

Total No. of Questions : 12]

SEAT No. :

**P3439**

**[4959]-214**

[Total No. of Pages : 2

**B.E.(Computer)**

**ADVANCED COMPUTER ARCHITECTURE**

**(2008 Course)(Semester-II) (410449)**

*Time :3Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) *Answer any three questions from each section.*
- 2) *Answers to these sections should be written in separate answer books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*
- 5) *Assume suitable data if necessary.*

**SECTION-I**

- Q1)** a) What is significance of Instruction Level Parallelism(IPL) and Thread Level Parallelism(TLP)? What is the difference between ILP and TLP?[8]
- b) Explain with a neat block diagram the EPIC features of Itanium processor. [10]

OR

- Q2)** a) What is importance of Parallel Processing and Multitasking Operating system? What is granularity? Explain any two levels of granularity. [10]
- b) Prove that 'n' stage pipeline processor can be at most 'n' times faster than a corresponding non-pipelined serial processor. [8]
- Q3)** a) What is meant by pipeline, superscalar and super pipeline processor? what are the various factors placing constraints on new start of pipeline processes? [8]
- b) Explain principles of internal data forwarding and register tagging in reference with design of pipelined processors. [8]

OR

- Q4)** a) Describe the various features of SPARC architecture. [8]
- b) What is role of Branch Prediction Buffer and Branch Target Buffer in Branch handling with respect to pipelining? [8]
- Q5)** a) Explain various types of vector instructions with suitable examples. [8]
- b) Explain matrix multiplication on SIMD architecture. Discuss complexity of multiplication algorithm. [8]

OR

**P.T.O.**

- Q6)** a) What are Array Processors? Why they are classified as SIMD processors? Compare Array processor and multiprocessing system. [8]  
b) Discuss standard features of Pipeline chaining and Vector looping? [8]

**SECTION-II**

- Q7)** a) Discuss the Interconnection networks used in SIMD [10]  
b) Describe loosely coupled and tightly coupled multiprocessor system? [8]

OR

- Q8)** a) What are the different ways available for interconnection network in multiprocessor system? Discuss the advantages and disadvantages of the same. [10]  
b) Discuss different bus arbitration techniques used in multiprocessor system. [8]
- Q9)** a) What Basic Concept of Multithreading? Explain Multithreaded Architectures and its computational Model for Parallel Processing system. [8]  
b) Explain following terms Associated with message passing. [8]  
i) Synchronous and Asynchronous message passing schemes.  
ii) Blocking and Non Blocking communication

OR

- Q10)** a) What are different message passing paradigm of Parallel programming? [8]  
b) Describe the context switching policies of multithreaded architectures. [8]
- Q11)** a) State and explain various features of Parallel Programming Languages. [8]  
b) Explain classification of Multiprocessor Operating system. [8]

OR

- Q12)** a) What are various issues with respect of exploiting concurrency for multiprocessing environment? [8]  
b) Write short note on Grid computing. [8]

