# Daffodil international university

Course Title: Communication Engineering I

Course Code: EEE-311

**Submitted To**

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① Ans;

Given that,

Signal power $P_s = 14\,W$

Noise power $P_n = 2\,W$

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

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

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

$$= 8.4509\,dB \quad \text{(Ans)}$$

② Ans:

Given that,

Bandwidth, $B = 12\,kHz$

$SNR = 20\,dB$

$$\therefore SNR = 10 \log_{10} (SNR)$$

$$= 10^{20/10}$$

$$= 100.$$

$$C = 3.32B \log_{10}(1+SNR) \text{ bit/sec.}$$

$$= 3.32 \times 12000 \times \log_{10}(1+100) \text{ bit/sec}$$

$$= 79852.1635 \text{ bits/sec}$$

$$= 79.8521 \text{ k bits/sec}$$

$$= 80 \text{ k bits/second}$$ Ans