A (6,3) linear block code is specified by the parity matrix \( H \) as given below (use the same \( H \) matrix for all questions, Q-1 to Q-10.)

\[
H = \begin{bmatrix}
1 & 0 & 0 & 1 & 1 \\
0 & 1 & 0 & 1 & 0 \\
0 & 0 & 1 & 1 & 0
\end{bmatrix}
\]

What is the minimum distance of the code?

- 1
- 2
- 3
- 4

No, the answer is incorrect.
Score: 0
Accepted Answers:
3

2) What is the maximum number of erasures this code can correct?

- 1
- 2
- 3
- 4

No, the answer is incorrect.
Score: 0
Accepted Answers:
2

3) What is the maximum number of errors this code can detect?

- 1 point

- 1
- 2
- 3
- 4

No, the answer is incorrect.
Score: 0
Accepted Answers:
2
4) What is the maximum number of errors this code can correct?

- 1 point

- 1
- 2
- 3
- 4

No, the answer is incorrect.

Score: 0

Accepted Answers:

1 point

5) Given below two statement about the error correcting and error detecting capability of the code:

S1: Code can simultaneously correct and detect single error.
S2: Code can simultaneously correct 1 error and 1 erasure.

Then which of the following option is correct?

- Only S1 is true.
- Only S2 is true.
- Both S1 and S2 are true.
- None of the above.

No, the answer is incorrect.

Score: 0

Accepted Answers:

Only S1 is true.

1 point

6) Syndrome corresponding to received sequence 101000 is

- 001
- 010
- 100
- 101

No, the answer is incorrect.

Score: 0

Accepted Answers:

101

1 point

7) Error pattern 010000 and 111000 belongs to same coset?

- true
- false

No, the answer is incorrect.

Score: 0

Accepted Answers:

false

1 point

8) The generator matrix \(G\) in systematic form is
9) If $A_i$ denotes number of codewords with Hamming weight $i$, then find $A_0, A_1, A_2, A_3, A_4, A_5$ and $A_6$?

- $A_0 = 0, A_1 = 0, A_2 = 0, A_3 = 3, A_4 = 4, A_5 = 1, A_6 = 0$
- $A_0 = 1, A_1 = 0, A_2 = 0, A_3 = 3, A_4 = 4, A_5 = 0, A_6 = 0$
- $A_0 = 1, A_1 = 0, A_2 = 0, A_3 = 4, A_4 = 3, A_5 = 0, A_6 = 0$
- None of the above.

No, the answer is incorrect.
Score: 0
Accepted Answers:

- $G = \begin{bmatrix} 0 & 1 & 1 & 1 & 0 & 0 \\ 1 & 0 & 1 & 0 & 1 & 0 \\ 1 & 1 & 0 & 0 & 0 & 1 \end{bmatrix}$

10) The codewords are sent over a binary symmetric channel (BSC) with crossover probability $p = 0.3$. Undetected error probability is given by

- 0.019
- 0.029
- 0.039
- 0.049

No, the answer is incorrect.
Score: 0
Accepted Answers:

- 0.049