The GOP structure is IBBBPBBBPBBB

So, 1 GOP (12 frames) has 1 I-frame, 2 P-frames and 9 B-frames.

The average compression factor

$$= \frac{1}{12} \times \frac{1}{10} + \frac{2}{12} \times \frac{1}{20} + \frac{9}{12} \times \frac{1}{40}$$
$$= \frac{17}{480}$$
$$= 0.03542$$

To ensure smooth video streaming, with as little buffering at the receiver as possible, the bandwidth $< 5 \times 10^6$

bit rate

Consider all 4 possible settings:

(1) Resolution: 720 × 480, Chroma format: 4:2:2

after compressed

Bitrate

Cb Cr

$$= 720 \times 480 \times (1 + \frac{1}{2} + \frac{1}{2}) \times 8 \times 30 \times \frac{17}{480} \text{ bit/s}$$
$$= 5{,}875{,}200 \text{ bit/s} > 5 \times 10^6 \text{ bits/s} \quad (\text{Not okay})$$

(2) Resolution: 720 × 480, Chroma format: 4:2:0

Bitrate

$$= 720 \times 480 \times (1 + \frac{1}{4} + \frac{1}{4}) \times 8 \times 30 \times \frac{17}{480} \text{ bit/s}$$
$$= 4{,}406{,}400 \text{ bit/s} < 5 \times 10^6 \text{ bits/s} \quad (\text{Okay})$$

(3) Resolution: 352 × 240, Chroma format: 4:2:2

Bitrate

$$= 352 \times 240 \times (1 + \frac{1}{2} + \frac{1}{2}) \times 8 \times 30 \times \frac{17}{480} \text{ bit/s}$$
$$= 1{,}436{,}160 \text{ bit/s} < 5 \times 10^6 \text{ bits/s} \quad (\text{Okay})$$

(4) Resolution: 352 × 240, Chroma format: 4:2:0

Bitrate

$$= 352 \times 240 \times (1 + \frac{1}{4} + \frac{1}{4}) \times 8 \times 30 \times \frac{17}{480} \text{ bit/s}$$

$$= 1{,}077{,}120 \text{ bit/s} < 5 \times 10^6 \text{ bits/s} \quad (\text{Okay})$$

As viewers usually prefer larger resolution and they are less sensitive towards subsampling in the chrominance planes, we will choose setting 2:

Resolution: 720 × 480
Chroma format: 4:2:0