

Registration No. :

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Total number of printed pages – 2

B. Tech  
PECS 5411

**Eighth Semester Regular / Back Examination – 2015**

**PARALLEL AND DISTRIBUTED SYSTEMS**

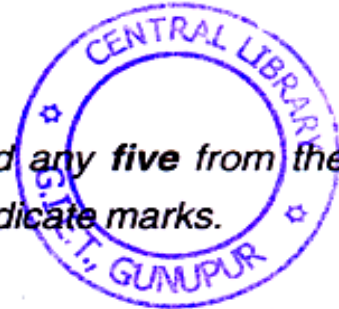
**BRANCH : CSE**

**QUESTION CODE : J 238**

**Full Marks – 70**

**Time : 3 Hours**

*Answer Question No. 1 which is compulsory and any five from the rest.  
The figures in the right-hand margin indicate marks.*



1. Answer the following questions : 2×10
  - (a) What is a distributed System ? What are the advantages of it ?
  - (b) What do you mean by One-to-All Broadcast ?
  - (c) What is logical clock ? What is its significance in distributed systems ?
  - (d) Define data Parallel algorithm model.
  - (e) What do you mean by asymptotic analysis of parallel programs ?
  - (f) Differentiate between parallel system and distributed system.
  - (g) What do you mean by overlapping communication with computation ?
  - (h) Differentiate between adaptive routing and deterministic routing.
  - (i) Define Cut Through Routing.
  - (j) What is All-to-All personalized communication ?
2.
  - (a) Discuss the trends in microprocessor architectures. 5
  - (b) Explain the routing mechanisms for Interconnection Networks. 5

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3. (a) Explain All-to-All Broadcast and All-to-All Reduction with example. 5  
(b) What are different parallel algorithm models ? Explain Producer Consumer model. 5
4. (a) What is parallel system ? Enlist various performance metrics for Parallel system. Explain Speedup in detail. 5  
(b) Define and differentiate between Minimum execution time and minimum cost-optimal execution time with example. 5
5. (a) What is meant by scalability of Parallel Systems ? Explain how one can evaluate the scalability using analytical tools. 5  
(b) Describe a parallel formulation of Matrix Vector Multiplication algorithm using 2-D block partitioning. 5
6. (a) Discuss the issues in designing load-balancing algorithms. 5  
(b) Define granularity. How is it useful in parallel computing ? 5
7. (a) Discuss the desirable features of a good message-passing system. 5  
(b) What do you mean by collective communication and computation Operations ? Discuss the role of Groups and Communicators in Analytical Modeling of Parallel Programs. 5
8. Write short notes on any **two** of the following : 5×2  
(a) physical organization of parallel platforms  
(b) Message passing Interfaces and Topologies  
(c) Mapping techniques for load balancing  
(d) Dense Matrix Algorithm.