above
11. The length of the longest path in a task dependency graph is called\_
12. **the critical path length**
13. the critical data length
14. the critical bit length
15. None of above
16. The graph of tasks (nodes) and their interactions/data exchange (edges)\_
17. **Is referred to as a *task interaction graph***
18. Is referred to as a *task Communication graph*
19. Is referred to as a *task interface graph*
20. None of Above
21. Mappings are determined by\_
22. task dependency
23. task interaction graphs
24. **Both A and B**
25. None of Above
26. Decomposition Techniques are\_
27. recursive decomposition
28. data decomposition
29. exploratory decomposition
30. speculative decomposition
31. **All of Above**
32. The *Owner Computes Rule* generally states that the process assigned a particular data item is responsible for\_
33. **All computation associated with it**
34. Only one computation
35. Only two computation
36. Only occasionally computation
37. A simple application of exploratory decomposition is\_
38. **The solution to a 15 puzzle**
39. The solution to 20 puzzle
40. The solution to any puzzle
41. None of Above
42. Speculative Decomposition consist of \_
43. conservative approaches
44. optimistic approaches
45. **Both A and B**
46. Only B
47. task characteristics include:
48. Task generation.
49. Task sizes.
50. Size of data associated with tasks.
51. **All of Above**

**Unit 3**

1. Group communication operations are built using point-to-point messaging primitives
2. **True**
3. False
4. Communicating a message of size m over an uncongested network takes time ts + tmw
5. **True**
6. False
7. The dual of one-to-all broadcast is\_
8. ***All-to-one reduction***
9. *All-to-one receiver*
10. *All-to-one Sum*
11. *None of Above*
12. A hypercube has\_
13. **2d nodes**
14. 2d nodes
15. 2n Nodes
16. N Nodes
17. A binary tree in which processors are (logically) at the leaves and internal nodes are routing nodes.
18. **True**
19. False
20. In All-to-All Broadcast each processor is the source as well as destination.
21. **True**
22. False
23. The Prefix Sum Operation can be implemented using the\_

1. **All-to-all broadcast kernel.**
2. All-to-one broadcast kernel.
3. One-to-all broadcast Kernel
4. Scatter Kernel
5. In the *scatter* operation\_
6. **Single node send a unique message of size m to every other node**
7. Single node send a same message of size m to every other node
8. Single node send a unique message of size m to next node
9. None of Above
10. The gather operation is exactly the inverse of the\_
11. **Scatter operation**
12. Broadcast operation
13. Prefix Sum
14. Reduction operation
15. In All-to-All Personalized Communication Each node has a distinct message of size m for every other node
16. **True**
17. False

1. It is \_\_\_\_\_\_\_\_\_\_\_ strength and \_\_\_\_\_\_\_\_\_\_\_ permeability.  
a) High, high  
b) Low, low  
c) High, low  
d) Low, high  
View Answer

Answer: c  
Explanation: It is specifically chosen so as to have particularly appropriate properties for the expected use of the structure such as high strength and low permeability.

2. High Performance concrete works out to be economical.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: High Performance concrete works out to be economical, even though its initial cost is high.

3. HPC is not used in high span bridges.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: Major applications of high-performance concrete in the field of Civil Engineering constructions have been in the areas of long-span bridges, high-rise buildings or structures, highway pavements, etc.

4. Concrete having 28- days’ compressive strength in the range of 60 to 100 MPa.  
a) HPC  
b) VHPC  
c) OPC  
d) HSC  
View Answer

Answer: a  
Explanation: High Performance Concrete having 28- days’ compressive strength in the range of 60 to 100 MPa.

5. Concrete having 28-days compressive strength in the range of 100 to 150 MPa.  
a) HPC  
b) VHPC  
c) OPC  
d) HSC  
View Answer

Answer: b  
Explanation: Very high performing Concrete having 28-days compressive strength in the range of 100 to 150 MPa.

w to Install Unity on Ubuntu 18.04 [Complete Procedure]

6. High-Performance Concrete is \_\_\_\_\_\_\_\_\_\_\_\_ as compared to Normal Strength Concrete.  
a) Less brittle  
b) Brittle  
c) More brittle  
d) Highly ductile  
View Answer

Answer: c  
Explanation: High-Performance Concrete is more brittle as compared to Normal Strength Concrete (NSC), especially when high strength is the main criteria.

7. The choice of cement for high-strength concrete should not be based only on mortar-cube tests but it should also include tests of compressive strengths of concrete at \_\_\_\_\_\_\_\_\_\_\_ days.  
a) 28, 56, 91  
b) 28, 60, 90  
c) 30, 60, 90  
d) 30, 45, 60  
View Answer

Answer: a  
Explanation: The choice of cement for high-strength concrete should not be based only on mortar-cube tests but it should also include tests of compressive strengths of concrete at 28, 56, and 91 days.

8. For high-strength concrete, a cement should produce a minimum 7-days mortar-cube strength of approximately \_\_\_ MPa.  
a) 10  
b) 20  
c) 30  
d) 40  
View Answer

Answer: c  
Explanation: For high-strength concrete, a cement should produce a minimum 7-days mortar-cube strength of approximately 30 MPa.

9. \_\_\_\_\_\_\_\_\_\_\_\_ mm nominal maximum size aggregates gives optimum strength.  
a) 9.5 and 10.5  
b) 10.5 and 12.5  
c) 9.5 and 12.5  
d) 11.5 and 12.5  
View Answer

Answer: c  
Explanation: Many studies have found that 9.5 mm to 12.5 mm nominal maximum size aggregates gives optimum strength.

10. Due to low w/c ratio \_\_\_\_\_\_\_\_\_\_\_\_\_  
a) It doesn’t cause any problems  
b) It causes problems  
c) Workability is easy  
d) Strength is more  
View Answer

Answer: b  
Explanation: Due to the low w/c ratio, it causes problems so superplasticizers are used.