

CN101.3

Data Communication and Computer Networks

Tutorial 4 - Transmission Media

Review Question 1

- ▶ Why are the wires twisted in twisted pair copper wire?

Review Question 2

- ▶ What are some major limitations of twisted pair wire?

Review Question 3

- ▶ What is the difference between unshielded twisted pair and shielded twisted pair wires in terms of construction and performance in data transmission?

Review Question 4

- ▶ With the aid of a sketch, describe the components of an optical fibre cable. Describe the transmission characteristics of:
 - ▶ (i) Step-index multimode
 - ▶ (ii) Graded-index multimode, and
 - ▶ (iii) Single mode fibres.

Review Question 5

- ▶ Write some major advantages and disadvantages of microwave transmission.

Review Question 6

- ▶ Why must a satellite have distinct uplink and downlink frequencies?

Review Question 7

- ▶ What two functions are performed by an antenna?

Review Question 8

- ▶ What is an isotropic antenna?

Review Question 9

- ▶ What is the advantage of a parabolic reflective antenna?

Problem 10

- ▶ A telephone line is known to have a loss of 20 dB. The input signal power is measured at 0.5 W, and the output noise level is measured at $4.5 \mu\text{W}$. Using this information, calculate the output signal to noise ratio in dB.