



# PHYSICS

## BOOKS - CENGAGE PHYSICS

### LASERS

#### Mandatory Exercise Exercise Set I

1. Explain LASER ?



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2. Mention a source of light in which light is emitted by spontaneous emission.



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3. What is the basis of laser action?



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4. Mention a few properties of lasers.



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5. Can we use laser in thermonuclear reactions?



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6. Why should we not view the lasers directly?



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**Mandatory Exercise Exercise Set II**

1. The following are characteristics of lasers.

A. Highly monochromatic

B. Highly coherent

C. Less focused

D. Highly directional

**Answer:**



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2. The conditions for achieving laser action are

A. the system must be in a state of population inversion

B. the excited state of the system should be metastable state

C. the atom should be in lower energy state

D. no conditions are required

**Answer:**



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3. Lasers are used in

A. microsurgery

B. drilling sharp holes in diamonds

C. telephone communications

D. laser printers

**Answer:**



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4. Laser is the acronym for

A. light absorption by stimulated radiation

B. light absorption by spontaneous  
emission of radiation

C. light amplification by stimulated  
emission of radiation

D. light amplification by spontaneous  
radiation

**Answer:**

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5. Applications of laser technology includes

- A. holography
- B. surgery
- C. communication
- D. all of these

**Answer:**



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6. Who introduced the concept of stimulated emission in physics?

A. Newton

B. Einstein

C. Feynman

D. C.V.Raman

**Answer:**



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7. He-Ne laser contains an inert mixture of \_\_\_\_\_ and \_\_\_\_\_

A. Helium, Argon

B. Argon, Neon

C. Neon, Xenon

D. Neon, Helium

**Answer:**



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## General Exercise

1. What is stimulated emission?



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2. What is the difference between spontaneous emission and stimulated emission?



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### 3. What are metastable states?



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## Olympiad And Ntse Level Exercises

1. A laser is a coherent source because it contains

A. many wavelengths

B. uncoordinated wave of a particular wavelength

C. coordinated wave of many wavelengths

D. coordinated waves of a particular wavelength

**Answer:**



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