GIET UNIVERSITY, GUNUPUR – 765022
M. Tech (Second Semester) Examinations, May – 2024
MPCEC2020 - VLSI Signal Processing
(VLSI)

Time: 3 Hrs **Maximum: 70 Marks**

(The figures in the right hand margin indicate marks.)

PART – A (2 x 10 = 20 Marks)

Q.1. Answer all questions

		CO#	Blooms Level
a.	Define iteration bound.	CO2	K2
b.	Discuss the importance of IIR filters.	CO2	K1
c.	Explain retiming and unfolding in VLSI signal processing.	CO1	K2
d.	Define algorithmic filtering.	CO1	K3
e.	Enumerate four uses of parallel processing.	CO3	K2
f.	Explain the advantage of lattice filter structure.	CO3	K2
g.	Define digital signal processors (DSPs).	CO4	K3
h.	Provide real-life examples of a parallel system.	CO4	K1
i.	Explain the concept of pipelining in DSP.	CO2	K2
j.	List the characteristics of systolic architecture.	CO3	K1

PART – B (10 x 5=50 Marks)

Answer *ANY FIVE* questions

		Marks	CO#	Blooms Level
2. a.	Discuss the challenges associated with parallel processing.	5	CO1	K3
b.	Provide an explanation of both pipelining processing and parallel processing and distinguish between them.	5	CO1	K2
3. a.	Explore the role of parallel processing in real-time systems.	5	CO2	K3
b.	Differentiate between retiming and unfolding in VLSI signal processing.	5	CO2	K4
4. a.	Briefly outline five applications of signal processing.	5	CO3	K5
b.	Delve into the advantages and disadvantages of pipelining and parallel processing techniques.	5	CO3	K3
5. a.	Contrast adaptive filters with recursive filters.	5	CO4	K3
b.	Explain the concept of redundant architecture briefly.	5	CO4	K4
6. a.	Elaborate on the lattice filter structure.	5	CO2	K5
b.	Explain the concepts of data parallelism and task parallelism within parallel processing architectures.	5	CO2	K3
7. a.	Discuss the significance of power efficiency in various signal processing applications.	5	CO1	K5

b.	Provide an overview of asynchronous pipelines.	5	CO1 4

8. a. Briefly explain the concepts of: 5   CO3   3

      i)   Iteration Bound
      ii)   Algorithmic filtering

   b. Explain the concept of systolic arrays in the context of signal processing.   5   CO4   4

--- End of Paper ---