

①

Name: Humair Kabir

ID: 201-83-5316

Subject: Section: A

Date:

--	--	--

Ans to the Q: No: of

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

Given that

signal power  $P_s = 14W$

Noise power  $P_n = 2W$

$$SNR_{dB} = 10 \log_{10} SNR$$

$$= 10 \log_{10} \frac{\text{signal power}}{\text{noise power}}$$

$$= 10 \log_{10} \left( \frac{14}{2} \right)$$

$$= 10 \log_{10} (7)$$

$$= 8.45 \text{ dB.}$$

(Ans)

9

Subject: 201-33-5316

Date:

Ans to the Q: NO: 02

A baseband signal with 12 KHz bandwidth has signal to noise ratio 20 dB. what will be the capacity of the channel?

Given that

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

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

$$\begin{aligned} \therefore \text{SNR} &= 10^{\log_{10}(\text{SNR}_{\text{dB}})} \\ &= 10^{20/10} \\ &= 100 \end{aligned}$$

$$\begin{aligned} C &= (12 \times 10^3) \log_2(1+100) \text{ bits/second} \\ &= 79898.54 \text{ bits/second} \\ &= 79.90 \text{ Kbits/second} \\ &= 79.90 \text{ Kbps.} \end{aligned}$$

(Ans)