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M.Tech. (Sem. – 1st)

ADVANCED COMPUTER ARCHITECTURE

SUBJECT CODE : CS - 505

Paper ID : [E0685]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours

Maximum Marks : 100

Instruction to Candidates:

1) Attempt any **Five** questions.

2) **All** questions carry equal marks.

Q1) (a) Explain the Equal Duration Computation model for the multiprocessors.

(b) Explain the advantages and disadvantages of shared memory and message passing paradigm.

Q2) What has been the trend in computing from the following points of views:

(a) Cost of hardware.

(b) Size of memory.

(c) Speed of hardware.

(d) Number of processing elements.

(e) Geographical locations of system components.

Q3) Assume that a simple addition of two elements requires a unit time. You are required to compute the execution time needed to perform the addition of a 40 × 40 elements array using each of the following arrangements:

(a) A SIMD system having 64 processing elements connected in nearest-neighbor fashion. Consider that each processor has only its local memory.

(b) A SIMD system having 64 processing elements connected to a shared memory through an interconnection network. Ignore the communication time.

(c) A MIMD computer system having 64 independent elements accessing a shared memory through an interconnection network. Ignore the communication time.

Q4) (a) Explain the cache coherence problem. Discuss the various cache coherence methods.

(b) Differentiate between cluster computing and grid computing.

Q5) Describe the code scheduling methods for ILP processors.

Q6) Differentiate between the following with example:

(a) Pipelined and Superscalar Processors.

(b) Vector and Multithreaded architecture.

Q7) Classify the shared memory systems. Explain them in brief.

Q8) Write short note on the following:

(a) Array Processors.

(b) Parallel Processing.