

2. 2 digit terbalik nim = 94

$$120 = 3$$

$$94 = 5$$

$$180 = 5$$

$$140 = 7$$

$$255 = 8$$

$$0 = 11$$

$$80 = 15$$

$$130 = 15$$

$$100 = 31$$

a) Pohon Huffman

120:3 94:5 180:5 140:7 255:8 0:11 80:15 130:15 100:31

① 180:5 140:7 12094:8 255:8 0:11 80:15 130:15 100:31
 120:3 94:5

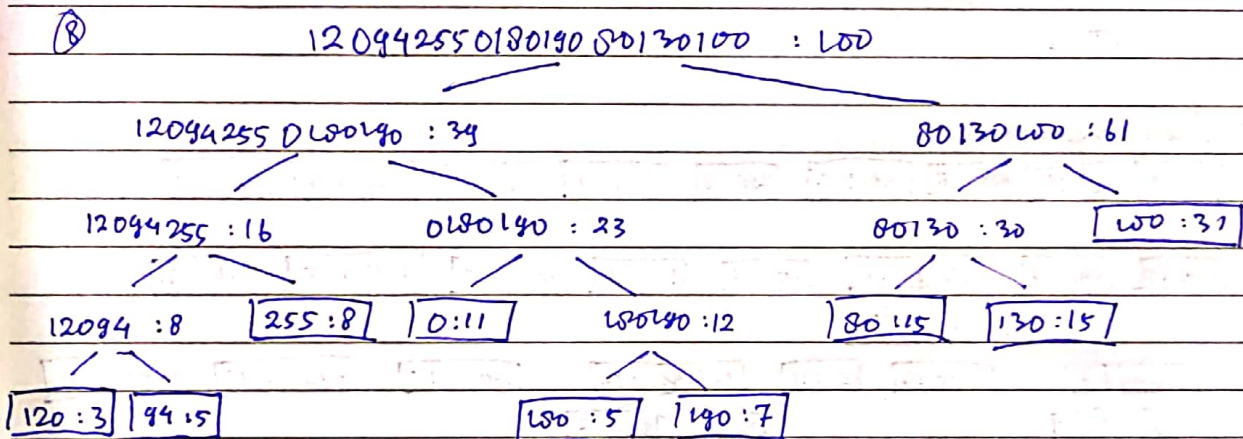
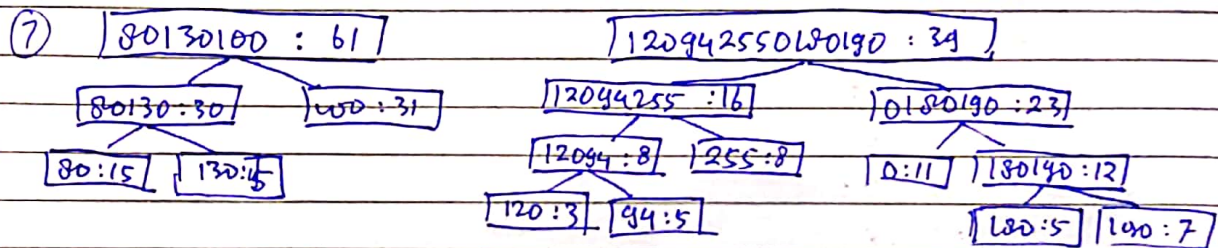
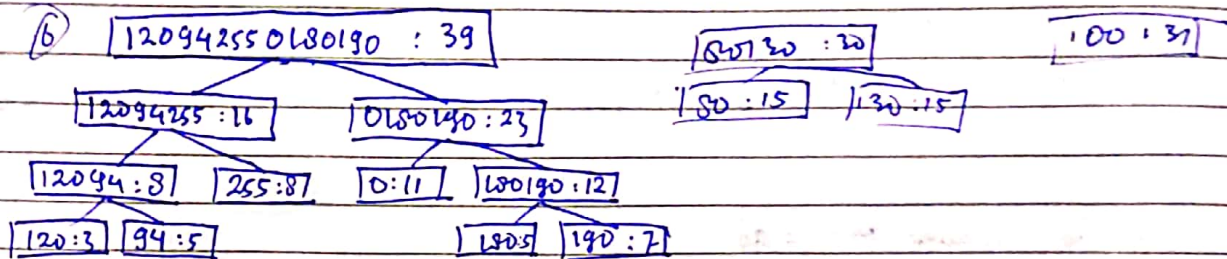
② 12094:8 255:8 0:11 100140:12 80:15 130:15 100:31
 120:3 94:5 180:5 140:7

③ 0:11 180140:12 80:15 130:15 12094255:16 100:31
 180:5 140:7 120:3 94:5

④ 80:15 130:15 12094255:16 0180140:23 100:31
 120:3 94:5 0:11 180140:12 180:5 140:7

⑤ 12094255:16 0180140:23 80130:30 100:31
 120:3 94:5 0:11 180140:12 80:15 130:15 180:5 140:7

(2)



b. Kode Huffman

| | | |
|------------|------------|-----------|
| 120 : 0000 | 140 : 0111 | 80 : 100 |
| 94 : 0001 | 255 : 001 | 130 : 101 |
| 180 : 0110 | 0 : 010 | 100 : 11 |

c. Citra asli = $8 \times 100 = 800$ bit

$$\begin{aligned}
 \text{kompresi} &= (3 \times 4) + (5 \times 4) + (5 \times 4) + (7 \times 4) + (8 \times 3) + (11 \times 3) + (15 \times 3) + \\
 &\quad (15 \times 3) + (31 \times 3) \\
 &= 289
 \end{aligned}$$

$$\text{Rasio kompresinya} = 100\% - \frac{289}{800} \times 100\%$$

$$= 63,87\%$$

3

d) (80, 3) (100, 7)
(140, 3) (255, 7)
(255, 1) (130, 4) (100, 3) (0, 2)
(100, 1) (130, 4) (0, 5)
(0, 2) (120, 3) (100, 5)
(94, 5) (80, 5)
(180, 5) (80, 3) (0, 2)
(140, 4) (100, 2) (130, 4)
(130, 3) (100, 7)
(100, 6) (80, 4)

Jumlah pasangan = 26

ukuran citra asli = $8 \times 100 = 800$ bit

setelah kompresi = $(26 \times 8) + (26 \times 4)$
= 312

Rasio = $100\% - \frac{312}{800} \cdot 100\% = 61\%$

$$3. \quad x_1 = 94$$

$$x_2 = 130$$

$$a. \quad \frac{y - y_1}{y_2 - y_1} = \frac{x - x_1}{x_2 - x_1}$$

pers. garis 1 $(0,0) - (94,0)$

$$\Rightarrow \frac{y - 0}{0 - 0} = \frac{x - 0}{94 - 0}$$

$$y = 0$$

pers. garis 2 $(94,0) - (130,255)$

$$\Rightarrow \frac{y - 0}{255 - 0} = \frac{x - 94}{130 - 94}$$

$$36y = 255(x - 94)$$

$$36y = 255x - 23970$$

$$255x - 36y = 23970$$

pers. garis 3 $(130,255) - (255,255)$

$$\Rightarrow \frac{y - 255}{255 - 255} = \frac{x - 130}{255 - 130}$$

$$y - 255 = 0$$

$$y = 255$$

b. Output jika input pixel citra 170

$$\rightarrow 170 > x_2 \rightarrow PG 3$$

$$x = 170, y = ?$$

$$\rightarrow y = \underline{\underline{255}}$$