

3.1

1)  $\boxed{1} \rightarrow \boxed{2} \leftarrow \boxed{3}, n=3$

$\mu_1(\text{rep}) (1,2) (2,3) (3,3)$

$\mu_2(\text{rep}) (2,1) (3,2) (2,3)$

$l_{11}=1 \quad l_{21}=1 \quad l_{31}=1$

$l_{12}=0 \quad l_{22}=2 \quad l_{32}=1$

$H = -4 \cdot \frac{1}{3-1} \cdot \lg\left(\frac{1}{2}\right) - \frac{2}{3-1} \cdot \lg\left(\frac{2}{3}\right) = 0,6021$

2)  $\boxed{0} \rightleftharpoons \boxed{1} \rightleftharpoons \boxed{2}, n=3, K=6$

$\mu_1(\text{rep}) (0,1) (1,2) (2,1) (1,0)$

$\mu_2(\text{rep}) (0,1) (1,2) (2,1) (1,0)$

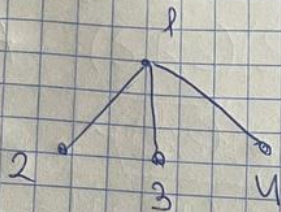
$l_{01}=1 \quad l_{11}=2 \quad l_{21}=1$

$l_{02}=1 \quad l_{12}=2 \quad l_{22}=1$

$H = -4 \cdot \frac{1}{2} \cdot \lg\left(\frac{1}{2}\right) - 2 \cdot 1 \cdot \lg(1) = 0,6021$



3.2



$$\pi_1 = (1, 2) (1, 3) (1, 4)$$

$$\pi_2 = (2, 1) (3, 1) (4, 1)$$

$$\pi_3 = (1, 2) (1, 3) (1, 4)$$

$$\pi_4 = (2, 1) (3, 1) (4, 1)$$

$$\pi_5 = (2, 3) (3, 2) (3, 4) (4, 3) (2, 4) (4, 2)$$

$$1. \quad l_{11} = 3 \quad l_{13} = 3$$

$$2. \quad l_{12} = 1 \quad l_{24} = 1 \quad l_{25} = 2$$

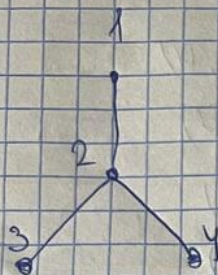
$$3. \quad l_{32} = 1 \quad l_{34} = 1 \quad l_{35} = 2$$

$$4. \quad l_{42} = 1 \quad l_{24} = 1 \quad l_{43} = 2$$

$$H = -2 \cdot \frac{2}{4-1} \cdot \lg\left(\frac{3}{3}\right) - 3 \cdot \frac{2}{4-1} \cdot \lg\left(\frac{2}{3}\right) - 6 \cdot \frac{1}{4-1} \cdot \lg\left(\frac{1}{3}\right) =$$

$$= 1.3064$$





$$h=4$$

$$\gamma_1 = (1, 2) (2, 3) (2, 4)$$

$$\gamma_2 = (4, 2) (3, 2) (2, 1)$$

$$\gamma_3 = (1, 3) (1, 4)$$

$$\gamma_4 = (3, 1) (4, 1)$$

$$\gamma_5 = (3, 4) (4, 3)$$

$$l_{11} = 1 \quad l_{13} = 2$$

$$l_{21} = 1 \quad l_{22} = 1$$

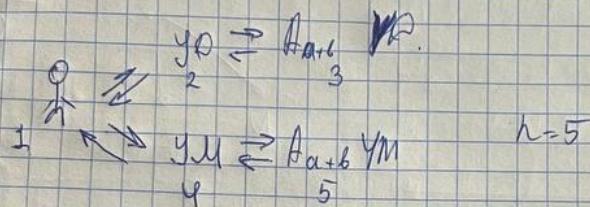
$$l_{32} = 1 \quad l_{34} = 1 \quad l_{33} = 1$$

$$l_{42} = 1 \quad l_{44} = 1 \quad l_{45} = 1$$

$$H = -2 \cdot \frac{2}{3} \lg\left(\frac{2}{3}\right) - 8 \cdot \frac{1}{3} \lg\left(\frac{1}{3}\right) = 1,5071$$



3.3.



$\pi_1(nep) (1,2) (2,1) (2,3) (3,2) (1,4) (4,1) (4,5) (5,4)$

$\pi_2(nep) (1,1) (2,1) (2,3) (3,2) (1,4) (4,1) (4,5) (5,4)$

1.  $l_{11} = 2$   $l_{11} = 2$

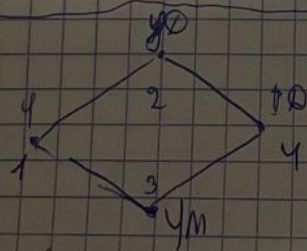
2.  $l_{20} = 1$   $l_{01} = 2$

3.  $l_{31} = 1$   $l_{52} = 1$   $U = -6 \frac{2}{5-1} \cdot \lg(\frac{2}{4}) - 4 \cdot \frac{1}{5-1} \cdot \lg(\frac{1}{4}) =$

4.  $l_{41} = 2$   $l_{41} = 2$   $= 1,5059$

5.  $l_{51} = 1$   $l_{52} = 1$   $U = -2 \frac{2}{3} \cdot \lg(\frac{2}{3}) - 4 \cdot \frac{1}{3} \lg(\frac{1}{3}) =$

$= 0,871$



$l_{12} = 2$

$l_{21} = 1$   $l_{22} = 1$

$l_{31} = 1$   $l_{32} = 1$

$\pi_1(nep) = (2,2) (2,4) (1,3) (3,4)$

$\pi_2(nep) = (2,1) (3,1) (4,2) (4,3)$