BECOMP) / SEM VIII / R-19 / 54-24 / 22-08-25

Duration: 3hrs **Max Marks:80**

N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

1 Attempt any FOUR [20]

a Explain CUDA processor Architecture?

b Write short note on effect of Granularity on performance

c Explain Parallel algorithm Models,

d What is a Data Race? How Data-Races Can be Prevented?

e Explain in brief the Karp Flat Metric

2 a Explain blocking and non-blocking communication using MPI. [10]

b What is OpenCL? Explain features of OpenCL [10]

3 a Draw and explain GPGPU architecture [10]

b Explain in detail various programmatic levels of parallel processing [10]

4 a Short note on SIMD matrix multiplication [10]

b Explain Granularity, Concurrency and Dependency Path. [10]

5 a Explain the concept of HPC with need and application [10]

b Apply quicksort parallel algorithm for the following example: 16, 08, 33, 45, 25, 19, 53, 06 [10]

6 a Explain process synchronization mechanism. [10]

b Explain interprocess communication with suitable example. [10]

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