Exercises of line encoding

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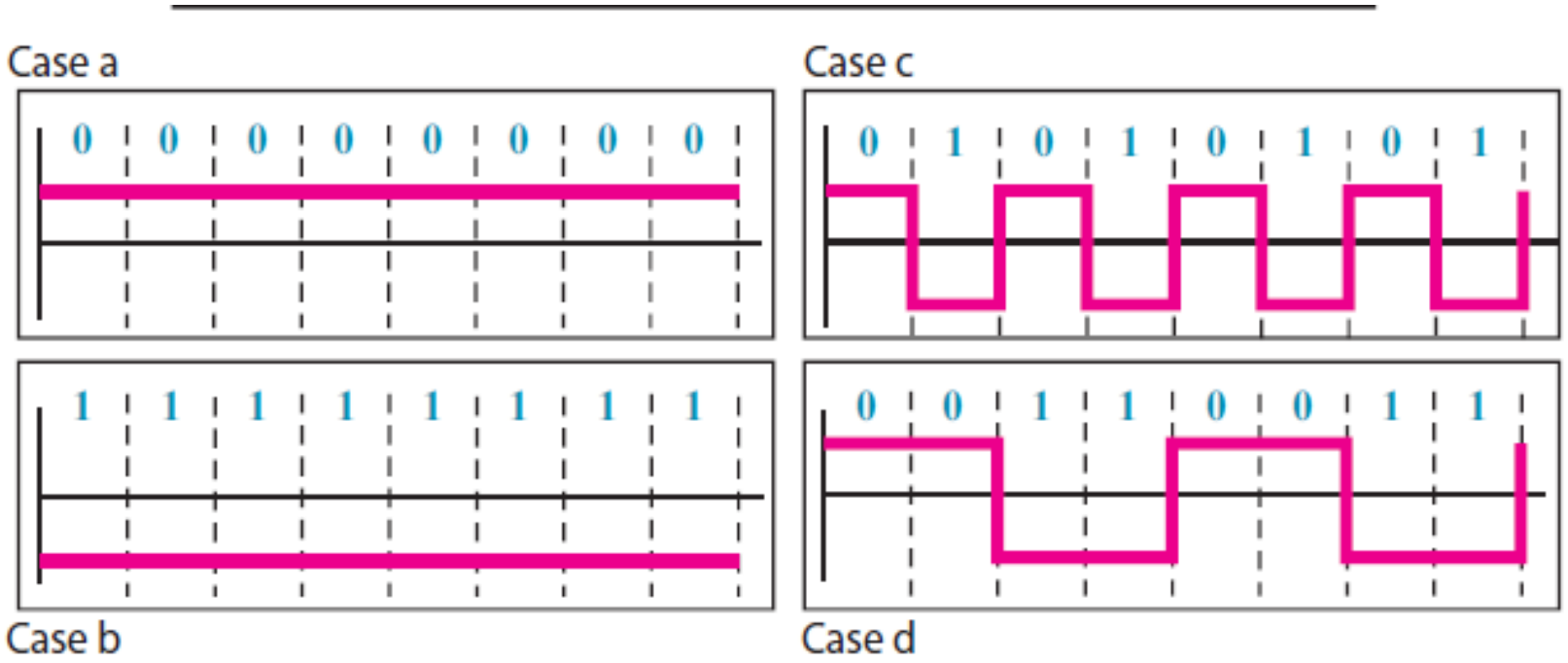
Exercise

- Draw the graph of the NRZ-L scheme using each of the following data streams, assuming that the last signal level has been positive.
- **a.** 00000000 **b.** 11111111 **c.** 01010101 **d.** 00110011

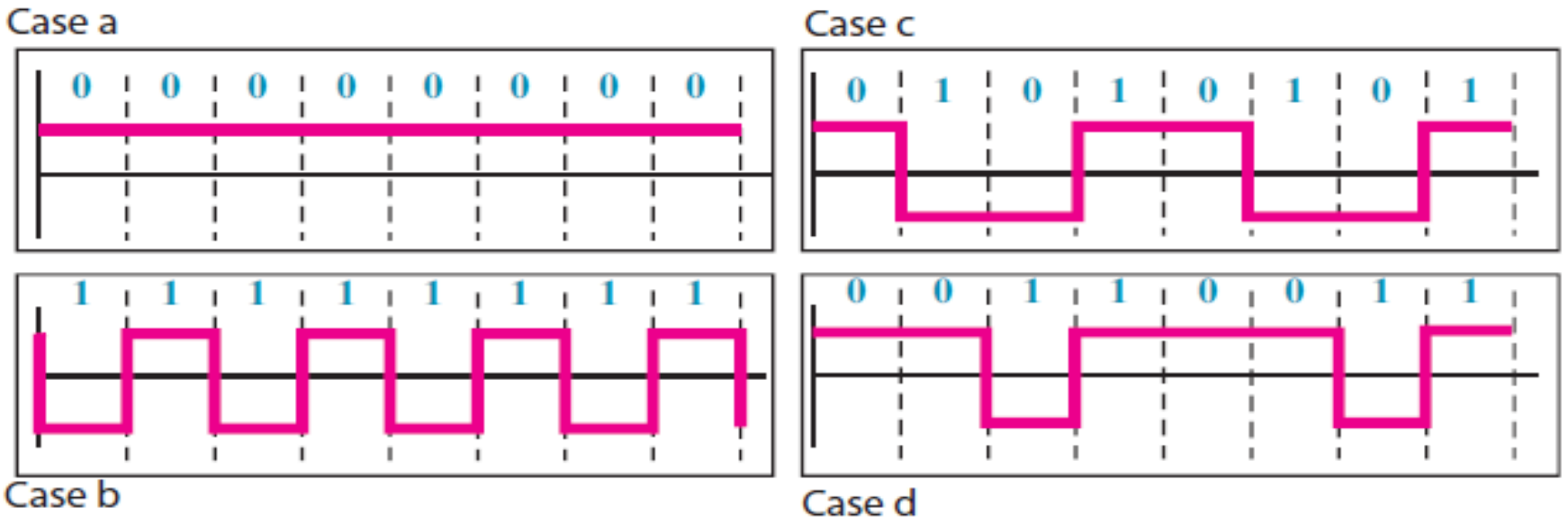
Solution-1


Case a
0 0 0 0 0 0 0 0
Case c
0 1 0 1 0 1 0 1
1 1 1 1 1 1 1 1
Case b
0 0 1 1 0 0 1 1
Case d

Question-2

- Repeat Problem 1 for the NRZ-I scheme.

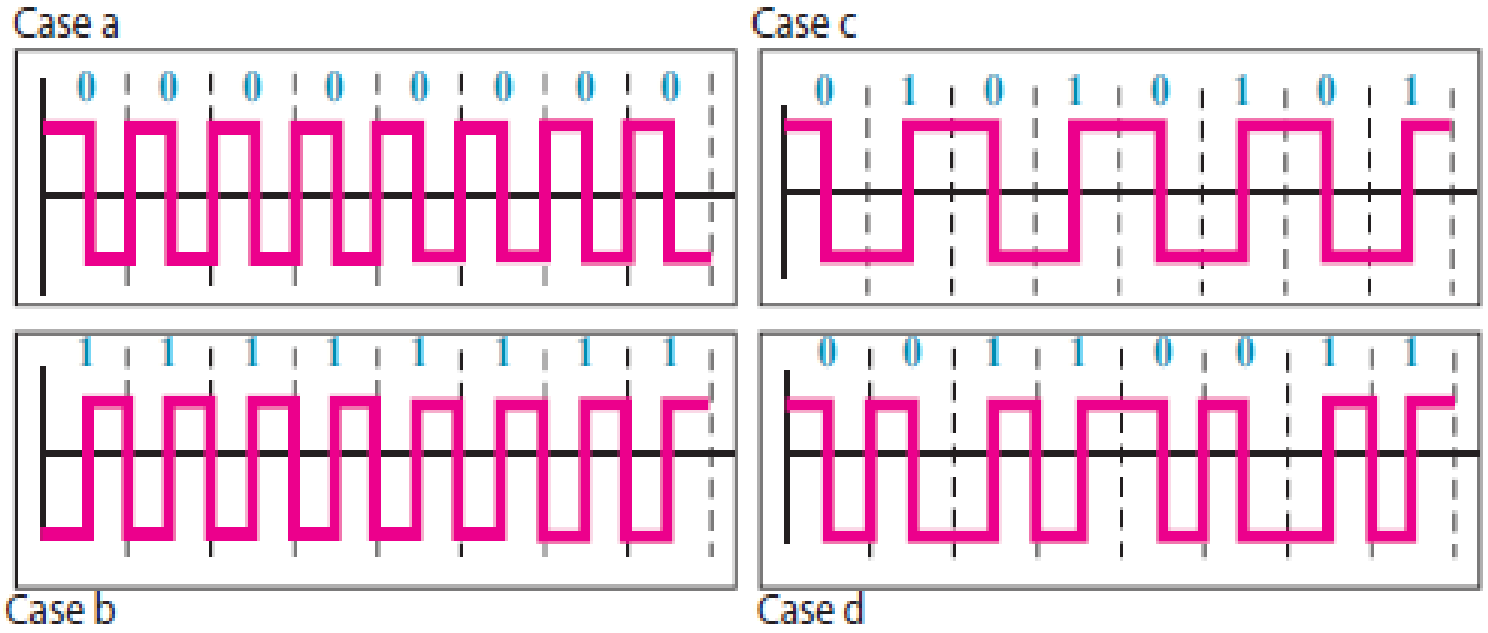
Solution-2


Case a
0 0 0 0 0 0 0 0
Case c
0 1 0 1 0 1 0 1
1 1 1 1 1 1 1 1
Case b
0 0 1 1 0 0 1 1
Case d

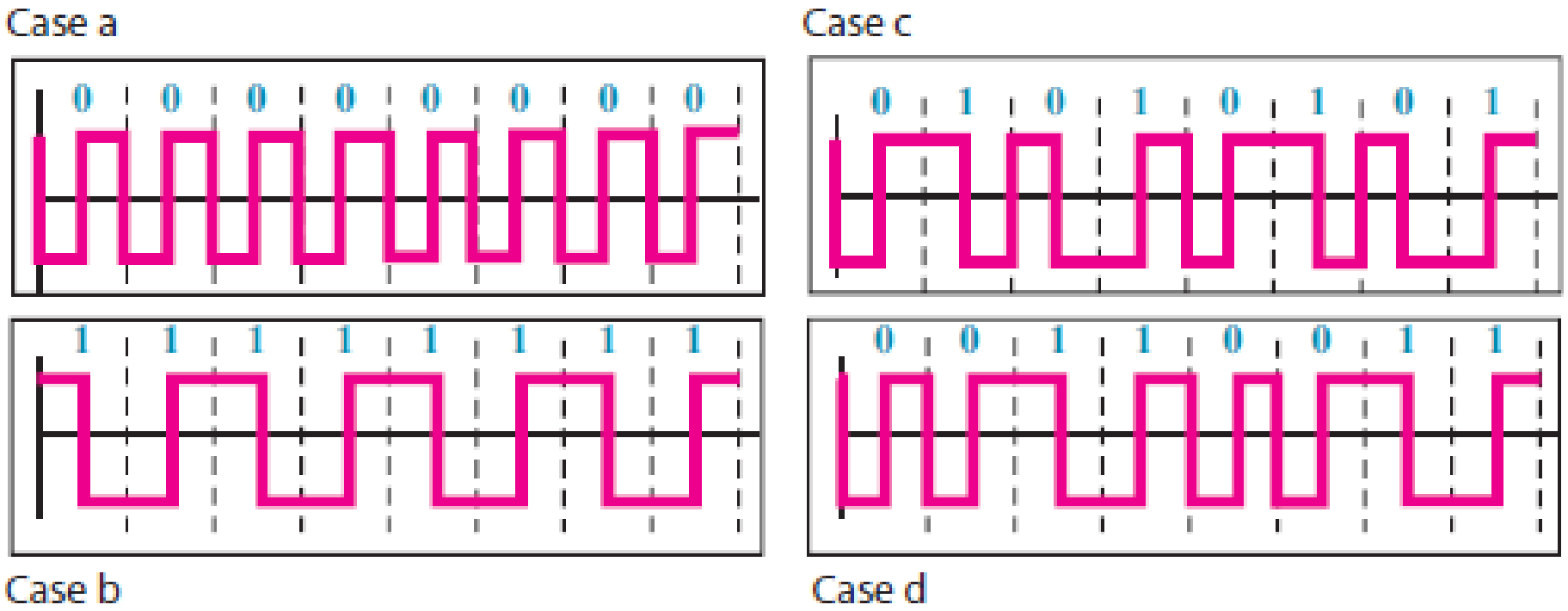
Question-3 and 4

- Repeat Problem 1 for the Manchester scheme.
- Repeat Problem 1 for the differential Manchester scheme.

Solution-3


Case a
0 0 0 0 0 0 0 0
Case c
0 1 0 1 0 1 0 1
1 1 1 1 1 1 1 1
Case b
0 0 1 1 0 0 1 1
Case d

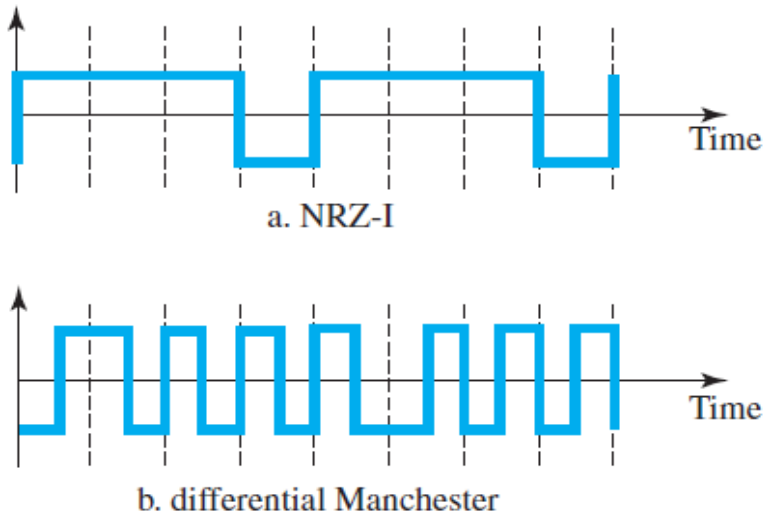
Solution-4


Case a
0 0 0 0 0 0 0 0
1 1 1 1 1 1 1 1
Case b
Case c
0 1 0 1 0 1 0 1
0 0 1 1 0 0 1 1
Case d

Question-5

P4-9. Find the 8-bit data stream for each case depicted in Figure 4.36.

Figure 4.36 *Problem P4-9*



Solution

- The data stream can be found as

a. NRZ-I: **10011001**.

b. Differential Manchester: **11000100**.