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मन - 058

Advanced Computer Architecture (New) (1310)

P. Pages : 2

Time : Three Hours

Max. Marks : 80

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Solve **any two** questions from each unit.
5. Draw diagrams wherever necessary.
6. Assume suitable data if necessary.
7. Figure to the right indicate full marks.

UNIT - I

1. a) Explain parallel processing mechanism in uniprocessor system. 10
b) A 40 MHz processor was used to execute a program with following instruction having mix instruction and clock cycle count. Determine the, 10
i) Effective CPI.
ii) MIPS Rate.
iii) Execution Time.

The following table shows instruction and clock cycle count.

Instruction Type	Instruction Count	Clock cycle Count
Integer Arithmetic	45000	1
Data Transfer	32000	2
Floating Point	15000	2
Control Transfer	8000	2

- c) Draw the dependency graph, sequential execution and parallel execution for the following five instruction labelled P1, P2, P3, P4 and P5 in program order. 10

P1: $C = D \times E$

P2: $M = G + C$

P3: $A = B + C$

P4: $C = L + M$

P5: $F = G / E$

UNIT - II

2. a) What do you mean by memory interleaving. Also discuss various method of memory interleaving. 10
- b) Explain and compare RISC and CISC scalar processor. 10
- c) Explain Addressing and Timing protocol for Backplane Bus system. 10

UNIT - III

3. a) Explain various SIMD computer organisation. 10
- b) State and explain $m(j, k)$ sorting algorithm on Array processor. 10
- c) Explain Associative search algorithm in detail. 10

UNIT - IV

4. a) Explain processor characteristics for multiprocessing. 10
- b) Explain synchronized parallel algorithm. 10
- c) Explain vector instruction types in detail. 10

UNIT - V

5. a) State various features of language parallelism. 10
- b) Write short note on following. 10
- i) Data parallel mode.
- ii) Message passing model.
- c) What is data flow computer ? Explain static data flow computer in detail. 10
