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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Tutorial - I

Subject: Advanced Computer Architecture (15CS72) **Semester:** 7th A & B

1. Explain Flynn's classification with the diagram
2. Explain the different system attributes affecting the performance
3. In detail explain the three shared memory multiprocessor models
4. Define parallel random access machines. Explain different PRAM models and PRAM variants
5. Explain data dependencies with an example
6. Explain and state Bernstein's conditions. Explain the detection of parallelism Bernstein's conditions
7. Briefly explain hardware parallelism and software parallelism and discuss the mismatch between software parallelism and hardware parallelism with an example
8. Explain different levels of parallelism in program execution on modern computers
9. With the neat diagram explain the static connection networks
10. Perform a data dependencies analysis in each of the following instructions

S1: A = B + D
S2: C = A * 3
S3: A = A + C
S4: E = A / 2

11. Consider the execution of the following code segment consisting of seven statements. Use Bernstein's conditions to detect the maximum parallelism embedded in this code. Justify the portions that can be executed in parallel and the remaining portions that can be executed sequentially

S1: A = B + C
S2: C = D + E
S3: F = G + E
S4: C = A + F
S5: M = G + C
S6: A = L + C
S7: A = E + A