322712(22)

APR-MAY/ NOV-DEC

B. E. (Seventh Semester) Examination, 2020

(Old Scheme)

(CSE Branch)

PARALLEL PROCESSOR & COMPUTING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Solve all questions. Part (a) is compulsory for all. Solve any two from (b), (c) and (d).

Unit-I

1. (a) Difference between parallel processing and distri-
   buted processing.   2

   (b) Explain parallelism in uniprocessor systems.   7

(c) Explain Flynn's taxonomy. 7

(d) Explain various cache coherence protocols. 7

Unit-II

2. (a) Define data and resource dependency. 2

(b) Explain efficiency and throughput for four stage pipe-line processor. 7

(c) Describe VLIW computers. 7

(d) Draw a functional diagram of CRAY-1 architecture. Specify its hardware & software specifications. 7

Unit-III

3. (a) Draw a 3-cube network. 2

(b) Explain tree structured dictionary machine. 7

(c) Explain shear sort algorithm with example. 7

(d) Write down the sequential selection algorithm. Given the following list of elements :

6 4 5 6 7 1 5 3 8 2 1 0 3 4 5 6 2 1 7 1 4 9 5

Find the 5th, 9th and 13th smallest element using q = 5. 7

Unit-IV

4. (a) Define emulation and simulation. 2

(b) Explain multithreading and latency hiding in detail. 7

(c) Difference between loosely and tightly coupled multi-processor. 7

(d) Describe multithreading in multiprocessors. 7

Unit-V

5. (a) Explain Memory Hierarchy. 2

(b) Write short note on cache cohereent problem. 7

(c) Draw and explain CC-NUMA architecture. 7

(d) Write short notes on : 7

(i) MIN-Based BBN Butterfly

(ii) Vector-Parallel Cray Y-MP