

R18

Code No: 155AA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, September - 2021

ADVANCED COMPUTER ARCHITECTURE

(Computer Science and Engineering)

Time: 3 Hours

Max. Marks: 75

**Answer any five questions
All questions carry equal marks**

- 1.a) Differentiate between implicit parallelism and explicit parallelism.
b) Apply the fine grain, coarse grain and show the program graph before and after grain packing. [7+8]
- 2.a) Justify the effects of instruction set, compiler technology, CPU implementation and control in terms of program length, clock rate, and effective CPI.
b) Compare and contrast software parallelism and hardware parallelism. [8+7]
- 3.a) Analyze the characteristics of parallel algorithms which are machine implementable.
b) Construct the architecture of a very long instruction word (VLIW) processor and its pipeline operations. [7+8]
- 4.a) Illustrate with an example Amdahl's law for a fixed workload.
b) Compare CISC and RISC scalar processors and write a detailed note on each. [7+8]
- 5.a) Analyze the instruction execution phases of instruction pipeline design.
b) Explain the cache addressing models. [8+7]
- 6.a) Distinguish between sequential consistency model and weak consistency model.
b) Discuss the dynamic pipeline with feedforward and feedback connections for any two different functions. [7+8]
- 7.a) Compare and contrast write-through cache and write-back cache.
b) Differentiate C-Access memory organization, S- Access memory organization and C/S- Access memory organization. [7+8]
- 8.a) Discuss the fine grain parallelism in detail.
b) Explain the multithreading issues and solutions. [7+8]

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