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FAQ

Courses » Introduction to Non-linear Optics and its Applications

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Unit 13 - Week 11

Course outline

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Pre-requisite Assignment

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

- Lecture 51: Parametric Amplification under FWM
- Lecture 52 : Parametric Amplification under FWM (Cont)
- Lecture 53 : Ontical Phase Conjugation
- Lecture 54 : Raman Scattering
- Lecture 55 : Stimulated Raman Scattering
- Quiz: Week 11 assignment 11
- Feedback for Week

Week 12

Download Videos

Week 11 assignment 11

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment. Due on 2018-10-17, 23:59 IST.

2 points $n(\lambda) = A + \frac{B\lambda^2}{\lambda^2 + C}$ The zero dispersion wavelength is (where A,B, C are po

- (a) $\sqrt{\frac{c}{2}}$
- (b) $\frac{c}{3}$ (c) $\sqrt{\frac{c}{3}}$

(a)

- (b)
- (d)

No, the answer is incorrect.

Accepted Answers:

The dispersion in a particular material is given by $n(\omega) = n_0 - \frac{\Gamma(\omega - \omega_0)}{\Gamma^2 - (\omega - \omega_0)^2}$

expression for the inverse of group velocity is (Γ is a constant)

(a)
$$\frac{1}{c} \left(n(\omega) + \omega \frac{dn}{d\omega} \right)$$

(a)
$$\frac{1}{c} \left(n(\omega) + \omega \frac{dn}{d\omega} \right)$$
 (b) $\frac{1}{c} \left(n(\omega) - \omega \frac{dn}{d\omega} \right)$ (c) $\left(n(\omega) + \omega \frac{dn}{d\omega} \right)$

(c)
$$\left(n(\omega) + \omega \frac{dn}{d\omega}\right)$$

(a)

- (b)
- (c)

No, the answer is incorrect.

Score: 0

Accepted Answers:

For Q2, the expression for group velocity dispersion parameter(D_{λ}) is

(a)
$$\left(\frac{d^2}{d\omega^2}\left(\frac{\omega n(\omega)}{c}\right)\right)$$

(a)
$$\left(\frac{d^2}{d\omega^2}\left(\frac{\omega n(\omega)}{c}\right)\right)$$
 (b) $\frac{-2\pi c}{\lambda^2}\left(\frac{d^2}{d\omega^2}\left(\frac{\omega n(\omega)}{c}\right)\right)$ (c) $\frac{2\pi c}{\lambda^2}\left(\frac{d^2}{d\omega^2}\left(\frac{\omega n(\omega)}{c}\right)\right)$

(c)
$$\frac{2\pi c}{\lambda^2} \left(\frac{d^2}{d\omega^2} \left(\frac{\omega n(\omega)}{c} \right) \right)$$

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(b) 4) 2 points

A single mode fiber is measured to have $\lambda^2 \left(\frac{d^2 n}{d\lambda^2} \right) = 0.02$ at $0.8 \mu m$. Calculate dispersion parameters β_2 (in ps^2/m).

(a) -2.83×10^{-2} (b) 2.83×10^{-3} (c) 2.83×10^{-26} (d) 2.83×10^{-2}

- (a)
- (b)
- (c)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(d)

What type of nonlinearity is responsible for self-focusing

- (a) 2nd order
- (b) 3rd order
- (c) 4th order

(a)

(b)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

The length for a perfect optical phase conjugation mirror is (κ has the usual meani

(a)
$$\frac{\pi}{2|\kappa|}$$

(b)
$$\frac{\pi}{4|\kappa|}$$

(c)
$$\frac{\pi}{|\kappa|}$$

(a)

(b)

No, the answer is incorrect. Score: 0

Accepted Answers:

(h)

7)

2 points

2 points

2 points

The phase conjugation mirror is called an oscillator if

(a)
$$|\kappa|L = \frac{\pi}{2}$$

(b)
$$|\kappa|L = \frac{\pi}{4}$$

(c)
$$|\kappa|L = \pi$$

(a)

(b)

No, the answer is incorrect.

Score: 0

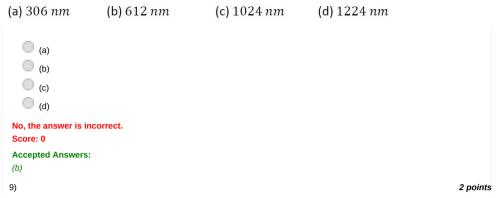
Accepted Answers:

(a)

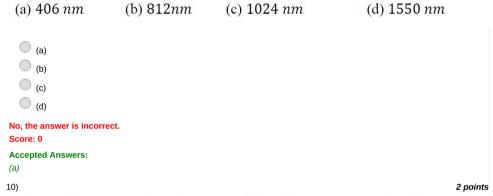
8)

2 points

A laser light of wavelength $488 \, nm$ is incident on a hydrogen cell, the strokes shoutput wavelength is (the difference in energy in the vibrational spectra of the hydratom is $4156 \, cm^{-1}$)



A laser light of wavelength 488nm is incident on a hydrogen cell ,the Anti-str shifted output wavelength is (the difference in energy in the vibrational spectra o hydrogen atom is $4156 \ cm^{-1}$)



A laser light of wavelength 488nm is incident on a gas chamber which comoving the strokes shifted output wavelength is (the difference in energy in vibrational spectra of the hydrogen atom is $1552 \ cm^{-1}$)

