

Homework

1. Verify that the power relations of Equation 6.70 are satisfied at the node shown in Figure 3.25 for the network of Figure 3.23(b). (Book: Problem 27)
2. Consider the results shown in Figure 6.66. Starting with the plot showing the blocking for one waveband containing six channels, estimate and plot the blocking probability for the same network under the assumption that two wavebands containing six channels each are now available. Assume the Maxband allocation policy and use reasonable approximations. (Book: Problem 33)
3. Consider a point-to-point bidirectional transmission link of length 600 km, with repeater huts every 40 km. Compare the costs of the following arrangements for implementing a 16×2.5 -Gbps system.
 - (a) Sixteen OC-48 links with intermediate regenerators every 40 km.
 - (b) A WDM system with 16 wavelengths and optical amplifiers. In this case the amplifiers must still be placed in repeater huts, but they may have longer spacings appropriate to the link characteristics (see Chapter 4).

Assume the following costs:

- (a) OC-48 SONET terminal = \$100,000
 - (b) OC-48 regenerator = \$60,000
 - (c) Optical amplifier = \$200,000
 - (d) WDM terminal = \$750,000
- (Book: Problem 38)