Total No. of Questions :12]

SEAT No. :

**P3083**

[Total No. of Pages :2

# B.E. Computer Engineering
# ADVANCED COMPUTER ARCHITECTURE AND COMPUTING
## (2003 Pattern) (Semester - II)

*Time : 3 Hours]* *[Max. Marks : 100*

***Instructions to the candidates:***

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of Calculator is allowed.***
5) ***Assume suitable data if necessary.***

## SECTION - I

***Q1)*** a) Discuss elaborately the classification schemes for Parallel Computers. **[10]**

b) What is Speedup? How is it measured in pipelined computer? Explain with example. **[8]**

OR

***Q2)*** a) How can the parallelism be achieved in Uni-processor architecture. **[10]**

b) Explain Instruction Level and Thread Level parallelism. **[8]**

***Q3)*** a) Write a detail note on Internal Forwarding technique. **[7]**

b) Explain WAW, RAW and WAR hazards briefly. **[9]**

OR

***Q4)*** a) Explain the architecture of Ultra Sparc processor. **[8]**

b) What is Loop Unrolling technique? Discuss its advantages with example. **[8]**

***Q5)*** a) What is Vectorizing Compiler? Discuss briefly. **[6]**

b) Draw and explain the architecture of Cray-I. **[10]**

OR

*P.T.O.*

*Q6)* a) Write a note on features of Parallel Languages in detail. **[8]**

b) What is pipeline chaining? Explain with example. **[8]**

## SECTION - II

*Q7)* a) What is COW architecture? **[3]**

b) Explain Time shared bus, Crossbar switch, and Multiport Memory Model. **[15]**

OR

*Q8)* a) Compare Loosely coupled and Tightly coupled Multiprocessors. **[8]**

b) What are the desirable Processor characteristics of Multiprocessor architecture? List and brief. **[10]**

*Q9)* a) What is Multithreaded programming? Discuss in detail. **[8]**

b) Write a detail note on Latency Hiding Technique. **[8]**

OR

*Q10)*a) Compare synchronous and Asynchronous Message passing in parallel programming. **[10]**

b) Explain any Von Neumann-based multithreaded architecture briefly. **[6]**

*Q11)*a) What are the major features of Fortran-90 supporting Parallel Programming? **[10]**

b) List various performance measures for the parallel algorithms. **[6]**

OR

*Q12)*a) Write a note on Grid Computing. **[8]**

b) What are Neuro-Computing paradigms? **[8]**

*EEE*