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Courses » Laser Fundamentals and Applications

Announcements **Course** Ask a Question Progress FAQ



Unit 5 - Week 4 - Pulsing techniques

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Course outline

How to access the portal

Week 1 - Introduction to LASERS

Week 2 - Concept of population inversion, 2-level, 3-level, and 4-level systems, Components of LASERS

Week 3 - Threshold condition, Unique Properties of LASER, various parameters of a LASER

Week 4 - Pulsing techniques

- Lecture 16 - Cavity Dumping
- Lecture 17 - Q-switching
- Lecture 18 -

Assignment 4

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment. **Due on 2019-02-27, 23:59 IST.**

1) Acousto optic modulator (AOM) is related to which pulsing technique? **1 point**

- Cavity damping
- Q-switching
- Mode locking
- Not related to any pulsing technique

No, the answer is incorrect.
Score: 0

Accepted Answers:
Cavity damping

2) Which of the following optic(s) is not used in the Q-switching technique? **1 point**

- Quarter wave plate
- Half wave plate
- Polarizer
- Pockels cell

No, the answer is incorrect.
Score: 0

Accepted Answers:
Half wave plate

3) According to Pockels effect, refractive index of the medium changes _____ with the electric field. **1 point**

- Linearly
- Quadratically

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**Lecture 20 -
Mode Locking**

Quiz :
Assignment 4

Feedback For
Week 4

Solutions of
Assignment 4

**Week 5 -
Mode-Locking
technique and
types of LASER**

**Week 6 - Types
of LASERs and
Non Linear
Optics**

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

**Week 8 - Various
Applications of
Lasers, Laser
safety and
Summary**

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Linearly

4) Which of the following pulsing technique is capable of producing the shortest pulse? **1 point**

- Q-switching
- Mode-locking
- Cavity damping
- Mechanical chopper

No, the answer is incorrect.

Score: 0

Accepted Answers:

Mode-locking

5) The principle of a mode-locking pulsing technique is based on

- Refraction
- Diffraction
- Interference
- Reflection

No, the answer is incorrect.

Score: 0

Accepted Answers:

Interference

6) In Q-switching method quality factor (Q) is _____

- Decreased
- Increased
- Kept unchanged
- None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Decreased

7) Which of the statements below is incorrect? **1 point**

- Q-Switching involves storage of energy in active medium
- Cavity dumping involves storage of energy within the cavity
- Q-Switching involves storage of energy within cavity
- Mode-locking involves storage of energy in active medium

No, the answer is incorrect.

Score: 0

Accepted Answers:

Q-Switching involves storage of energy within cavity

8) A Laser system has bandwidth 150 THz and cavity length 200 cm. What will be its pulse width? (1THz = 10^{12} Hz, 1 fs = 10^{-15} sec) **1 point**

- 8.4 fs
- 5.5 fs
- 2.3 fs
- 6.7 fs



1 point



No, the answer is incorrect.

Score: 0

Accepted Answers:

6.7 fs

9) If the frequency separation between two modes ($\Delta\nu$) is 60MHz, what will be the time gap between two pulses of that a LASER output? (1MHz = 10^6 Hz; 1 ns = 10^{-9} sec) **1 point**

- 16.7 ns
- 33.4 ns
- 60.0 ns
- 12.6 ns

No, the answer is incorrect.

Score: 0

Accepted Answers:

16.7 ns

10) Quality factor (Q-factor) is inversely proportional to the _____

- Energy stored in the cavity
- Energy loss per optical cycle
- All of the above
- None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Energy loss per optical cycle



1 point

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