K. J. Somaiya College of Engineering, Mumbai-77
(A Constituent college of Somaiya Vidyavihar University)
Department of Electronics and Computer Engineering
SEM III EXCP : Nov 2023

Digital Electronics

Questions for Practical Examination

Please note that actual SOP / POS equations and numbers will be given during practical exam

Sr. No	Description
1	Implement XOR gate using NAND gates
2	Design a 2 bit comparator using gates
3	Implement a controlled adder / subtractor using IC 7483 and perform X+Y and X-Y for given X and Y values
4	Implement a 1 digit BCD adder using IC 7483 and Perform given BCD addition
5	Implement full adder using 4: 1 multiplexer
6	Implement given SOP equation using minimal number of gates
7	Implement given POS equation using minimal number of gates
8	Implement given SOP equation using NAND gates
9	Implement given POS equation using NOR gates
10	Implement given SOP function using Multiplexer / decoder 74138
11	Implement given POS function using Multiplexer / decoder 74138
12	Implement a 1:4 demultiplexer using NAND Gates
13	Design Mod 5 asynchronous counter using JK flip flops and gates
14	Design Mod 7 asynchronous counter using JK flip flops and gates
15	Design Mod 60 decimal counter using IC 7490
16	Design 2 digit decimal counter using IC 7490
17	Design Mod 12 counter using IC 74163
18	Design Mod 10 counter counting from 1 to 10 using IC 74163 using load input

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19	Design Mod 14 counter using IC 74163 using clear input
20	Using IC 74194 show various operations of Left shift, Right Shift and Load.
21	Implement 4 bit ring counter using IC 74194
22	Implement 4 bit Johnson counter using IC 74194
23	Implement a 3 bit ring counter using JK flip flops
24	Design a synchronous counter counting 2-1-3-0-2
25	Implement a 3 bit binary synchronous **down counter** using JK flip flops
26	Design a sequence detector for “110” using JK flip flops (Moore machine)
27	Design a sequence detector for “1010” using JK flip flops (Mealy machine)
28	Design a vending machine having 2 inputs for 1 and 2 Rs and Vending Chocolate worth 3 Rs. Implement using JK Flip flops and gates
29	Design a circuit which gives output Z = 1 for all 3 digit prime numbers received as a sequence of bits on input X.
30	Design a 3 bit up down synchronous counter using JK flip flops