

**1-Once a hypothesis has been formulated, scientists design further . .... and carefully controlled tests to verify it.**

- |             |                |               |           |
|-------------|----------------|---------------|-----------|
| 1. quantity | 2. experiments | 3. enthusiasm | 4. theory |
|-------------|----------------|---------------|-----------|

**2-Macroscopic level deals with the properties of . . .... objects.**

- |                   |                     |                     |                   |
|-------------------|---------------------|---------------------|-------------------|
| 1. small, visible | 2. large, invisible | 3. small, invisible | 4. large, visible |
|-------------------|---------------------|---------------------|-------------------|

**3-The development of steel . .... the profound impact of chemistry on society.**

- |             |                |                |               |
|-------------|----------------|----------------|---------------|
| 1. produced | 2. appreciated | 3. accelerated | 4. revolution |
|-------------|----------------|----------------|---------------|

**4-Which branch of chemistry is the study of industrial chemical processes?**

- |                        |                         |
|------------------------|-------------------------|
| 1. Inorganic chemistry | 2. Analytical chemistry |
| 3. Materials science   | 4. Chemical engineering |

**5-Which one is not a form of matter?**

- |            |          |              |        |
|------------|----------|--------------|--------|
| 1. acetone | 2. flesh | 3. radiation | 4. ice |
|------------|----------|--------------|--------|

**6-When we squeeze a gas filled balloon, the force we exert on the outside of the walls ..... by the force being exerted by the gas molecules on the inside of the walls.**

- |               |             |            |              |
|---------------|-------------|------------|--------------|
| 1. is opposed | 2. is added | 3. locates | 4. undergoes |
|---------------|-------------|------------|--------------|

**7-All changes in matter, whether chemical or physical are ..... by changes in the energy of the matter.**

- |            |             |             |                |
|------------|-------------|-------------|----------------|
| 1. reduced | 2. absorbed | 3. drawback | 4. accompanied |
|------------|-------------|-------------|----------------|

**8-Different substances are distinguished by their intensive properties like . . ....**

- |                           |                    |
|---------------------------|--------------------|
| 1. volume and temperature | 2. size and color  |
| 3. color and density      | 4. mass and volume |

**9-From the strength of the field required, Millikan ..... the value of the charges on the particles.**

- |                |               |                |              |
|----------------|---------------|----------------|--------------|
| 1. distributed | 2. determined | 3. neutralized | 4. deflected |
|----------------|---------------|----------------|--------------|

**10-The smallest particle of an element that can exist is called a (an) . ....**

- |             |         |              |           |
|-------------|---------|--------------|-----------|
| 1. particle | 2. atom | 3. substance | 4. matter |
|-------------|---------|--------------|-----------|

**11-The number of protons in an atomic nucleus is called . . ....**

- |                  |                |             |             |
|------------------|----------------|-------------|-------------|
| 1. atomic number | 2. mass number | 3. neutrons | 4. isotopes |
|------------------|----------------|-------------|-------------|

12- Compared with the size of the nucleus, the space occupied by the electrons is . . . . .

- 1. enormous
- 2. tiny
- 3. strong
- 4. direct

13- Mass spectrometer is a device for determining the . . . . .

- 1. number of electrons
- 2. charge of ions
- 3. mass of atoms
- 4. energy of nucleus

14- Which one is correct about neutrons?

- 1. They do have electric charge.
- 2. Their presence affects the nuclear charge.
- 3. They affect the number of electrons.
- 4. They do add to the mass of the nucleus.

15- In periodic table the members of the d block except the elements in group 12 are called . . . . .

- 1. transition metals
- 2. inner transition metals
- 3. actinides
- 4. lanthanides

16- Right at the head of the periodic table . . . . .

- 1. are the elements known as the noble gases.
- 2. are elements called the alkali metals.
- 3. standing alone is hydrogen.
- 4. is the taller column called úroup 1.

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17- What is the general term for a plot showing the variation of a property at constant temperature?

- 1. standstill
- 2. spectrum
- 3. isotherm
- 4. hyperbola

18- One way of exploring intermolecular forces is to . . . . . the compression factor, Z.

- 1. measure
- 2. ignore
- 3. interrupt
- 4. linger

19- Our current model of gas is . . . . . with the Boyle's law.

- 1. opposed
- 2. consistent
- 3. compressed
- 4. squashed

20- Stratospheric ozone is . . . . . to life on the surface of earth.

- 1. divided
- 2. explored
- 3. accurate
- 4. vital

21- Which one is a homogeneous mixture?

- 1. root beer
- 2. human body
- 3. milk
- 4. rock

22- If we want to determine the role of an enzyme, we need to . . . . . it from the mixture of which it is normally a part.

1. dilute
2. stick
3. mingle
4. extract

23- Decanting technique makes use of . . . . . .

1. similarities in volume
2. similarities in density
3. differences in density
4. differences in temperature

24- Filtration is a key step in the . . . . . of tap water you drink.

1. purification
2. pollution
3. crystalization
4. distillation

25- Sweetend water contains . . . . . sugar molecules moving among the water molecules.

1. ionized
2. intact
3. electrolyte
4. hydrated

26- When solutions containig  $Hg_2^{2+}$  ions and  $I^-$  ions are mixed . . . . . .

1. colorless  $HgI_2$  solution is formed.
2. a precipitate of  $Hg_2I_2$  is formed.
3. a redox reaction is occured.
4. a white, cloudy silver iodide is precipitated.

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27- The reaction of magnesium and oxygen is a classic example of . . . . . reactions.

1. dioxidation
2. oxidation
3. precipitation
4. hydrolysis

28- The . . . . . hydrocarbons have an aromatic ring as a part of their molecular structure.

1. aliphatic
2. unsaturated
3. saturated
4. aromatic

29- Chlorofluorocarbons are the compounds held responsible for the . . . . . .

1. depletion of azone layer
2. softness of artificial skin
3. overall polarity of pesticides
4. partition between blood and fatty tissues

30- Polymers are compounds in which chains or network of . . . . . repeating units form . . . . . molecules.

1. tiny, big
2. small, giant
3. big, massy
4. enotmous, typical

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۲۸	د
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۳۰	ب

1-What is the meaning of " Denote"?"

- |             |            |             |                |
|-------------|------------|-------------|----------------|
| 1. indicate | 2. compact | 3. discover | 4. investigate |
|-------------|------------|-------------|----------------|

2-The magnitude of the velocity of an object is called its . . . . .

- |           |           |          |          |
|-----------|-----------|----------|----------|
| 1. motion | 2. energy | 3. force | 4. speed |
|-----------|-----------|----------|----------|

3-We now know that there are actually more than one hundred elements which in various combinations ..... all matters on the Earth.

- |               |            |            |               |
|---------------|------------|------------|---------------|
| 1. similar to | 2. make up | 3. develop | 4. illustrate |
|---------------|------------|------------|---------------|

4-For each electron outside the nucleus, there must be a ..... positively charged particle inside the nucleus.

- |              |             |           |                |
|--------------|-------------|-----------|----------------|
| 1. cosidered | 2. matching | 3. moving | 4. surrounding |
|--------------|-------------|-----------|----------------|

5-Which one is the synonym of " Conduct "?

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- |                        |                           |
|------------------------|---------------------------|
| 1. vertical division   | 2. direct the performance |
| 3. able to be deformed | 4. absolutely necessary   |

6-In this chamber, the atoms of the gas or vapor are ..... to a beam of rapidly moving electrons.

- |            |               |         |            |
|------------|---------------|---------|------------|
| 1. exposed | 2. determined | 3. left | 4. applied |
|------------|---------------|---------|------------|

7-Neutrons and protons are very ----- particles apart from their charge.

- |            |              |        |             |
|------------|--------------|--------|-------------|
| 1. similar | 2. different | 3. odd | 4. positive |
|------------|--------------|--------|-------------|

8-Radon is a dangerously radioactive gas and . . . . . the other noble gases.

- |               |                |                |             |
|---------------|----------------|----------------|-------------|
| 1. appearance | 2. distinction | 3. compressive | 4. resemble |
|---------------|----------------|----------------|-------------|

9-Which case means " a force under the influence of which objects tend to move away from each other "?

- |               |             |              |                  |
|---------------|-------------|--------------|------------------|
| 1. standstill | 2. motivate | 3. repulsion | 4. infinitesimal |
|---------------|-------------|--------------|------------------|

10-A mixture of gases that do not react with one another, behaves like a single ..... gas.

- |        |          |           |         |
|--------|----------|-----------|---------|
| 1. law | 2. noble | 3. amount | 4. pure |
|--------|----------|-----------|---------|

11-The molecules of sugar are ..... and mixed so thoroughly and uniformly with water that no separate regions or particles can be seen.

- |                  |              |              |               |
|------------------|--------------|--------------|---------------|
| 1. distinguished | 2. dispersed | 3. extracted | 4. emphasized |
|------------------|--------------|--------------|---------------|

12-As the pressure is raised, all gases . . . . . from the compression factor of an ideal gas.

- |            |              |             |            |
|------------|--------------|-------------|------------|
| 1. corrode | 2. continous | 3. approach | 4. deviate |
|------------|--------------|-------------|------------|

13-No one has ever observed any . . . . . to the law of conservation of energy.

- |              |               |              |               |
|--------------|---------------|--------------|---------------|
| 1. exception | 2. separation | 3. potential | 4. indication |
|--------------|---------------|--------------|---------------|

14-Chalk hills and limestone buildings do not . . . . . in natural rainwater.

- |              |               |            |              |
|--------------|---------------|------------|--------------|
| 1. specified | 2. take place | 3. make up | 4. wash away |
|--------------|---------------|------------|--------------|

15-Which case is used to transfer liquids accurately?

- |                 |                        |
|-----------------|------------------------|
| 1. decanting    | 2. pipets and burettes |
| 3. distillation | 4. evaporate           |

16-The . . . . . is not a direct product of the reaction between iron and oxygen but arises through a complex electrochemical process.

- |          |             |         |             |
|----------|-------------|---------|-------------|
| 1. brass | 2. plumbing | 3. rust | 4. adherent |
|----------|-------------|---------|-------------|

17-It is sensible to regard the reaction of magnesium with chlorine as an "oxidation" even though no oxygen is . . . . .

- |               |             |             |            |
|---------------|-------------|-------------|------------|
| 1. evaporated | 2. oxidized | 3. involved | 4. pattern |
|---------------|-------------|-------------|------------|

18-A . . . . . is a reactant that seeks out centers of positive charge in a molecule.

- |                 |               |                |             |
|-----------------|---------------|----------------|-------------|
| 1. substitution | 2. hydrolysis | 3. nucleophile | 4. function |
|-----------------|---------------|----------------|-------------|

19-What is the meaning of " Adapt "?

- |                             |                                |
|-----------------------------|--------------------------------|
| 1. continuing in existence  | 2. make suitable for a new use |
| 3. gather together a number | 4. alert and active            |

20-Which one means " the the action or process of disconnecting or separating "?

- |             |              |            |                 |
|-------------|--------------|------------|-----------------|
| 1. dominate | 2. associate | 3. deplete | 4. dissociation |
|-------------|--------------|------------|-----------------|

21-Temperature is an . . . . . property, because we could take a sample of any size from a uniform bath of water and measure the same temperature.

- |              |            |              |             |
|--------------|------------|--------------|-------------|
| 1. extensive | 2. intense | 3. intensive | 4. extended |
|--------------|------------|--------------|-------------|

22-A malleable substance is one that can be . . . . .

- |                              |                                    |
|------------------------------|------------------------------------|
| 1. hammered into thin sheets | 2. drawn out into wires            |
| 3. very vigorous             | 4. combined with very few elements |

**23- Which case means ‘protect from harm or destruction’?**

- |            |             |            |          |
|------------|-------------|------------|----------|
| 1. precise | 2. conserve | 3. current | 4. delve |
|------------|-------------|------------|----------|

**24- Scientists develop . .... , possible explanation of the laws or the observations in terms of more fundamental concepts.**

- |           |            |                |               |
|-----------|------------|----------------|---------------|
| 1. theory | 2. samples | 3. experiments | 4. hypothesis |
|-----------|------------|----------------|---------------|

**25- When a pattern is observed in the data, it can be stated as a ..... law, a succinct statement of a wide range of observations.**

- |            |               |              |          |
|------------|---------------|--------------|----------|
| 1. science | 2. scientific | 3. scientist | 4. nobel |
|------------|---------------|--------------|----------|

**26- You will be able to look at an everyday object, see in your mind’s eye its ..... in terms of atoms and understand its properties.**

- |                |            |             |                 |
|----------------|------------|-------------|-----------------|
| 1. composition | 2. compose | 3. composed | 4. compensation |
|----------------|------------|-------------|-----------------|

**27- Scientists often look for ways of plotting experimental data in a manner that gives . .... lines, because such graphs are easier to analyze and interpret.**

- |           |             |              |             |
|-----------|-------------|--------------|-------------|
| 1. curved | 2. circular | 3. principle | 4. straight |
|-----------|-------------|--------------|-------------|

**28- A medicine is a mixture of various . .... that has been formulated to achieve an overall biological effect.**

- |             |                 |                |           |
|-------------|-----------------|----------------|-----------|
| 1. globules | 2. similarities | 3. ingredients | 4. intact |
|-------------|-----------------|----------------|-----------|

**29- A gas is a ----- form of matter that fills any ----- containing it.**

- |                             |                     |
|-----------------------------|---------------------|
| 1. fluid - vessel           | 2. property - rigid |
| 3. measure - characteristic | 4. vapor - rise     |

**30- What is the meaning of " Abbreviate"?**

- |              |             |            |              |
|--------------|-------------|------------|--------------|
| 1. equipment | 2. definite | 3. shorten | 4. hardening |
|--------------|-------------|------------|--------------|

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**A. Choose the best choice (a, b, c or d. in order to complete the following sentences.)**

1. Chemistry gives all of us the..... to become magicians with matter and to make forms of matter that have never existed before and perhaps do not exist anywhere else in the universe.

- a. stimulus                      b. violence                      c. opportunity                      d. response

2. With improved transport and greater output from ..... came more extensive trade, and the world became simultaneously a smaller but busier place.

- a. partitions                      b. factories                      c. proportions                      d. fluids

3. These measurements are usually made on small samples of matter, or ..... pieces of the material we want to study.

- a. explosive                      b. representative                      c. intensive                      d. corrosive

4. Dalton's..... was a monumental insight that helped others understand the world in a new way.

- a. hypothesis                      b. circumstance                      c. discovery                      d. assumption

5. One of the characteristics of science that you will meet quite often is that it takes common words from our everyday language and gives them a ..... meaning.

- a. Magic                      b. cosmic                      c. dense                      d. precise

6. Chemists ..... between “physical” properties and chemical properties.

- a. distinguish                      b. filtrate                      c. propagate                      d. secure

7. The density of a substance is ..... of the size of the sample because doubling the volume also doubles the mass, so the ratio of mass to volume remains the same.

- a. performance      b. moderate      c. suspect      d. independent

8. The potential energy is taken to be 0 when the two particles are ..... far apart.

- a. temporary      b. infinitely      c. momentary      d. internally

9. There are actually more than one hundred elements which in various combinations ..... all matters on the Earth.

- a. deal with      b. consistent with      c. grow      d. make up

10. In a chemical reaction, atoms are neither created nor destroyed but ..... partners to produce new substance.

- a. conceal      b. emerge      c. exchange      d. dissolve

11. Later workers, most notably the American physicist Robert Millikan, ..... experiments that enabled them to determine the charge of the electron.

- a. extract      b. initiate      c. foster      d. carried out

12. If atoms were indeed like blobs in a positively charged jelly, then all the  $\alpha$  ..... would easily pass through the foil

- a. processes      b. neutrals      c. particles      d. releases

13. Which case is false?

- a. Isotopes of the same element have essentially the same chemical and physical properties.
- b. A plot of the detector signal against the magnetic field is mass spectrum.
- c. The vertical columns of periodic table are called periods and are numbered from top to down.
- d. The diameter of nucleolus is only about one hundred thousandth that of the atom.

14. .... conducts electricity, has a luster and is malleable and ductile.

- a. A nonmetal
- b. A metal
- c. Metalloide
- d. Any substance

15. Chemists have discovered that when the elements are ..... in order of their atomic number and

arranged in rows of certain lengths they form families that show regular trends in properties.

- a. listed
- b. belonged
- c. detected
- d. inspected

16. The Group 2 metals..... many properties with the Group I metals, but their reactions are less vigorous.

- a. take place
- b. revise
- c. infer
- d. share

17. Boyle took a long tube of glass curved into a J-shape; with the short end .....

- a. protected
- b. spoiled
- c. sealed
- d. mingled

18. This relation in turn tells us that the isotherm is in fact a ...., the name given to a graph of y against x when x and y are related by  $xy = \text{constant}$ .

- a. hyperbola
- b. homogenous
- c. smooth
- d. grid

19. We need to ..... the ideas we have been describing to include the properties of mixture of gases.

- a. overthrow                      b. extend                      c. interpret                      d. experience

20. When you dip your finger into a liquid, your finger ..... the molecules of the liquid and push them aside

- a. attracts                      b. repels                      c. relies                      d. releases

21. A chemist may need to ..... a pollutant, administer a dosage, or transfer a known amount of a solute.

- a. monitor                      b. blend                      c. conceal                      d. embark

22. The molecules of sugar are ..... and mixed so thoroughly and uniformly with water that no separate regions or particles can be seen.

- a. adapted                      b. confined                      c. confirmed                      d. dispersed

23. Usually the component of the solution present in larger amount (water in these examples. is called the .....

- a. solvent                      b. solute                      c. solvation                      d. substance

24. One of the simplest separation techniques,..... , makes use of differences in density.

- a. filtration                      b. distillation                      c. decanting                      d. adsorption

25. There is such a tiny .... of ions in pure water (about  $10^{-7}$  M) that water alone does not conduct electricity.

- a. contaminate                      b. dissociation                      c. abbreviation                      d. concentration

26. Each ion has a number of water molecules closely associated with it. We say that each ion is .....

- a. hydrated                      b. hydration                      c. hydrate                      d. hydrative

27. In a ..... reaction, an insoluble solid product is formed when two strong electrolyte solutions are mixed.

- a. termination                      b. initiation                      c. precipitation                      d. redox

28. Many common reactions, like combustion, corrosion, photosynthesis, the metabolism of food, and the ..... of metals from their ores look completely different superficially

- a. migration                      b. extraction                      c. transition                      d. instrument

29. The ..... of elements other than carbon and hydrogen into organic compounds increases their diversity enormously.

- a. inclusion                      b. include                      c. exclude                      d. excludation

30. Many organic molecules are very ....., so we need a simple way to represent their structures..

- a. Subordinated                      b. meticulously                      c. implicated                      d. complicated

31. which one dose mean or equivalent to Perfect?

- a. Entire                                      b. Ideal  
c. Occurring frequently                      d. Remove

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32. which one dose mean or equivalent to Vigorous?

- a. Fundamental                      b. In spite of                      c. Create                      d. Strong

33. which one dose mean or equivalent to Cease?

- a. Stop                      b. Improve                      c. Simulate                      d. Inhale

34. which one dose mean or equivalent to Accurate?

- a. Depend on                      b. Take away                      c. Resemble                      d. Correct in all details

35. which one dose mean or equivalent to Dominate?

- a. Reduce                      b. Separate                      c. Influence over                      d. Complicate

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1-A benzene ring is ..... by a circle inside a hexagon, and we need to remember that one hydrogen atom is attached to each carbon atom.

1. represented                      2. significant                      3. concentrated                      4. saturated

2-Acids also are electrolytes. Unlike salts, they are molecular compounds in the pure state but form ions when they .....

1. dissolution                      2. disosiation                      3. unsolved                      4. dissolve

۳-“Notice that all nitrates and all common compounds of the Group 1 metals are soluble” means:

۱. توجه کنید که تمام نیترات‌ها و متداولترین ترکیبات فلزات گروه ۱، قابل حل هستند.  
۲. توجه کنید که تمام نیترات‌ها و فلزات گروه ۱ مرکب، قابل حل هستند. [www.nashr-estekhdam.ir](http://www.nashr-estekhdam.ir)  
۳. توجه کنید که تمام نیترات‌ها و ترکیبات فلزی متداول گروه ۱، قابل حل هستند.  
۴. توجه کنید که تمام نیترات‌ها و ترکیبات متداول فلزات گروه ۱، قابل حل هستند.

4-In a precipitation reaction, when two strong electrolyte solutions are mixed, ----- forms.

1. a soluble solid product                      2. an insoluble solid product  
3. an insoluble liquid product                      4. a half soluble solid product

5-What is the noun of the “concentrate” ?

1. Concentrated                      2. Concentrately                      3. Concentrator                      4. Concentrative

6-Differences between mixtures and compounds are..... in the following table.

1. depicted                      2. decanted                      3. evaporated                      4. summarized

7-One of the simplest separation techniques, ....., makes use of differences in density.

1. absorbtion                      2. filtration                      3. decanting                      4. distillation

8-These measurements are usually made on small samples of matter, or ..... pieces of the material we want to study.

1. representative                      2. represent                      3. procedure                      4. preservation

9-The ..... of metals gave them a new power over their environment, and treacherous nature became less brutal.

1. fosterage                      2. enterprise                      3. possession                      4. emergence



10-Chemistry transformed medicine, substantially extended our life quality, and ..... the foundations of genetic engineering.

1. concealed                      2. provided                      3. embarked                      4. contributed

11-At this deeper microscopic level, chemistry ..... these phenomena in terms of the rearrangements of atoms.

1. confines                      2. composes                      3. inherits                      4. interprets

12-"possible explanations of the laws or the observations in terms of more fundamental concepts" is:

1. model                      2. hypothesis                      3. concept                      4. theory

13-Homogeneous mixtures are also called ..... .

1. solutions                      2. solvents                      3. solutes                      4. syrup

14--"Contemporary" means:

1. Very careful and precise                      2. Follow or continue with a course of action  
3. Become gradually visible                      4. Belonging to or occurring in the present

۱۵-"At the dawn of human experience, our ancestors survived through knowledge acquired by the trial and error of everyday observation" means:

۱. ر سپیده دم تجربیات بشر، نیاکان ما طی دانش بدست آورده از طریق حدس و تلاش از مشاهدات روزمره، ادامه بقا دادند  
۲. ر سپیده دم تجربیات بشر، نیاکان ما از طریق دانش بدست آورده از طریق حدس و خطا از مشاهدات روزمره، ادامه بقا دادند  
۳. ر پایان تجربیات بشر، نیاکان ما از طریق بدست آوردن دانش از طریق حدس و خطا از مشاهدات روزمره، ادامه بقا دادند  
۴. ر افول تجربیات بشر، نیاکان ما از طریق دانش بدست آورده از طریق حدس و خطا از مشاهدات روزمره، ادامه بقا دادند

16-Which term is used to denote the gaseous form of a substance?

1. vessel                      2. liquid                      3. vapor                      4. fluid

17-An electric field is a function that affects .....

1. solid matters                      2. moving particles  
3. charged particles                      4. gaseous substances

18-When a ball thrown up as it returns to earth, its kinetic energy rises and its potential energy ..... zero again.

1. approaches                      2. squeezes                      3. stages                      4. decreases

19- Which sentence is TRUE?

1. Acceleration is disproportional to applied force.
2. Kinetic energy results from motion.
3. Velocity has only direction.
4. Kinetic energy is the energy a body loses.

20- ..... help crops absorb solar energy and convert it to the chemical energy of food that our bodies convert into other forms.

1. Investigators
2. Releases
3. Industries
4. Fertilizers

۲۱- The species that causes oxidation in a redox reaction is called the .....

۱. strong electrolyte
۲. reductant
۳. reducing agent
۴. oxidation agent

22- Which word is noun?

1. Abbreviate
2. Internal
3. Increment
4. Conclude

۲۳- "There is no longer any doubt that atoms exist and they are the units that make up the elements."

Means:

۱. دیگر شکی نیست که اتم ها وجود دارند و آنها واحدهای سازنده عناصرند.
۲. هیچ انگیزه ای وجود ندارد که اتم ها ایجاد می شوند و آنها عناصر را تشکیل می دهند.
۳. هیچ شک بزرگی وجود ندارد که اتم ها ایجاد می شوند و آنها عناصر را می سازند.
۴. هیچ شک بزرگی وجود ندارد که اتم ها ایجاد می شوند و آنها عناصر را می سازند.

24- Two hundred years ago, Dalton pictured atoms as featureless ..... like billiard balls.

1. bulbs
2. grids
3. spheres
4. lusters

25- A proton is nearly 2000 ..... heavier than an electron; each proton has one unit of positive charge.

1. more
2. times
3. turns
4. subatomic

26- Which sentence is False?

1. In a chemical reaction atoms exchange partners to produce new substance.
2. Compared with the size of the nucleus the space occupied by the electrons is enormous.
3. Electrons have neither positive nor negative charge.
4. The units that make up the elements are called atoms.

27- Which word means fundamental ?

1. Transition                      2. Essential                      3. Converse                      4. extreme

28- Mass spectrometers have been greatly developed since then, and they have become a very valuable part of the ..... of chemical laboratories.

1. intelligent                      2. equipment                      3. vigorous                      4. presence

29- The positive ions leave the chamber while accelerated by a strong electric field .....between two metal grids.

1. belonged                      2. inferred                      3. applied                      4. conducted

۳۰- “Right at the head of the periodic table” means:

۱. درست در رأس جدول تناوبی                      ۲. بالای سمت راست جدول تناوبی  
۳. سمت راست بالایی جدول تناوبی                      ۴. دقیقاً بالای جدول تناوبی

31- Which sentence is TRUE?

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1. Copper is not malleable.  
2. A nonmetal conducts electricity and is malleable and ductile.  
3. The vertical columns of periodic table are called periods and are numbered from top to down.  
4. A plot of the detector signal against the magnetic field is mass spectrum.

32-

As a gas is compressed, its molecules are . .... to a smaller volume.

1. contracted                      2. behave                      3. confined                      4. approach

33- Because pesticides have low overall ....., they tend not to be washed away by rain.

1. functionality                      2. associated                      3. polarity                      4. dominated

34- “Immense” means:

1. Have a commanding influence over                      2. Extremely large or great  
3. Cause to begin                      4. Gather together

۳۵- **“When placed in a strong external magnetic field, however, the proton fields become aligned with it or against it.” Means:**

۱. هر گاه در میدان مغناطیسی قوی قرار گیرند، با این وجود، میدانهای پروتون در بالای آن میدان ویا در پائین آن قرار میگیرند.
۲. هر گاه در میدان مغناطیسی قوی قرار گیرند، با این وجود، میدانهای پروتون در طول آن میدان ویا در جهت آن قرار میگیرند.
۳. با این وجود قرار گرفتن در میدان مغناطیسی قوی ، میدانهای پروتون در جهت آن میدان ویا در خلاف جهت آن قرار میگیرند.
۴. هر گاه در میدان مغناطیسی قوی قرار گیرند، با این وجود، میدانهای پروتون در جهت آن میدان ویا در خلاف جهت آن قرار می گیرند.

36- **Scientists often look for ways of plotting experimental data in a manner that gives . . . . .**

1. hyperbola
2. straight lines
3. curves
4. isotherm

37-

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**“Squeeze” means:**

1. Firmly press from opposite or all sides
2. Unable to bend or be forced out of shape
3. Very thorough or vigorous
4. A way of dealing with something

پاسخ صحیح

1	الف
2	د
3	د
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36	ب
37	الف