C033632(033)

B. Tech. (Sixth Semester) Examination, April-May 2022

(AICTE Scheme)

(Information & Technology Branch)

PARALLEL COMPUTING

Time Allowed : Three hours

Maximum Marks : 100

Minimum Pass Marks : 35

*Note : Attempt all questions. Part (a) of each question is compulsory and carry 4 marks each. Attempt any **two** parts out of part (b), (c) and (d) of each question and carry 8 marks each.*

Unit-I

1. (a) Define hardware and softwre parallelism.

   (b) Descirbe the Flynn's classification with the appropriate diagram.

(c) Write Amdahl's law for fixed workload. Explain with complete derivation and draw its graph also.

(d) Describe the term vector and SIMD super computer.

Unit-II

2. (a) Define instruction pipeline with suitable diagram.

(b) Explain multithreading in multiprocessor.

(c) Illustrate cache memory organizations.

(d) Write down the short note as follows :

 (i) COMA model

 (ii) NUMA model

Unit-III

3. (a) Write difference between static and dynamic networks.

(b) Explain shuffle and inverse shuffle networks with application.

(c) Describe butterfly and hypercube networks.

(d) Draw and explain the static connection network.

Unit-IV

4. (a) Define code optimization and scheduling.

(b) Define parallel programming model and explain share variable and object oriented model.

(c) Describe the language features of parallelism.

(d) Explain shared variable programming structure in detail.

Unit-V

5. (a) What is parallel virutal machines?

(b) Illustrate the synchronous massage passing and synchronous control passing.

(c) Explain domain decomposition and control decomposition techniques.

(d) Describe the Heterogeneous processing.