Unit 8 - Week 7 –
Applications of Lasers: Non-linear optics, LIDAR, Laser spectroscopy, Isotope enrichment and separation.

Assignment 7

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

1) The Sum Frequency Generation of two laser lights of wavelengths 840 nm and 650 nm will appear at ___.
   - 366 nm
   - 387 nm
   - 355 nm
   - 455 nm

No, the answer is incorrect.
Score: 0
Accepted Answers: 366 nm

2) Which of the following change will affect the SHG signal?
   - Increasing incident power
   - Choosing material with larger second order susceptibility
   - Choosing longer crystal
   - All of the above

No, the answer is incorrect.
Score: 0
Accepted Answers: All of the above

3) What is the value of 4th order susceptibility for a centrosymmetric molecule?
   - 0.5

No, the answer is incorrect.
Score: 0
Accepted Answers: 0.5
4) What is the phase matching condition for SHG wave generation if $\omega_1$ is the frequency of the fundamental light and $n$ represents the refractive index?

- $n(2\omega_1) > n(\omega_1)$
- $n(2\omega_1) < n(\omega_1)$
- $n(2\omega_1) = n(\omega_1)$
- $2n(2\omega_1) = n(\omega_1)$

No, the answer is incorrect.
Score: 0

5) Which of the following technique is used to measure width of an ultrashort laser pulse?

- Autocorrelation
- LIDAR
- CARS
- Raman amplification

No, the answer is incorrect.
Score: 0

6) What is the effective path length (in cm) for a wave ($\lambda = 532$ nm) in a multipass cell, if the cell length is 1 cm and number of round trips = $10^3$?

- $1 \times 10^3$
- $2 \times 10^3$
- $3 \times 10^3$
- $532 \times 10^3$

No, the answer is incorrect.
Score: 0

7) Which of the following method is used to measure distance of a particular analyte present at far?

- Raman amplification
- CARS
- Autocorrelation
- LIDAR

No, the answer is incorrect.
Score: 0

8) The Third Harmonic of wave ($\lambda = 1059$ nm) will appear at_____.

- 529 nm
- 550 nm

1 point
9) Which of the following is correct for Raman spectroscopy

- Anti-Stokes lines always have higher intensity compared to stokes line
- Anti-Stokes lines have higher frequency than Rayleigh line
- Stokes line has higher frequency than Rayleigh line
- All of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Anti-Stokes lines have higher frequency than Rayleigh line

10) Selective photoionization method for laser assisted isotope separation is based upon

- Isotopes have similar chemical behavior
- Isotopes have different atomic masses
- Isotopes have same number of protons
- Excited states of isotopes have different life time

No, the answer is incorrect.
Score: 0
Accepted Answers:
Excited states of isotopes have different life time