Total No. of Questions – [06]

Total No. of Printed Pages: 1

G.R. No.	

DECEMBER 2021 - ENDSEM EXAM

FINAL YEAR B. TECH. (COMPUTER ENGINEERING) (SEMESTER - I)

COURSE NAME: PROFESSIONAL ELECTIVE - IV

[HIGH PERFORMANCE COMPUTING]

COURSE CODE: CSUA40181C

(PATTERN 2018)

Time: [1 Hr] [Max. Marks: 30]

Instructions to candidates:

1) **Answer Q.1 OR Q.2, Q.3 OR Q.4, Q.5 OR Q.6.**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q.1 a	Examine the sources of overhead in parallel Programs?	[4]
Q.1 b	Demonstrate row wise 1-D partitioning with example matrix-vector multiplication?	[6]
	OR	
Q2 a	Describe "Isoefficiency Function", Explain in detail?	[4]
Q2 b	Justify, the effect of Granularity on parallel program performance?	[6]
Q.3 a	Demonstrate how increasing and decreasing comparators are used in Sorting Networks?	[4]
Q.3 b	Explain Bitonic Sort sequence? Solve the problem: sort the following elements using Bitonic Sort. 3,5,8,9,,10,12,14,20,95,90,60,40,35,23,18,0	[6]
	OR	
Q.4 a	Explain with example parallel shellsort with its runtime?	[4]
Q.4 b	Write an algorithm for the parallel formulation of odd-even transposition sort on an n-process ring? Solve the problem: sort the following elements using Odd-Even transposition sorting algorithm. 3, 2, 3, 8, 5, 6, 4, 1	[6]
Q.5 a	Compare CPU and GPU with diagram?	[4]
Q.5 b	Describe CUDA scalable Programming Model with diagram?	[6]
	OR	
Q.6 a	Explain the Kernel function in CUDA?	[4]
Q.6 b	Write a CUDA program that copies the array from Host to device, add 100 in each array element, copy the result from device to host and print the elements. Also show steps to run the code?	[6]