

## Unit 15 after texts tasks

### 1. Fill in the blanks using the words given below. Write only letters!:

Light and other electromagnetic 1....., such as radio 2....., are obviously waves—or so everyone thought. Maxwell and Lorentz had firmly 3.....the wave nature of 4.....radiation in electromagnetic theory. Numerous 5.....on the 6..., diffraction, and scattering of light had confirmed it. We can well appreciate the shock and disbelief when Einstein argued in 1905 that under certain 7.....light behaves not as continuous waves but as 8....., individual 9..... These particles, or "light quanta," each carried a "quantum," or fixed 10.....of energy, much as automobiles produced by an assembly plant arrive only as individual, identical cars—never as fractions of a car. The total energy of the light 11.... (or the total output of an assembly plant) is the sum total of the individual energies of these discrete "light 12..... (or automobiles), what are called today "photons." Theories of matter and electromagnetic radiation in which the total energy is treated as "quantized" are known as quantum 13..... Although Einstein was not the first to break the energy of light into packets, he was the first to take this seriously and to realize the full 14.....of doing so.

- a)implications b)discontinuous c)radiation d)experiments e)quanta f)amount g)waves h)theories  
i) beam j)established k)circumstances l)electromagnetic m)interference n)particles

### 3 questions to write the correct word(write only in small letters without any articles)

- ray of light

- Energy that is radiated or transmitted in the form of rays or waves or particles.

Scientists that study matter, motion, and energy

### 3 questions to match the definitions

1.

relativity

2.

light quanta

3.

electromagnetic

- a) relating to the interrelation of electric currents or fields and magnetic fields.

- b) the absence of standards of absolute and universal application.
  - c) photon
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### 2 questions with multiple choice

- 1. a disturbance that transfers energy from one place to another
    - 1.  particle
    - 2.  relativity
    - 3.  wave
    - 4.  ether
  - 2. particles of light
    - 1.  ether
    - 2.  photons
    - 3.  radiation
    - 4.  particle
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### 2 questions "True-False"

- 1. a very small piece of something → photons
  
- 2. upper air → beam