BE Semester- 8th (IT) Question Bank

(Distributed & Parallel Computing)

All questions carry equal marks(10 marks)

Q.1	What are the major performance metrics for characterization an interconnection network?
Q.2	Explain the different mechanism for dynamic mapping of tasks.
Q.3	Briefly compared "Shared memory programming" and "message passing" paradigms on the basis of data sharing and synchronization.
Q.4	What are the different parallel algorithm models? Explain producer – consumer model.
Q.5	What is Data-parallel algorithm model?
Q.6	Define and explain minimum execution time and minimum cost – optimal execution time with an example.
Q.7	Explain the different architectures for shared memory multiprocessing along with its advantages and disadvantages.
Q.8	What is scalability of parallel programs? Explain how one can evaluate the scalability using analytical tools.
Q.9	Define Granularity. How it is useful in parallel computing? What is coarse grained and fine grained parallelism? Which one is the best?
Q.10	Define and differentiate between static and dynamic interconnection network.
Q.11	Describe a parallel formulation of matrix – vector multiplication algorithm using 2-D block partitioning.
Q.12	Write short note: Sorting networks
Q.13	Draw and explain memory hierarchies in details.
Q.14	Define the merit "scaled speedup"? How this metric used for parallel program?
Q.15	Explain SPMD and MPMD models in details.
Q.16	Write short note: Performance metrics for parallel systems
Q.17	Differentiate between synchronous and asynchronous message passing.
Q.18	Draw and explain the parallel computing architectures memory model.
Q.19	Explain expression splitting with example. Also explain use of it in parallel computing.
Q.20	Define and differentiate between adaptive routing and deterministic routing.
Q.21	Define thread. Compute it with process. Also explain the attributes of thread.
Q.22	Write short note: Pipeline processor and Virtual memory.
Q.23	Discuss the different performance metrics for parallel systems.
Q.24	What is data locality? Explain techniques for maximizing data locality.

Q.25	Describe in details about cache coherence and explain the multilevel caches in details.
Q.26	What do you mean by speculative decomposition of parallel program?
Q.27	Write short note on: Heat distribution problem.
Q.28	What is data parallel model for parallel algorithm?
Q.29	Explain the directory based cache coherence.
Q.30	Write a short note on MPI.
Q.31	What is virtual memory? Explain address translation.
Q.32	Write short note: routing in interconnection networks.
Q.33	Define and differentiate between non-blocking no-buffered send and receive operations?
Q.34	Write short note: Snoopy cache coherence.
Q.35	Explain expression splitting with example. Also explain use of it in parallel computing.
Q.36	Explain collective communication.
Q.37	Write short note: Asymptotic analysis of parallel program
Q.38	Explain the different mechanism to reduce the interaction among concurrent task in parallel computing system.
Q.39	Define and explain latency and bandwidth of memory.
Q.40	What is cut-through routing? How the total communication time is calculated for a cut-thorough routing?