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Unit 7 - OFC-Week 5 lectures

ASSIGNMENT-5

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

Submitted assignment

1) *2 points*

The core and cladding refractive indices of a multi-mode fiber are and 1.45 respectively. The acceptance angle and the relative in difference Δ respectively are

- 1.2441 rad and 1.0136
- 0.441 rad and 0.36
- 0.2441 rad and 0.0136
- None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.2441 rad and 0.0136

2) *2 points*

In a step-index multi-mode fiber, the critical angle for the core–clad interface is 85^0. The core refractive index is 1.46 and the core diam is 100 μm, then the V-number is

- 18.74
- 25.79
- 37.9
- None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
25.79

3)

In the above question, the approximate number of guided modes M a wavelength 1.3μm is……..

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) 332

2 points

4) Consider the following parameters
V-number= 26.6
λ (Wavelength)= 1300 nm
a (Core radius)= 25 μm
Then the Numerical aperture (N.A) is……

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) 0.22

2 points

5) *2 points*

In the above question, Assume that V=2.405, a= 4.1 μm, λ = 1550 nr
Then Numerical aperture and n_2 (cladding refractive index) respectively (Assume n_1=1.44)

- 0.144 and 1.4326
- 0.44 and 1.326
- 0.24 and 1.26
- None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.144 and 1.4326

6)

The cutoff wavelength for a step index fiber to exhibit single-n operation when the core refractive index and radius are 1.46 and 4.5 respectively, with the relative index difference being 0.25% is (in and must be in integer form)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) 1214

2 points

7)

A 6 km optical link consists of multimode step index fiber with a refractive index of 1.5 and a relative refractive index difference of then the delay difference between the slowest and fastest modes at fiber output (in ns and must be in integer form)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) 300

4 points

8) *4 points*

In the above question, the rms pulse broadening due to interm dispersion on the link is

- 58.87 ns
- 32.34 ns

- 49 ns
- 86.7 ns

No, the answer is incorrect.
Score: 0

Accepted Answers:
86.7 ns

9) *3 points*

In the above question, the maximum bit rate that may be obta without substantial errors on the link assuming only interm dispersion (assume Pulse overlapping is present)

- 2.3 Mb/s
- 4.7 Mb/s
- 1.8 Mb/s
- None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
2.3 Mb/s

10) *2 points*

The bandwidth–length product corresponding to question 9 is

- 23.8 Mhz-km
- 13.8 Mhz-km
-
- None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
13.8 Mhz-km

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