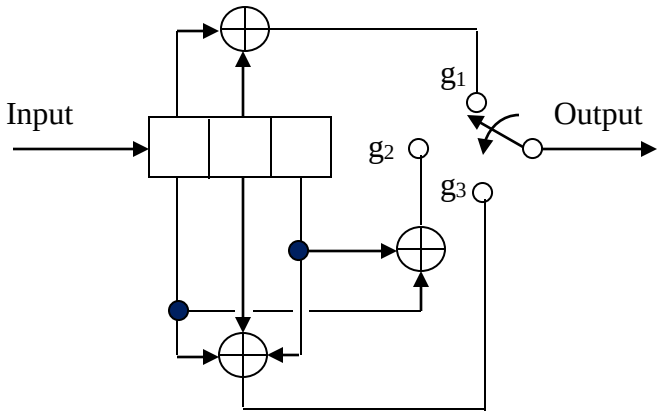
NANYANG TECHNOLOGICAL UNIVERSITY
School of Electrical and Electronic Engineering

EE6101 DIGITAL COMMUNICATION SYSTEMS

Continuous Assessment (2021/2022)

You are given a convolutional encoder as shown below:



The convolutional encoder is used to transmit the first alphabet (after conversion to binary format) of your **given** name (not your surname) through a noisy AWGN channel. The **received binary sequence (with errors)** at the receiver corresponding to the first alphabet of your given name transmitted is given in the table below. Apply the Viterbi algorithm to find the **information** bit sequence of the first alphabet of your given name. Assume that the end of the input sequence to the encoder is padded with two zeros. In case of a tie, delete the lower branch. **In your answer, label the survivors' Hamming distance metric at each node level.** What is the information bit sequence?

First Alphabet of Your Given Name	Received Binary Sequence With Errors
A	10110101100000000000111101011
B	11110101110000011110101100 0
C	11110100100000011101011001 1
D	11110101101011110101100000 0
E	11111101100011110110010101 1
F	11110111100011101011001100 0
G	11110101100010101000111001 1
H	11111101111110101100000000 0
I	11110111111110101111110101 1
J	11110101110110110010101100 0
K	10110101111110110001011001 1
L	11110111111101011001100000 0
M	11110101110101011010010101 1
N	11111101111101000111001100 0
O	11110111111101000100111001 1
P	11110110110101100000000000 0
Q	11010110010101100011110101 1
R	11110111010101111110101100 0
S	10110110010101111101011001 1
T	11110010010110010101100000 0
U	11010110010110010110010101 1
V	11110110011110001011001100 0
W	11110111010110001000111001 1
X	11111110001011001100000000 0
Y	11110110001111001111110101 1
Z	11110111001011010010101100 0