Unit 15 - Week 12 Lectures

Assignment-12

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-10-23, 23:59 IST.

1) Which of the following statements is true? *1 point*

- Dispersion managed links are used to compensate chromatic dispersion as well as non-linearity.
- Dispersion unmanaged links along with the digital back propagation (DBP) algorithm at receiver end are used to compensate non-linearity but not chromatic dispersion.
- Dispersion unmanaged links along with the digital back propagation (DBP) algorithm at receiver end are used to compensate non-linearity as well as chromatic dispersion.
- Dispersion unmanaged links along with the digital back propagation (DBP) algorithm at receiver end are not used to compensate non-linearity as well as chromatic dispersion.

No, the answer is incorrect.
Score: 0
Accepted Answers:
Dispersion unmanaged links along with the digital back propagation (DBP) algorithm at receiver end are used to compensate non-linearity as well as chromatic dispersion.

2) The dispersion parameter of a 40 km fiber is given by 20 ps/nm-km, if dispersion is compensated by adding 10 km of dispersion compensating fiber (DCF), the dispersion parameter of DCF is *1 point*

- 80 ps/nm-km
- -40 ps/nm-km
- 40 ps/nm-km
- -80 ps/nm-km

No, the answer is incorrect.
Score: 0
Accepted Answers:
-80 ps/nm-km

3) In optical communication, as optical power is increased, BER goes on decreasing till a certain BER value is reached after which BER goes on increasing. This increase in BER is observed because of *1 point*

- Nonlinear effects
- Dispersion
- Attenuation
- Thermal noise

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

4) In an optical fiber of length 100 km having $\gamma_0 = 1.2\ /W - km$ and attenuation constant of 0.2 dB/km, input power of 5 dBm is launched. The effective length of the fiber is *1 point*

- 5 km
- 21.52 km
- 100 km
- 50 km

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

5) The nonlinear length of the fiber given in Question 4 is *1 point*

- 0.167 km
- 83.3 km
- 263.7 km
- 150 km

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

6) At the receiving end of the fiber given in Question 4, the maximum phase shift observed in input signal due to self phase modulation is *1 point*

- 0.08 rad
- 0.12 rad
- 0.24 rad
- 1 rad

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

7) In Question 4, the maximum input power that can be transmitted in the fiber so that the nonlinear phase shift accumulated over the fiber length is less than 0.5 rad is *1 point*

- 11.2 mW
- 19.4 mW
- 10 mW
- 6.32 mW

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

8) Which of the following wavelengths can be generated due to four wave mixing, given the three wavelengths in optical fiber are $\lambda_1 = 1550.1\ nm$, $\lambda_2 = 1550.2\ nm$, $\lambda_3 = 1550.3\ nm$. *1 point*

- 1551 nm
- 1553 nm
- 1552 nm
- 1550 nm

No, the answer is incorrect.
Score: 0
Accepted Answers:
1550 nm

9) Nonlinear phase shift due to nonlinear effects in an optical fiber is *1 point*

- Directly proportional to input power.
- Inversely proportional to input power.
- Independent of input power.

No, the answer is incorrect.
Score: 0
Accepted Answers:
Directly proportional to input power.

10) Under certain conditions, nonlinearity can exactly balance out anomalous dispersion in an optical fiber. *1 point*

- True
- False

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