Тетрадь

Цыпышев Тимофей, ИУ5-41Б [1]

8 февраля 2024 г. - 9 февраля 2024 г.

[1]Семинары ведёт Медведева К.О.

Оглавление

Часть I

Module 1

1.1 Exercise №1

Match the words (1-6) with their definitions (a-f). Use a dictionary if necessary.

1. stimulated
2. radiation
3. acronym
4. emission
5. beam
6. amplification

a. energy in the form of heat or light that you cannot see and which can be very harmful
b. a word formed from the initial letters of other words
c. the increase in volume of a signal
d. a line of radiation or particles flowing in one direction
f. the act of sending out gases or other substances
e. made stronger or more active

Solution

1. f
2. a
3. b
4. e
5. d
6. c

1.2 Exercise №2

In groups answer the questions.

1. What is a laser?
   a. a device which produces a very narrow beam of light useful in many technologies
   b. a process of optical amplification of light based on radiation emission
   c. both a and b
2. What kind of word is the word 'laser'?
   a. acronym
   b. shortening
   c. contraction
3. Can you decode the word 'laser'? (use the words from task 1)

   L... A... by Stimulated E... of R... .

Solution

1. a
2. a
3. Light Amplification by Stimulated Emission of Radiation

1.3 Exercise №3

Study the pictures below. Which of the following words and phrases refer to ordinary light (1) and which to laser light (2)?

Coherent; its intensity decreases with distance; highly monochromatic; it is not strictly monochromatic; organized; less intense; travels in one direction; incoherent; highly intense; concentrated; travels in all directions; disorganized.

Solution

`Ordinary light:`

◁ disorganized
◁ its intensity decreases with distance
◁ it is not strictly monochromatic
◁ less intense, incoherent
◁ travels in all directions

`Laser light:`

◁ organized
◁ coherent
◁ highly monochromatic
◁ travels in one direction
◁ highly intense
◁ concentrated

1.4 Exercise №6

`[Устно]`

Read the text again and answer the following questions.

1. Why can we say that lasers were predicted long before their invention?
2. What is a laser? What does the word 'laser' mean?
3. What kind of beam do lasers have?
4. What do we mean by the words 'monochromatic, directional, and coherent' when we refer to laser light?
5. Why is the light from the laser so concentrated?
6. Who proposed the theoretical possibility of the process that made lasers possible?
7. Who created the first microwave generator?

8. Who demonstrated the first successful light laser?
9. What laser types are mentioned in the text?
10. Do you agree with the author's opinion that lasers have found myriads of useful applications? What examples do you think best prove this point?
11. While reading this text, which uses of lasers surprised you the most?
12. Can you think of an example of a laser device or technology that you have used or are using?

1.5 Exercise №7

[Устно]

Read the statements and decide which of them are true (T) and which are false (F) according to text 10A. Explain why.

1. The word 'laser' means microwave amplification by stimulated emission of radiation.
2. Laser was invented at the dawn of the 20th century.
3. Albert Einstein was the first inventor of a laser.
4. Laser came into existence only in the second half of the 20-th century.
5. Unfortunately most of the applications of a laser proved to be unattainable in the real world.
6. The use of lasers in thermonuclear fusion reactors may be the key to the future.
7. Laser weapons are widely used by the military.
8. In medicine lasers can be used for various surgical procedures.
9. Very few inventions can match the impact of the laser's invention.
10. Laser technology has a promising future.

2.1 Exercise №5

Find the words and phrases in the text which have the following meanings.

§ `1`

1. a verb: to make someone remember something
2. a verb: to use a particular idea or method
3. a verb: to continue to be in the same state or condition
4. a verb: to express clearly or show the importance of an idea or principle

§ `2`

5. a noun: the product of making larger or greater in amount or intensity
6. a noun: the result of sending something out (e.g. gas or heat)
7. a verb: to make stronger
8. a noun: the point from which something begins
9. an adverb: in relation to something else
10. a noun: a shining line of light
11. an -ing form of a verb: covering a large area
12. a verb: to go down to a lower level
13. a phrase used when you are comparing objects or situations and saying that they are completely different
14. the amount of something (energy, work, information) produced by a machine

§ `3`

15. an adverb: after a long time
16. a verb phrase: to provide something (idea, principle) from which another thing can develop
17. a verb: to give someone a prize for something they have done

§ `4, 5`

18. a prepositional phrase: because of or thanks to
19. an adjective: unusual or surprising and therefore deserving attention
20. a verb: to have a particular result, especially one that you didn't expect
21. a verb: to write something (e.g. information) down
22. a verb: to change into a vapour
23. a verb: to find the size, length or amount of something
24. a noun: the quality of being correct and true
25. a verb: to carry out
26. a verb phrase: to be of primary importance

Solution

1. remind
2. employ
3. remain
4. -
5. amplification
6. emission
7. strengthen

8. source
9. in contrast ?
10. beam
11. -
12. decrease
13. the difference between
14. intensity
15. eventually
16. -
17. award
18. due to
19. remarkable
20. -
21. record
22. -
23. measure
24. accuracy
25. -

2.2 Exercise №8

Complete the sentences using the information from the text without looking into the text.

1. The word laser is an acronym standing for ...
2. Laser light differs from ordinary light due to its ...
3. Russian physicists Nikolay Basov and Alexander Prokhorov created ... while working on ...
4. In 1960, physicist from California Theodore Maiman demonstrated ...
5. Lasers turned out to have myriads of uses, from ... to ...
6. In science lasers provide great assistance with ...
7. Laser-sighting devices are fitted to ... to help soldiers ...
8. Today new applications of lasers are ...
9. Not long ago archaeologists uncovered ... using Lidar.
10. In computing lasers could have ...

Solution

1. Laser stands for "light amplification by stimulated emission of radiation."
   "The word 'laser' stands for 'light amplification by stimulated emission of radiation'."(Paragraph 2)
2. Laser light is different from ordinary light because it's monochromatic, directional, and coherent.
   "The laser produces a well-directed, very intense beam which is monochromatic, directional and coherent."(Paragraph 2)
3. Basov and Prokhorov created the precursor to the laser while studying the quantum oscillator.
   "In 1954, Russian physicists Nikolay Basov and Alexander Prokhorov working on the quantum oscillator created the first microwave generator, laser's predecessor."(Paragraph 3)

4. In 1960, Maiman demonstrated the first ruby laser.
   "In 1960, physicist from California Theodore Maiman demonstrated the first ruby laser."(Paragraph 3)
5. Lasers have diverse applications, from medicine to communications.
   "Due to their remarkable properties, lasers turned out to have all sorts of useful applications in different fields from communications to medicine."(Paragraph 4)
6. Lasers assist greatly in scientific spectroscopy.
   "In science they are a great help in spectroscopy."(Paragraph 4)
7. Laser-sighting aid devices soldiers in hitting targets.
   "Laser-sighting devices are fitted to military and police rifles to help soldiers hit their targets."(Paragrap 4)
8. New laser applications are continually emerging.
   "New applications of lasers are constantly emerging."(Paragraph 5)
9. Archaeologists found ancient structures using Lidar.
   "Not long ago archaeologists uncovered a new vast network of cities and roads in the thick jungles around the ancient Cambodian temple complex of Angkor Wat, implementing an aerial survey using Lidar."(Paragraph 5)
10. Lasers in computing could greatly improve data transfer speeds.
    For example, a silicon laser computer chip promises faster data transfers."(Paragraph 5)