Which is alternative options for latency hiding?
A. Increase CPU frequency
B. Multithreading
C. Increase Bandwidth
D. Increase Memory
ANSWER: B

_____ Communication model is generally seen in tightly coupled system.
A. Message Passing
B. Shared-address space
C. Client-Server
D. Distributed Network
ANSWER: B

The principal parameters that determine the communication latency are as follows:
A. Startup time (ts) Per-hop time (th) Per-word transfer time (tw)
B. Startup time (ts) Per-word transfer time (tw)
C. Startup time (ts) Per-hop time (th)
D. Startup time (ts) Message-Packet-Size(W)
ANSWER: A

The number and size of tasks into which a problem is decomposed determines the __
A. Granularity
B. Task
C. Dependency Graph
D. Decomposition
ANSWER: A

Average Degree of Concurrency is...
A. The average number of tasks that can run concurrently over the entire duration of execution of the process.
B. The average time that can run concurrently over the entire duration of execution of the process.
C. The average in degree of task dependency graph.
D. The average out degree of task dependency graph.
ANSWER: A

Which task decomposition technique is suitable for the 15-puzzle problem?
A. Data decomposition
B. Exploratory decomposition
C. Speculative decomposition
D. Recursive decomposition
ANSWER: B

Which of the following method is used to avoid Interaction Overheads?
A. Maximizing data locality
B. Minimizing data locality
C. Increase memory size
D. None of the above.

ANSWER: A

Which of the following is not parallel algorithm model
A. The Data Parallel Model
B. The work pool model
C. The task graph model
D. The Speculative Model
ANSWER: D

Nvidia GPU based on following architecture
A. MIMD
B. SIMD
C. SISD
D. MISD
ANSWER: B

What is Critical Path?

A. The length of the longest path in a task dependency graph is called the critical path length.
B. The length of the smallest path in a task dependency graph is called the critical path length.
C. Path with loop
D. None of the mentioned.
ANSWER: A

Which decompositioin technique uses divide-andconquer strategy?
A. recursive decomposition
B. Sdata decomposition
C. exploratory decomposition
D. speculative decomposition
ANSWER: A

If there are 6 nodes in a ring topology how many message passing cycles will be required to complete broadcast process in one to all?

A. 1
B. 6
C. 3
D. 4
ANSWER: 3

If there is 4 X 4 Mesh topology network then how many ring operation will perform to complete one to all broadcast?

A. 4
B. 8
C. 16
D. 32
ANSWER: 8

Consider all to all broadcast in ring topology with 8 nodes. How many messages will be present with each node after 3rd step/cycle of communication?

A. 3
B. 4
C. 6
D. 7
ANSWER: 4

Consider Hypercube topology with 8 nodes then how many message passing cycles will require in all to all broadcast operation?

A. The longest path between any pair of finish nodes.
B. The longest directed path between any pair of start & finish node.
C. The shortest path between any pair of finish nodes.
D. The number of maximum nodes level in graph.
ANSWER: D

Scatter is _____.

A. One to all broadcast communication
B. All to all broadcast communication
C. One to all personalised communication
D. Node of the above.
ANSWER: C

If there is 4X4 Mesh Topology _____ message passing cycles will require complete all to all reduction.
A. 4
B. 6
C. 8
D. 16
ANSWER: C

Following issue(s) is/are the true about sorting techniques with parallel computing.
A. Large sequence is the issue
B. Where to store output sequence is the issue
C. Small sequence is the issue
D. None of the above
ANSWER: B

Partitioning on series done after _____
A. Local arrangement
B. Processess assignments
C. Global arrangement
D. None of the above
ANSWER: C

In Parallel DFS processes has following roles.(Select multiple choices if applicable)
A. Donor
B. Active
C. Idle
D. Passive
ANSWER: A

Suppose there are 16 elements in a series then how many phases will be required to sort the series using parallel odd-even bubble sort?
A. 8
B. 4
C. 5
D. 15
ANSWER: D

Which are different sources of Overheads in Parallel Programs?
A. Interprocess interactions
B. Process Idling
C. All mentioned options
D. Excess Computation
ANSWER: C

The ratio of the time taken to solve a problem on a parallel processors to the time required to solve the same problem on a single processor with p identical processing elements.
A. The ratio of the time taken to solve a problem on a single processor to the time required to solve the same problem on a parallel computer with p identical processing elements.
B. The ratio of the time taken to solve a problem on a single processor to the time required to solve the same problem on a parallel computer with p identical processing elements
C. The ratio of number of multiple processors to size of data
D. None of the above
ANSWER: B

Efficiency is a measure of the fraction of time for which a processing element is usefully employed.
A. TRUE
B. FALSE
ANSWER: A

CUDA helps do execute code in parallel mode using _____
A. CPU
B. GPU
C. ROM
D. Cash memory
ANSWER: B

In thread-function execution scenario thread is a _____
A. Work
B. Worker
C. Task
D. None of the above
ANSWER: B

In GPU Following statements are true
A. Grid contains Block
B. Block contains Threads
C. All the mentioned options.
D. SM stands for Streaming MultiProcessor

ANSWER: C

Computer system of a parallel computer is capable of_____
A. Decentralized computing
B. Parallel computing
C. Centralized computing
D. All of these
ANSWER: A

In which application system Distributed systems can run well?
A. HPC
B. Distrubuted Framework
C. HRC
D. None of the above
ANSWER: A

A pipeline is like ..... ?
A. an automobile assembly line
B. house pipeline
C. both a and b
D. a gas line
ANSWER: A

Pipeline implements ?
A. fetch instruction
B. decode instruction
C. fetch operand
D. all of above
ANSWER: D

A processor performing fetch or decoding of different instruction during the execution of another instruction is called _____ ?
A. Super-scaling
B. Pipe-lining
C. Parallel Computation
D. None of these
ANSWER: B

In a parallel execution, the performance will always improve as the number of processors will increase?
A. True
B. False
ANSWER: B

VLIW stands for ?
A. Very Long Instruction Word
B. Very Long Instruction Width
C. Very Large Instruction Word
D. Very Long Instruction Width
ANSWER: A

In VLIW the decision for the order of execution of the instructions depends on the program itself?
A. True

B. False
ANSWER: A

Which one is not a limitation of a distributed memory parallel system?
A. Higher communication time
B. Cache coherency
C. Synchronization overheads
D. None of the above
ANSWER: B

Which of these steps can create conflict among the processors?
A. Synchronized computation of local variables
B. Concurrent write
C. Concurrent read
D. None of the above
ANSWER: B

Which one is not a characteristic of NUMA multiprocessors?
A. It allows shared memory computing
B. Memory units are placed in physically different location
C. All memory units are mapped to one common virtual global memory
D. Processors access their independent local memories
ANSWER: D

Which of these is not a source of overhead in parallel computing?
A. Non-uniform load distribution
B. Less local memory requirement in distributed computing
C. Synchronization among threads in shared memory computing
D. None of the above
ANSWER: B

Systems that do not have parallel processing capabilities are?
A. SISD
B. SIMD
C. MIMD
D. All of the above
ANSWER: A

How does the number of transistors per chip increase according to Moore ´s law?
A. Quadratically
B. Linearly
C. Cubicly
D. Exponentially
ANSWER: D

Parallel processing may occur?
A. in the instruction stream
B. in the data stream
C. both[A] and [B]
D. none of the above
ANSWER: C

To which class of systems does the von Neumann computer belong?
A. SIMD (Single Instruction Multiple Data)
B. MIMD (Multiple Instruction Multiple Data)
C. MISD (Multiple Instruction Single Data)
D. SISD (Single Instruction Single Data)
ANSWER: D

Fine-grain threading is considered as a _____ threading?
A. Instruction-level
B. Loop level
C. Task-level
D. Function-level
ANSWER: A

Multiprocessor is systems with multiple CPUs, which are capable of independently executing different tasks in parallel. In this category every processor and memory module has similar access time?
A. UMA
B. Microprocessor
C. Multiprocessor
D. NUMA
ANSWER: A

For inter processor communication the miss arises are called?
A. hit rate
B. coherence misses
C. comitt misses
D. parallel processing
ANSWER: B

NUMA architecture uses _____in design?
A. cache
B. shared memory
C. message passing
D. distributed memory
ANSWER: D

A multiprocessor machine which is capable of executing multiple instructions on multiple data sets?
A. SISD
B. SIMD
C. MIMD
D. MISD
ANSWER: C

In message passing, send and receive message between?
A. Task or processes
B. Task and Execution
C. Processor and Instruction
D. Instruction and decode
ANSWER: A

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
ANSWER: A

The number of tasks into which a problem is decomposed determines its?
A. Granularity
B. Priority
C. Modernity
D. None of above
ANSWER: A

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
ANSWER: A

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
ANSWER: A

Mappings are determined by?
A. task dependency
B. task interaction graphs
C. Both A and B
D. None of Above
ANSWER: C

Decomposition Techniques are?
A. recursive decomposition
B. data decomposition
C. exploratory decomposition
D. All of Above
ANSWER: D

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
ANSWER: A

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
ANSWER: A

Speculative Decomposition consist of _?
A. conservative approaches
B. optimistic approaches
C. Both A and B
D. Only B
ANSWER: C

task characteristics include?
A. Task generation.
B. Task sizes.
C. Size of data associated with tasks.
D. All of Above
ANSWER: D

Writing parallel programs is referred to as?
A. Parallel computation
B. Parallel processes
C. Parallel development
D. Parallel programming
ANSWER: D

Parallel Algorithm Models?
A. Data parallel model
B. Bit model
C. Data model
D. network model
ANSWER: A

The number and size of tasks into which a problem is decomposed determines the?
A. fine-granularity
B. coarse-granularity
C. sub Task
D. granularity
ANSWER: A

A feature of a task-dependency graph that determines the average degree of concurrency for a given granularity is its _____ path?
A. critical
B. easy
C. difficult
D. ambiguous
ANSWER: A

The pattern of_____ among tasks is captured by what is known as a task-interaction graph?
A. Interaction
B. communication
C. optmization

D. flow
ANSWER: A

Interaction overheads can be minimized by____?
A. Maximize Data Locality
B. Maximize Volume of data exchange
C. Increase Bandwidth
D. Minimize social media contents
ANSWER: A

Type of parallelism that is naturally expressed by independent tasks in a task-dependency graph is called _____ parallelism?
A. Task
B. Instruction
C. Data
D. Program
ANSWER: A

Speed up is defined as a ratio of?
A. s=Ts/Tp
B. S= Tp/Ts
C. Ts=S/Tp
D. Tp=S /Ts
ANSWER: A

Parallel computing means to divide the job into several _____?
A. Bit
B. Data
C. Instruction
D. Task
ANSWER: D

_____ is a method for inducing concurrency in problems that can be solved using the divide-and-conquer strategy?
A. exploratory decomposition
B. speculative decomposition
C. data-decomposition
D. Recursive decomposition
ANSWER: C

The___ time collectively spent by all the processing elements Tall = p TP?
A. total
B. Average
C. mean
D. sum
ANSWER: A

Group communication operations are built using point-to-point messaging primitives?
A. True
B. False
ANSWER: A

Communicating a message of size m over an uncongested network takes time ts + tmw?
A. True
B. False
ANSWER: A

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
ANSWER: A

A hypercube has?
A. 2d nodes
B. 2d nodes
C. 2n Nodes
D. N Nodes
ANSWER: A

A binary tree in which processors are (logically) at the leaves and internal nodes are routing nodes?
A. True
B. False
ANSWER: A

In All-to-All Broadcast each processor is thesource as well as destination?
A. True
B. False
ANSWER: A

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
ANSWER: A

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
ANSWER: A

The gather operation is exactly the inverse of the ?
A. Scatter operation
B. Broadcast operation
C. Prefix Sum
D. Reduction operation
ANSWER: A

In All-to-All Personalized Communication Each node has a distinct

message of size m for every other node ?
A. True
B. False
ANSWER: A

Parallel algorithms often require a single process to send identical data to all other processes or to a subset of them. This operation is known as _____?
A. one-to-all broadcast
B. All to one broadcast
C. one-to-all reduction
D. all to one reduction
ANSWER: A

In which of the following operation, a single node sends a unique message of size m to every other node?
A. Gather
B. Scatter
C. One to all personalized communication
D. Both A and C
ANSWER: D

Gather operation is also known as _____?
A. One to all personalized communication
B. One to all broadcast
C. All to one reduction
D. All to All broadcast
ANSWER: A

one-to-all personalized communication does not involve any duplication of data?
A. True
B. False
ANSWER: A

Gather operation, or concatenation, in which a single node collects a unique message from each node?
A. True
B. False
ANSWER: A

Conventional architectures coarsely comprise of a?
A. A processor
B. Memory system
C. Data path.
D. All of Above
ANSWER: D

Data intensive applications utilize?
A. High aggregate throughput
B. High aggregate network bandwidth
C. High processing and memory system performance.
D. None of above
ANSWER: A

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
ANSWER: A

Scheduling of instructions is determined?
A. True Data Dependency
B. Resource Dependency
C. Branch Dependency
D. All of above
ANSWER: D

VLIW processors rely on?
A. Compile time analysis
B. Initial time analysis
C. Final time analysis
D. Mid time analysis
ANSWER: A

Memory system performance is largely captured by?
A. Latency
B. Bandwidth
C. Both a and b
D. none of above
ANSWER: C

The fraction of data references satisfied by the cache is called?
A. Cache hit ratio
B. Cache fit ratio
C. Cache best ratio
D. none of above
ANSWER: A

A single control unit that dispatches the same Instruction to various processors is?
A. SIMD
B. SPMD
C. MIMD
D. None of above
ANSWER: A

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
ANSWER: C

Switches map a fixed number of inputs to outputs?
A. True

B. False
ANSWER: A

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B. Parallel computing
C. Centralized computing
D. Decentralized computing
E. Distributed computing
ANSWER: A

Writing parallel programs is referred to as?
A. Parallel computation
B. Parallel processes
C. Parallel development
D. Parallel programming
ANSWER: D

Simplifies applications of three-tier architecture is _____?
A. Maintenance
B. Initiation
C. Implementation
D. Deployment

ANSWER: D

Dynamic networks of networks, is a dynamic connection that grows is called?
A. Multithreading
B. Cyber cycle
C. Internet of things
D. Cyber-physical system
ANSWER: C

In which application system Distributed systems can run well?
A. HPC
D. HTC
C. HRC
D. Both A and B
ANSWER: D

In which systems desire HPC and HTC?
A. Adaptivity
B. Transparency
C. Dependency
D. Secretive
ANSWER: B

No special machines manage the network of architecture in which resources are known as?
A. Peer-to-Peer
B. Space based
C. Tightly coupled
D. Loosely coupled
ANSWER: A

Significant characteristics of Distributed systems have of ?
A. 5 types
B. 2 types
C. 3 types
D. 4 types
ANSWER: C

Built of Peer machines are over?
A. Many Server machines
B. 1 Server machine
C. 1 Client machine
D. Many Client machines
ANSWER: D

Type HTC applications are?
A. Business
B. Engineering
C. Science
D. Media mass
ANSWER: A

Virtualization that creates one single address space architecture

that of, is called?
A. Loosely coupled
B. Peer-to-Peer
C. Space-based
D. Tightly coupled
ANSWER: C

We have an internet cloud of resources In cloud computing to form?
A. Centralized computing
B. Decentralized computing
C. Parallel computing
D. All of these
ANSWER: D

Data access and storage are elements of Job throughput, of _____?
A. Flexibility
B. Adaptation
C. Efficiency
D. Dependability
ANSWER: C

Billions of job requests is over massive data sets, ability to support known as?
A. Efficiency
B. Dependability
C. Adaptation
D. Flexibility
ANSWER: C

Broader concept offers Cloud computing .to select which of the following?
A. Parallel computing
B. Centralized computing
C. Utility computing
D. Decentralized computing
ANSWER: C

Resources and clients transparency that allows movement within a system is called?
A. Mobility transparency
B. Concurrency transparency
C. Performance transparency
D. Replication transparency
ANSWER: A

Distributed program in a distributed computer running a is known as?
A. Distributed process
B. Distributed program
C. Distributed application
D. Distributed computing
ANSWER: B

Uniprocessor computing devices is called_____?

A. Grid computing
B. Centralized computing
C. Parallel computing
D. Distributed computing
ANSWER: B

Utility computing focuses on a_____ model?
A. Data
B. Cloud
C. Scalable
D. Business
ANSWER: D

What is a CPS merges technologies?
A. 5C
B. 2C
C. 3C
D. 4C
ANSWER: C

Aberration of HPC?
A. High-peak computing
B. High-peripheral computing
C. High-performance computing
D. Highly-parallel computing
ANSWER: C

Peer-to-Peer leads to the development of technologies like?
A. Norming grids
B. Data grids
C. Computational grids
D. Both A and B
ANSWER: D

Type of HPC applications of?
A. Management
B. Media mass
C. Business
D. Science
ANSWER: D

The development generations of Computer technology has gone through?
A. 6
B. 3
C. 4
D. 5
ANSWER: D

Utilization rate of resources in an execution model is known to be its?
A. Adaptation
B. Efficiency
C. Dependability
D. Flexibility

ANSWER: B

Even under failure conditions Providing Quality of Service (QoS) assurance is the responsibility of?
A. Dependability
B. Adaptation
C. Flexibility
D. Efficiency
ANSWER: A

Interprocessor communication that takes place?
A. Centralized memory
B. Shared memory
C. Message passing
D. Both A and B
ANSWER: D

Data centers and centralized computing covers many and?
A. Microcomputers
B. Minicomputers
C. Mainframe computers
D. Supercomputers
ANSWER: D

Which of the following is an primary goal of HTC paradigm_____?
A. High ratio Identification
B. Low-flux computing
C. High-flux computing
D. Computer utilities
ANSWER: C

The high-throughput service provided is measures taken by
A. Flexibility
B. Efficiency
C. Dependability
D. Adaptation
ANSWER: D

What are the sources of overhead?
A. Essential /Excess Computation
B. Inter-process Communication
C. Idling
D. All above
ANSWER: D

Which are the performance metrics for parallel systems?
A. Execution Time
B. Total Parallel Overhead
C. Speedup
D. All above
ANSWER: D

The efficiency of a parallel program can be written as: E = Ts /

pTp. True or False?
A. True
B. False
ANSWER: A

The important feature of the VLIW is _____?
A. ILP
B. Performance
C. Cost effectiveness
D. delay
ANSWER: A