

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(ILP) 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]

