Total No. of printed pages = 3

Co-604/PP/6th Sem/2014

# PARALLEL PROCESSING

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question No. 1 and any *four* from the rest.

1. Answer the following short questions : 5×2=10

   (a) Define "ring" and "star" topology.

   (b) What is hypercube ?

   (c) What is cache hit and cache miss ?

   (d) Name the stages of pipelining ?

   (e) What is a node degree ?

2. (a) Explain the cache coherence problem. 4

   (b) Explain all the possible interconnection states of a 2×2 switch. 6

   (c) State two methods for achieving parallelism in uniprocessor system. 5

[Turn over

3. (a) What are the Flemming classifications of computer ? Explain with diagram. 2+8=10

(b) What is locality of reference ? Explain different types of locality of reference. 5

4. (a) Write a parallel algorithm for SIMD matrix multiplication. 7

(b) Classify pipeline processor according to Handler. 8

5. (a) Explain perfect shuffle. 4

(b) Compare scalar and vector pipelining. 6

(c) Illustrate segmented memory systems. 5

6. (a) Draw and illustrate a 8×8 input multistage Omega network. 9

(b) Write down the formulas for computing : 6

(i) Number of stages

(ii) Node per stage

(iii) Total number of nodes.

7. Write short notes on any *three* : 3×5=15

(a) Virtual Memory.

(b) Dynamic interconnection network.

(c) Principles of pipelining.

(d) Instruction I-unit for instruction pipelining.