

Solutions PDF Generated from: solutions-openai-generated/labs/lab-03-solutions-set- 01.json

Question A

Fill in the truth table that converts a binary number to a 7-segment encoding. Note that a segment should glow when the corresponding output is logic-0.

Binary	A	B	C	D	E	F	G
0	0	0	0	0	0	0	1
1	1	0	0	1	1	1	1
2	0	0	1	0	0	1	0
3	0	0	0	0	1	1	0
4	1	0	0	1	1	0	0
5	0	1	0	0	1	0	0
6	0	1	0	0	0	0	0
7	0	0	0	1	1	1	1
8	0	0	0	0	0	0	0
9	0	0	0	0	1	0	0

Question B

Write Verilog code for 7-segment decoder.

```
module seven_segment_decoder(input[3:0] a, output[7:0] b, o_dp);
assign b[0] = ~a[3]&a[2]&a[1]&~a[0];
assign b[1] = ~a[3]&~a[2]&a[1]&~a[0];
assign b[2] = a[3]&~a[2]&~a[1]&~a[0];
assign b[3] = ~a[3]&~a[2]&~a[1]&a[0];
assign b[4] = a[3]&a[2]&~a[1]&~a[0];
assign b[5] = a[3]&~a[2]&a[1]&~a[0];
assign b[6] = a[3]&~a[2]&~a[1]&a[0];
assign b[7] = a[3]&a[2]&a[1]&a[0];
assign o_dp = ~a[3];
endmodule
```

Execution Time

0:00:23.443352

OpenAI Parameters

Model: text-davinci-003, Max. Tokens: 1024, Temperature: 1, N: 1