MD. Abu Noem
ID:- 201-33-5330
Section:- A

(c) Ans:-

Given that

Signal power $P_S = 14W$

Noise power $P_n = 2W$

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

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

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

$= 8.4509 dB$ Ans.

(d) Ans:-

Given that,

Bandwidth $B = 12KW$

$SNR_{dB} = 20 dB$

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

$= 10^{20/10}$

$= 100$

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

$= 3.32 \times 1200 \times \log_{10}(1+100)$

$= 79852.163 \cdot 5$

$= 79.85 K$ Kbits/sec

$= 80 K$ bits/second