Assignment 6

The due date for submitting this assignment has passed. 
Due on 2016-08-30, 23:59 IST.

Submitted assignment

1) When the mean optical power launched into an 8 km length of fiber is 120 µW, the mean optical power at the fiber output is 3 µW. Then the overall signal attenuation or loss in decibels through the fiber assuming there are no connectors or splices is (in dB)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) 16

2) In the above question, the overall signal attenuation for a 10 km optical link using the same fiber with splices at 1 km intervals, each giving an attenuation of 1 dB is (in dB)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) 29

3) The numerical input/output power ratio in question 2 is

- 298.2
- 476.8
- 612.7
- 794.3

No, the answer is incorrect.
Score: 0
Accepted Answers:
794.3

4) A glass fiber exhibits material dispersion given by $|\lambda^2 (d^2 n_1/d\lambda^2) |$ of 0.025. The material dispersion parameter at a wavelength of 0.85 µm is

- 48.1 ps/nm-km
- 98.1 ps/nm-km
5) In the above question, the rms pulse broadening per kilometer for a good LED source with an rms spectral width of 20 nm at this wavelength

- 1.96 ns/km
- 4.71 ns/km
- 8.92 ns/km
- None of these

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.96 ns/km

3 points

6) The propagation constant at the wavelength $\lambda_0 = 1550$ nm is $6 \times 10^6$ rad/m. The propagation constant at $\lambda_1 = 1551$ nm is (Assume $\beta_1 = 0.5 \times 10^{-8}$ s/m and $\beta_2 = -10$ ps$^2$/km. Ignore $\beta_n$ for $n > 2$)

- $4.8738 \times 10^6$ rad/m
- $1.8723 \times 10^6$ rad/m
- $5.9959 \times 10^6$ rad/m
- None of these

No, the answer is incorrect.
Score: 0
Accepted Answers:
$1.8723 \times 10^6$ rad/m

3 points

7) Consider a fiber-optic system as shown in Fig, Fiber loss = 0.2 dB, length = 80 km, loss in optical filter = 0.5 dB, and amplifier gain = 15 dB

If the minimum power required at the receiver to have a good SNR ratio -3 dBm, then the lower limit on the transmitter power is $-X$ dBm. What is the value of $X$?

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) 1.5

4 points

8) In the above question, the lower limit on the transmitter power in mW is
No, the answer is incorrect.
Score: 0
Accepted Answers:
0.7079 mW