

1. Study and explain PCM (Pulse Code Modulation). What is the most significant difference between PAM and PCM? Give your answer and the corresponding justification.
2. Express the following decimal values as 4-bit binary digits (e.g., $1_{10} = 0001_2$): 1, 2, 4, 5, 8, 10. Then, can you guess what are the effects of "right bit-shift" and "left bit-shift" in binary expression from the above examples.
3. You have a plot shown in Figure 1. If 4-level PCM is used (i.e., there should be 4 levels in the pulse coded modulated output signal), what would be the result? Feel free to draw in the given figure.

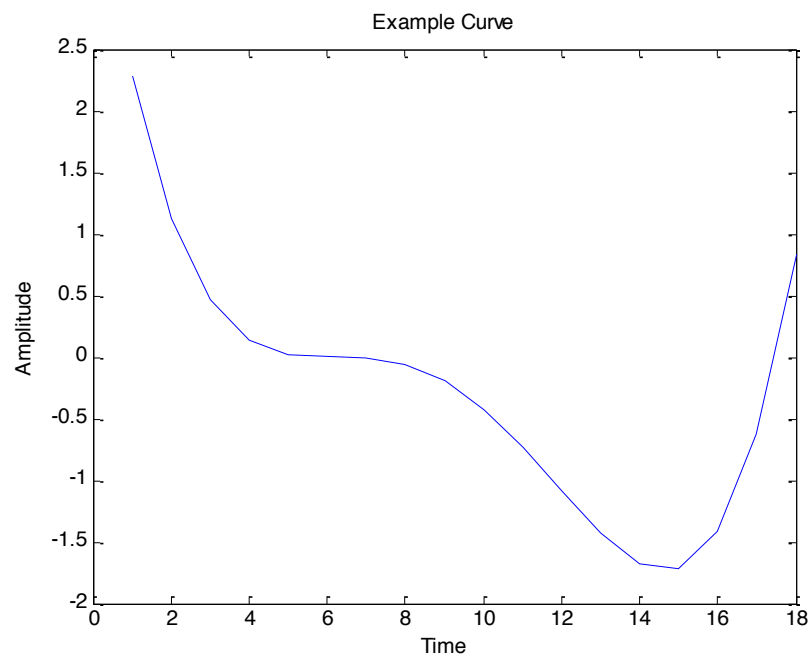


Figure 1: PCM message signal.