

2008/2009 2.MI A(prvo pogledat 2009/2010 A) (tako je dosta objasnjenja)

4.

$$H = \begin{bmatrix} 1 & 1 & 0 & 1 & 0 & 1 \\ 1 & 1 & 0 & 0 & 1 & 0 \\ 1 & 0 & 1 & 1 & 0 & 0 \end{bmatrix}$$

$$c' = 111110$$

$$d = ?$$

$$H^T = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$$

$$S = c' \cdot H^T = [111] \Rightarrow \text{greska na 1. bitu}$$

$$c = 011110$$

ODGOVOR: (B)

(u matrici H nađemo stupac koji odgovara sindromu i onda je reduci broj tog stupca jednaki bitu na kojem je došlo do pogreške)

5.

$$j \in [6, 3]$$

$$p_g = 0,002$$

postupali u knjizi

$$H = \begin{bmatrix} 1 & 0 & 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1 & 1 & 1 \end{bmatrix}$$

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

$$G_s = \begin{bmatrix} 1 & 0 & 0 & 0 & 1 & 1 \\ 0 & 1 & 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 & 0 \end{bmatrix}$$

(ako je G u stand. obl. $d = 101$ onda kažemo nječ koja

$$d \cdot G = 101101$$

postoji 21 nastaje iz
ponovno
[3, 1, 0, 1]

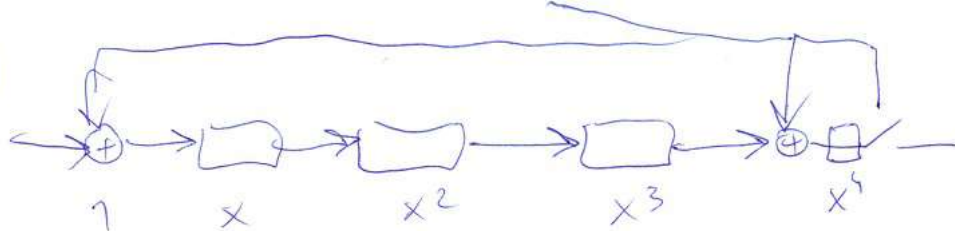
$$p_{pd} = 1 - \binom{6}{0} p_g^0 (1-p_g)^6 - \binom{6}{1} p_g^1 (1-p_g)^5$$

$$1 - 0,98806 - 0,01188$$

$$p_{pd} = 5,968 \cdot 10^{-5}$$

ODGOVOR: (A)

6.



$$g(x) = x^4 + x^3 + 1 \quad \begin{matrix} n=15 & k=11 \\ r=4 \end{matrix}$$

- Uzmamo 11 bitova za 1. prvu

crc=?

101010101

$$r(x) = (x^{10} + x^8 + x^6 + x^1 + x^2 + 1) \cdot x^4 \bmod g(x)$$

(odmah
oduzimamo
i pišemo
samo rez)

$$\begin{aligned} & \cancel{x^{14} + x^{12} + x^{10} + x^8 + x^6 + x^4} : x^4 + x^3 + 1 = x^{10} + x^9 + x^5 + x^2 + 1 \\ & \cancel{x^{13} + x^{12} + x^8 + x^6 + x^4} \\ & \cancel{x^4 + x^8 + x^6 + x^4} \\ & \cancel{x^6 + x^5 + x^4} \\ & \cancel{x^4 + x^2} \\ & x^3 + x^2 + 1 \Rightarrow \end{aligned}$$

$$CRC = \overline{1101}$$

odgovor: (c)

8. $g(x) = x^3 + x^2 + 1$

$r=3$
 $n=7 \quad k=4$

$S=?$

- 7 bitova = prva polovina na deljenje

1010001

$d(x) = x^6 + x^4 + 1$

SINDROM SE DOBIVA KAO CRE,
samo se konsti kodirana polovina

$r \quad S = d(x) \cdot x^r \bmod g(x)$

~~$x^6 + x^7 + x^3$~~ : $x^3 + x^2 + 1 = x^6 + x^5 + x^3$

~~$x^8 + x^7 + x^6 + x^3$~~

~~$x^8 + x^5 + x^3$~~

$S = 000$ (nema ostataka)

ODGOVOR: (B)

9. $M[15, 11]$

$P[12, 11]$

$p_{sp}(\text{Ham}) - p_{sp}(\text{par}) = ? \quad p_B = 0.15$

$= \binom{15}{0} p_B^0 (1-p_B)^{15} + \binom{15}{1} p_B^1 (1-p_B)^{14} - \binom{12}{0} p_B^0 (1-p_B)^{12}$

$= 142 p_B^{12} (1-p_B)^2 + 25 p_B^{13}$

$= 0.08735422 + 0.2392398 - 0.1422118$

$= 0.1763$

ODGOVOR: (C)

m

10.

$K[6, k]$

$K =$

	a	b	c	d	e	f
	0	0	0	0	0	0
	0	0	1	0	1	1
	0	1	0	1	1	0
	0	1	1	1	0	1
	1	0	0	1	0	1
	1	0	1	1	1	0
	1	1	0	0	1	1
	1	1	1	0	0	0

$$d = a + b$$

$$e = b + c$$

$$f = a + c$$

otkriti greške?

$$N = (d(k) - 1)$$

$$d(k) = \min = 3$$

$$N = 2$$

odgovor: (A)