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A1

Ans to the Ques no:- 1

Find SNR (dB) if the signal power is 14w and noise power is 2w.

Ans - Given that,

Signal power $P_s = 14 \text{ w}$

Noise power $P_n = 2 \text{ w}$

$$\therefore \text{SNR}_{\text{dB}} = 10 \log_{10} \text{SNR}$$

$$= 10 \log_{10} \frac{P_s}{P_n}$$

$$= 10 \log_{10} \frac{14}{2}$$

$$= 8.95 \text{ dB}$$

$$\therefore \text{SNR}_{\text{dB}} = 8.95 \text{ dB}$$

Ans :-

Ans to the Ques no:-2

A base band signal with 12 kHz bandwidth has signal-to-Noise ratio 20 dB, what will be the capacity of that channel?

Ans: — Given that,

$$\text{Bandwidth } B = 12 \text{ kHz}$$

$$\text{SNR}_{dB} = 20 \text{ dB}$$

$$\therefore \text{SNR} = 10 \log_{10} \text{SNR}$$

$$= 10 \cdot \frac{20}{10}$$

$$= 100$$

$$\therefore C = 3.32 B \log_{10} (1 + \text{SNR})$$

$$= 3.32 \times (12 \times 10^3) \log_{10} (1 + 100)$$

$$= 79852.16 \text{ bits/sec.}$$

$$= 80 \text{ kbits/sec.}$$

$$C = 80 \text{ kbits/sec} \quad \underline{\underline{\text{Ans:}}}$$

P-2

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