

## Tutorial 12 Solution

### Question 1

30.5 dB

### Question 2

- (a) 16.73 dB
- (b) 128 Kbps

### Question 3

Bit rate = 12 Mbps

- (a) No,  $C = 1.5 \times 10^6 \times \log_2(1+100) = 9.99$  Mbps, bit rate > Shannon channel capacity
- (b) Yes,  $C = 1.5 \times 10^6 \times \log_2(1+1000) = 14.95$  Mbps, bit rate < Shannon channel capacity