



# INDIAN INSTITUTE OF INFORMATION TECHNOLOGY UNA (HP)

An Institute of National Importance under MoE

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AY 2023-24

School of Electronics

CURRICULUM: IITUGECE22

Cycle Test – I

14, Aug. '23

Time: 02:00-03:00PM

Degree	B.Tech	Branch	ECE
Semester	VII		
Subject Code & Name	ECPE52: Application-Specific Integrated Circuit (ASIC)		
Time: 60 Minutes	Answer All Questions		Maximum: 20 Marks

Sl. No.	Question	Marks
1.a	State the different types of ASICs.	(1)
1.b	Draw the flow chart of ASIC Design and explain the operation of each step in detail.	(2)
1.c	What is the difference between the construction of FPGA and CPLD? Explain the working of various functional block of FPGA with the help of neat block diagram.	(2)
2.a	Write the difference between standard IC and Custom IC?	(1)
2.b	Give the comparison among PROM, PLA, and PAL. Also, Design sequence detector 1101 using PLA and D-flip flops.	(2)
2.c	Define the different types of modeling used in VHDL. Also, write VHDL code for the 4-bit up-down counter.	(2)
3.a	What is Antifuse? List the different types of Antifuse.	(1)
3.b	Write the difference between EPROM and EEPROM? Also, describe the various steps involved in programming EPROM and EEPROM.	(2)
3.c	Design the following function using PAL: I) $F1(A, B, C) = (1, 2, 4, 5, 7)$ II) $F2(A, B, C) = (0, 1, 3, 5, 7)$	(2)
4.a	List the advantages of Global routing.	(1)
4.b	Explain the working of Xilinx XC4000 with its logic block diagram.	(2)
4.c	What is LUT? Realize a boolean expression $F(X, Y, Z) = XY + Z$ by using LUT base logic block.	(2)

\*\*\*\* GOOD LUCK \*\*\*\*