Printed Pages : 3

CA405

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : **214405**

Roll No. | | | | | | | | | | |

M. C. A.

(SEM. IV) THEORY EXAMINATION, 2014-15

ADVANCE COMPUTER ARCHITECTURE

Time : **3** Hours] [Total Marks : **100**

Note : Attempt **all** questions. **All** questions carry equal marks.

1 Attempt any four parts : 5×4=20

(a) What is m-way interleaving ? Discuss different types of memory interleaving.

(b) Comment on balancing of system bandwidth.

(c) Discuss various classifications of parallel processing mechanisms in uniprocessor computers.

(d) Differentiate between DMA and I/O channel.

(e) How memory contention problem can be reduced in multiprocessor systems ?

(f) How multi cache coherence problem is handled ?

2 Attempt any two parts : 10×2=20

(a) Discuss functional architecture of SIMD multiprocessor systems.

(b) Discuss superscalar and superpipelined processing. Also estimate the performance of superpipelined superscalar processor of degree(m, n).

(c) What are the hazards that occurs in pipelining in your opinion. Explain.

3 Attempt any two parts : 2×10=20

(a) What is meant by cache coherency ? Explain with the help of a suitable example.

(b) How POSIX threats are creating and exiting ? Explain.

(c) Differentiate between parallel and distributed processing. Why array computers are termed as parallel computers ?

4 Attempt any two parts : 10×2=20

(a) Discuss static and dynamic data flow architecture model. Elaborate flynm's classification.

(b) Vectorizing computers generally detect loops that can be executed on a pipelined vector computer. Are the vectorization algorithms used by vectorizing compilers suitable for MIMD machine parallelization ?

(c) Explain how instruction set compiler technology CPU implementation & control and memory hierarchy effect the CPU performance. Justify the effects in terms of program length, clock rate and effective CPI.

5 Attempt any two parts : 10×2=20

(a) Define parallel computing. What are the fundamental issues in parallel processing ? Why parallel computing is required ?

(b) What do you understand by linear and nonlinear pipeline processor ? Explain them.

(c) Write short notes on :

(i) Condition compilation

(ii) Master and synchronization constructions.