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Ans) (1) Strategy

① $44100 \rightarrow$ I/p

$48000 \rightarrow$ o/p

$$\therefore \text{ratio} \Rightarrow \frac{48000}{44100} = \frac{160}{147} \quad = \frac{44100 \left(\frac{160}{147} \right)}{147} = 48000$$

\therefore 44100 will be upsampled by factor 160
and 147 will be downsampled ~~by~~

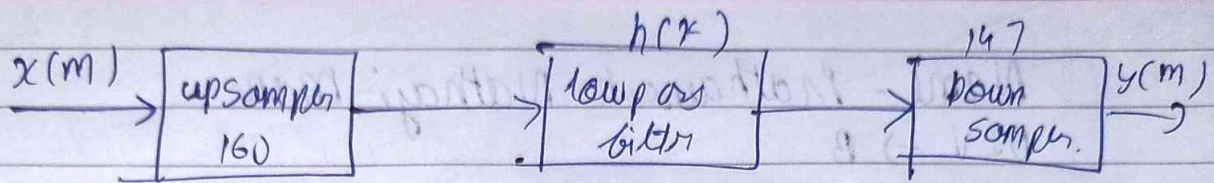
② interpolation (upsample)

① insert zeros b/w the original sample to increase sample rate by 160

$$= 44100 \times 160 = 7056000 \text{ samples/sec}$$

③ apply filter to remove unwanted noise

④ downsample (decimation) by factor of 147
 \therefore keep only 147th sample



(1) upsampler is for interpolation of 44100 fs

(2) filter is for removing unwanted noise

(3) down sampler is for decimation of 44100 by factor 147

(4) output is y(m) which is 48000