

July 2022

Exam.Code:0976  
Sub. Code: 7429

2072  
M. Tech. (Micro-Electronics)  
Second Semester  
MIC-202: Architecture of VLSI Design

Time allowed: 3 Hours

Max. Marks: 50

**NOTE:** Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Part.

x-x-x

- 1) a) Define the subroutine in a programme. Explain how it can be called?  
b) Explain how the speed of a micro processor can be increased?  
c) Compare the volatile and non volatile semiconductor memories. What are their applications?  
d) What are the types of buses in a microprocessor? Write their functions too and compare them.  
e) What is deadlock in multiprocessor systems? Explain. (5x2=10)

**PART A**

- 2) a) Compare the structural and behavioral schemes of VLSI architecture.  
b) Explain how a CAD tool is used to design a VLSI chip? Name some CAD tools too.  
c) Compare the machine level programming and assembly language programming.  
d) What is a memory unit? (4,3,2,1)
- 3) a) What are RTL systems? How are they implemented?  
b) What is a micro instruction? Explain the format of a micro instruction.  
c) Compare hardwired control and microprogrammed control CPU design. (3,4,3)
- 4) Write notes on:-  
a) CPU and memory interaction  
b) 6 transistor CMOS SRAM cell working (5,5)

**PART B**

- 5) a) What are the different types of input and output units?  
b) What are the routines used to control the input and output units?  
c) Explain how the I/O units are connected with the CPU.  
d) Compare the address bus and a data bus in a VLSI architecture. (3,3,2,2)
- 6) a) What is parallel processing in VLSI architectures? What are its algorithms for multiprocessor systems?  
b) Explain the concept of pipelining in microprocessors. What are hazards of pipelined architectures?  
c) What are the design issues of pipelined architectures? (4,3,3)
- 7) Write notes on:  
a) Salient features of CISC  
b) DMA controller architecture (5,5)

x-x-x