SVKM'S
DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING
Academic Year (2022-23)
YEAR IV / Semester VIII

Program: B. Tech in Computer Engineering | **Max. Marks: 75**
Subject/Course: High Performance Computing – VIII | **Time: 10.30-1.30pm**
Date:29/05/2023 | **Duration: 3 Hours**

REGULAR EXAMINATION

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover page of the Answer Book, which is provided for their use.

(1) This question paper contains 01 pages.
(2) **All Questions are Compulsory.**
(3) **Answer to each new question is to be started on a fresh page.**
(4) **Figures in the brackets on the right indicate full marks.**
(5) **Assume suitable data wherever required, but justify it.**
(6) Support your answers with neat labelled diagrams, wherever necessary.

Question No.		Max. Marks
Q1 (a)	Explain Pipelining and Superscalar Execution	[07]
Q1 (b)	Explain Flynn's Classification model.	[08]
	OR	
	Explain Feng's Classification model.	[08]
Q2 (a)	Explain MPI routines.	[07]
Q2 (b)	Architecture of an Ideal Parallel Computer.	[08]
	OR	
	Explain principal parameters that determine the communication latency.	[08]
Q3 (a)	Explain the Building Blocks of MPI.	[07]
Q3 (b)	Explain recursive decomposition and data-decomposition.	[08]
	OR	
	Explain exploratory decomposition and speculative decomposition.	[08]
Q4 (a)	Explain the applications of High Performance Computing.	[07]
Q4 (b)	Compare Data-Parallel Model and Task Graph Model.	[08]
	OR	
	Compare Work Pool Model and Master-Slave Model	[08]
Q5 (a)	Explain Synchronization Primitives in Pthreads.	[07]
Q5 (b)	Define Speedup, execution time, efficiency, cost, scalability with example.	[08]
	OR	
	Explain Amdahl's law.	[08]

All the Best!