

VIGNAN'S UNIVERSITY

Course Name: B.Tech, Branch Name: it, Year: 2, Semester: 1, Subject Name: Digital Logic Design, Unit: 3 (Approved Questions Report)

Sl.No	Question	Marks	Mid No
1	The number of control lines for a 8 – to – 1 multiplexer is ----- Level: Easy Level: Understanding	1	2
2	A full adder logic circuit will have (A) Two inputs and one output. (B) Three inputs and three outputs. (C) Two inputs and two outputs. (D) Three inputs and two outputs. Level: Easy Level: Understanding	1	2
3	The minimum number of 2-input NAND/NOR gates required to realize a half-adder is --- ---- Level: Easy Level: Understanding	1	2
4	An arithmetic circuit which adds only two binary digits is called ----- Level: Easy Level: Understanding	1	2
5	What is a full adder ? Level: Easy Level: Understanding	1	2
6	The number of control lines for 32 to 1 multiplexer is ----- Level: Easy Level: Understanding	1	2
7	The minimum number of NAND/NOR gates required to realize a half-subtractor is ----- Level: Easy Level: Understanding	1	2
8	What are the types of multiplexing? Level: Easy Level: Understanding	1	2
9	A decoder with 64 output lines has ---- select lines. Level: Easy Level: Understanding	1	2
10	A binary-to-octal decoder is a ---- line to ---- line decoder. Level: Easy Level: Understanding	1	2
11	A BCD-to-decimal decoder is a ---- line to ---- line decoder. Level: Easy Level: Understanding	1	2
12	A half adder can be realized using at least ---- NAND gates or ---- NOR gates. Level: Easy Level: Understanding	1	2
13	A serial adder requires only one (A) half adder (B) full adder (C) counter (D) multiplexer Level: Easy Level: Understanding	1	2
14	The minimum number of 2-input NAND/NOR gates required to realize a full-adder/full-subtractor is ----- Level: Easy Level: Understanding	1	2
15	How many inputs and outputs does a full-adder circuit have? Level: Easy Level: Understanding	1	2

16	A logic circuit that accepts several data inputs and allows only one of them at a time to get through to the output is called ----- Level: Easy Level: Understanding	1	2
17	How many select lines are contained in a multiplexer with 1024 inputs and one output? Level: Easy Level: Understanding	1	2
18	A multiplexer is also known as ----- Level: Easy Level: Understanding	1	2
19	How many inputs and outputs does a full-subtractor circuit have? Level: Easy Level: Understanding	1	2
20	Can a decoder function as a De multiplexer? Level: Easy Level: Understanding	1	2
21	Give an application each for a mux and demux. Level: Easy Level: Understanding	2	2
22	What is a priority encoder? Level: Easy Level: Understanding	2	2
23	Implement the given function in 4:1 mux $f = \sum m(0,1,3,5,6)$ Level: Easy Level: Understanding	2	2
24	How many select lines will a 16 to 1 multiplexer will have? Level: Easy Level: Understanding	2	2
25	Discuss the differences between a demultiplexer and a decoder. Level: Easy Level: Understanding	2	2
26	What is the largest number of data inputs which a data selector with two control inputs can handle? Level: Easy Level: Understanding	2	2
27	Implement the given function in 8:1 mux $f(A,B,C,D) = A'B + CD' + AC'$ Level: Easy Level: Understanding	2	2
28	Implement the full adder using a 3 line to 8 line decoder Level: Easy Level: Understanding	2	2
29	Implement the full subtractor using 3 line to 8 line decoder Level: Easy Level: Understanding	2	2
30	Differentiate between serial and parallel adder ? Level: Easy Level: Understanding	2	2
31	Design a 16-to-1 multiplexer using ONLY 4-to-1 multiplexers. Level: Easy Level: Understanding	5	2
32	Using a suitable logic diagram explain the working of a 1-to-16 de multiplexer. Level: Easy Level: Understanding	5	2
33	What is a decoder? Draw the logic circuit of a 3 line to 8 line decoder and explain its working. Level: Easy Level: Understanding	5	2
34	What is an encoder? Draw the logic circuit of Decimal to BCD encoder and explain its working. Level: Easy Level: Understanding	5	2
35	Explain the working of a demultiplexer with the help of an example. Level: Easy Level: Understanding	5	2

36	Design A Full Adder And A Full Subtractor. Level: Easy Level: Understanding	10	2
37	Explain the operation of 4 to 10 decoder. Level: Easy Level: Understanding	10	2
38	Design a 8 to 1 multiplexer by using the four variable function given by $F(A,B,C,D) = m(0,1,3,4,8,9,15)$. Level: Easy Level: Understanding	10	2
39	Design a 32:1 multiplexer using two 16:1 multiplexers and a 2:1 multiplexer. Level: Easy Level: Understanding	10	2
40	Implement the following function using a 3 line to 8 line decoder. $S(A,B,C) = m(1,2,4,7)$ $C(A,B,C) = m(3,5,6,7)$ Level: Easy Level: Understanding	10	2
41	What is a half-adder? Explain a half-adder with the help of truth-table and logic diagram Level: Easy Level: Understanding	10	2
42	With the help of a truth table explain the working of a half subtractor. Draw the logic diagram using gates. Level: Easy Level: Understanding	10	2
43	Draw the logic diagram of a full subtractor using half subtractors and explain its working with the help of a truth table. Level: Easy Level: Understanding	10	2
44	Implement a full adder using a 3-line-to-8 line decoder. Level: Easy Level: Understanding	10	2
45	Implement the following logic function using an 8:1 MUX $F(A,B,C,D) = A'B + CD' + AC'$ Level: Easy Level: Understanding	10	2

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