BANGALORE INSTITUTE OF TECHNOLOGY
K R ROAD, V V PURA, BENGALURU-04
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

I Internals - 2024-25 (Odd)-Improvement

BATCH: 2023

COURSE (CODE): **SEM: 3rd**

DATE & TIME: / /2024 ,3:30PM to 4:30PM **MAX MARKS:** 30

USN:

Note: Answer any one full question from each PART

Q. No.	PART A (Module – I, III)	15M	CO's	PO's	Blooms Levels
1. a)	**Find** the minimum product of sum for given function using K-map and also identify the essential prime implicants. **F(a,b,c,d)=m6+d4+m7+m12+d11+m13+m1+m15** and Realize the simplified circuits using basic gates.	5	1	1,2,3	3
1.b)	**Prove** that dual theorem **x+x=x and x.x=x**	5	1	1,2,3	3
1.c)	With neat diagram explain basic functional units of computer.	5	3	1,2	2
	OR				
2.a)	i)Solve the sum of product for given function using K-map and find all essential prime implicants . **X(p,q,r,s)= πM(6,7,10,12,13) +d(0,4,8,11)** ii) Obtain the sum of product for given Boolean expression using k-map **F= A'B'+ BD+CD+B'C' .**	4	1	1,2,3	3
2.b)	Write a short note on parallelism .	6	3	1,2,3	2
2.c)	Find the complement of the functions a) F 1 = x ′ y z ′ + x ′ y ′ z and b) F 2 = x (y ′ z ′ + y z) .	5	3	1,2,3	2
	PART B(Module –I, III)	**15M**			
3.a)	Explain pipeline and super scalar operation , CISC and RISC operation.	5	1	3	3
3.b)	Implement the Boolean function with OR and INVERTER gates only. **F = x z + x ′ z ′ + x ′ y**	4	1	3	3
3.c)	Using the basic theorems and postulates of Boolean algebra, simplify the following Boolean expression: F = x ′ y ′ z + x y z + x ′ y z + x y ′ z .	6	1	1,2,3	3
	OR				
4.a)	Implement EX-NOR gate using universal NAND Gate.	5	1	1,2	3
4.b)	Write the VHDL program for Full adder.	4	1	1,2,5	3
4.c)	Explain the different registers in the computer .	6	3	1	2