

CEUAPLAR

1) i) $\forall x \in C$ iain
 $x = a(011\alpha) + b(1011), a, b \in F = \{0, 1, \alpha\}$

$$C = \{0000, 011\alpha, 1011, 0\alpha\alpha 1, 11\alpha 0, \alpha 0\alpha\alpha, \alpha 101, \alpha\alpha 10, 1\alpha 0\alpha\}$$

ii) $n=4, k=2, M=9, d=3, q=3$

$$2t+1=3$$

$$\boxed{t=1}$$

iii) $M \cdot \left\{ \binom{4}{0} + \binom{4}{1}(3-1) \right\} = 9 \{1+8\} = 3^4 = 9^n$

\therefore Mükemmeldir.

2) i) $C \subseteq \mathbb{F}_2^4$

$0 \in C \Rightarrow C \neq \emptyset$

$\forall x, y \in C$ iain $x+y \in C$ mi?

$$x \in C \Leftrightarrow x_1 + x_2 + x_3 + x_4 = 0$$

$$y \in C \Leftrightarrow y_1 + y_2 + y_3 + y_4 = 0$$

$$x+y \in C \stackrel{?}{\Leftrightarrow} \sum_{i=1}^4 (x_i + y_i) = 0$$

$$\sum_{i=1}^4 (x_i + y_i) = \sum_{i=1}^4 x_i + \sum_{i=1}^4 y_i = 0 + 0 = 0$$

$$\therefore x+y \in C$$

Benzar sehilde $\forall x \in C, \forall \alpha \in \mathbb{F}_2$ iain $\alpha x \in C$

söğlanır.

$$\therefore C \text{ lineerdir.}$$

$$ii) a_1 + a_2 + a_3 + a_4 = 0 \Rightarrow a_4 = a_1 + a_2 + a_3$$

$$(a_1, a_2, a_3, a_4) = a_1 (1001) + a_2 (0101) + a_3 (0011)$$

$$T = \{ 1001, 0101, 0011 \}$$

C nin tabanı olup $G = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{bmatrix}$ üretilen matristir.

Aynı zamanda standart formdadır.