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Total No. of Questions: 09] [Total No. of Pages: 01

B. Tech. (Sem. - 5th)

PARALLEL ARCHITECTURE AND COMPUTING

SUBJECT CODE: IT - 309

Paper ID: [A0518]

[Note: Please fill subject code and paper ID on OMR]

Time: 03 Hours **Maximum Marks: 60**

Instruction to Candidates:

1) Section - A is **Compulsory**.
2) Attempt any **Four** questions from Section - B.
3) Attempt any **Two** questions from Section - C.

Section - A

Q1) ***(10 × 2 = 20)***

a) Define parallel processing.
b) Explain Amdahl's law.
c) Differentiate between parallelism and pipelining.
d) What are systolic arrays?
e) Classify pipelined processors.
f) What is the use of reservation table?
g) State Brent's Theorem.
h) What are dynamic connection networks?
i) What do you mean by parallel prefix computing?
j) Explain the terms control flow and data flow.

Section - B

(4 × 5 = 20)

Q2) Explain Flynn's classification of computer architecture.

Q3) What are the fundamental decisions in determining the architecture of an interconnection network for an SIMD machine?

Q4) Explain S-access and C-access memory organization for vector accesses.

Q5) Describe uniform and non-uniform memory access multi-processors.

Q6) Describe various PRAM models and compare their relative powers.

Section - C

(2 × 10 = 20)

Q7) Describe at least four characteristics of MIMD multiprocessors that distinguish them from multiple computer systems or computer networks.

Q8) What kind of data dependencies can result in a pipeline hazard? Can data hazards be avoided (to some extend)?

Q9) Describe in detail basic construction for representing PRAM algorithms.

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