G 1165 (Pages : 2) Reg. No.....1.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2012

Eighth Semester

Branch : Computer Science and Engineering

HIGH PERFORMANCE COMPUTING (R)

(Regular/Supplementary)

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*

Each question carries 4 *marks.*

1. What do you understand by the term parallel processing?
2. Explain what is a pipe line computer.
3. What are the two performance indices for a linear pipe line? Explain.
4. Differentiate between static pipelines and dynamic pipelines.
5. Explain what is an array processor.
6. What are the two types of associative memory organisation?
7. Explain what are critical sections. What are the usual assumptions made with regard to critical sections?
8. What is a semaphore? How is it useful?
9. Compare the principles of data flow computers and control flow computers.
10. Explain data flow graphs.

(10 × 4 = 40 marks)

Part B

Each question carries 12 *marks.*

11. Explain the parallel processing mechanisms for uniprocessor systems.

Or

12. Discuss the categories of computers based on Flynn's classification.

13. Explain in detail how branch instructions affect pipelining efficiency.

Or

14. Explain linear pipelines and arithmetic pipelines.

Turn over

15. Discuss static and dynamic interconnection networks for SIMD computers.

Or

16. Write notes on parallel sorting on array processors.

17. Discuss the various bus arbitration schemes for multiprocessor systems.

Or

18. Discuss in detail the different language constructs to exploit parallelism.

19. Compare and contrast static and dynamic data flow computers.

Or

20. Discuss the alternative approaches for designing data flow computers.

(5 × 12 = 60 marks)