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**1-One of a class of animals often having wings called:**

- |         |           |           |          |
|---------|-----------|-----------|----------|
| 1. lion | 2. fungus | 3. insect | 4. tiger |
|---------|-----------|-----------|----------|

**2-Phenomena are natural:**

- |           |            |           |            |
|-----------|------------|-----------|------------|
| 1. bodies | 2. sources | 3. events | 4. species |
|-----------|------------|-----------|------------|

**3-Reproduction:**

- |   |                            |
|---|----------------------------|
| 1. is the natural increase of living things | 2. is a non-living thing   |
| 3. means basic substance                    | 4. is a unit of protoplasm |

**4-Protoplasm consists of a special ..... of elements.**

- |         |                  |          |                |
|---------|------------------|----------|----------------|
| 1. part | 2. living things | 3. means | 4. combination |
|---------|------------------|----------|----------------|

**5-Release means:**

- |             |          |            |             |
|-------------|----------|------------|-------------|
| 1. set free | 2. place | 3. purpose | 4. increase |
|-------------|----------|------------|-------------|

**6-Almost all consumers are:**

- |           |            |           |              |
|-----------|------------|-----------|--------------|
| 1. plants | 2. animals | 3. stones | 4. producers |
|-----------|------------|-----------|--------------|

**7-Category is:**

- |                     |                                    |
|---------------------|------------------------------------|
| 1. name a plant     | 2. language of ancient Rome        |
| 3. stone- like seed | 4. a class in a system of grouping |

**8-The plum and peach belong to the same .....:**

- |          |            |           |            |
|----------|------------|-----------|------------|
| 1. genus | 2. species | 3. animal | 4. variety |
|----------|------------|-----------|------------|

**9-The sun"s rays are a major source of .....:**

- |           |            |         |           |
|-----------|------------|---------|-----------|
| 1. shadow | 2. disease | 3. soil | 4. energy |
|-----------|------------|---------|-----------|

**10-Carbohydrates:**

1. are different flowers
2. can be obtained from iron
3. are used as the basic substance in plant food
4. are simple elements

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11- **Hunter is:**

- |                               |   |
|-------------------------------|---|
| 1. an area in Asia and Africa | 2. one who goes after wild animals for food |
| 3. a river flowing from Japan | 4. a kind of carbon dioxide                 |

12- **Domesticate means:**

- |                                     |                            |
|-------------------------------------|----------------------------|
| 1. adapt to human living conditions | 2. right for the purpose   |
| 3. having good health               | 4. plant with a sweet root |

13- **Which word refer to the environment?**

- |          |            |            |            |
|----------|------------|------------|------------|
| 1. alter | 2. product | 3. hectare | 4. habitat |
|----------|------------|------------|------------|

14- **Soil which is ..... produces good crops.**

- |              |              |            |                  |
|--------------|--------------|------------|------------------|
| 1. fertilize | 2. fertility | 3. fertile | 4. fertilization |
|--------------|--------------|------------|------------------|

15- **The barometer measures:**

- |                         |                  |
|-------------------------|------------------|
| 1. atmospheric pressure | 2. wind speed    |
| 3. evaporation          | 4. transpiration |

16- **Forecast means:**

- |                         |                        |
|-------------------------|------------------------|
| 1. damage to crops      | 2. predict the weather |
| 3. atmospheric humidity | 4. farming operations  |

17- **The basic framework of a soil is its ..... or mineral matter.**

- |            |              |            |          |
|------------|--------------|------------|----------|
| 1. organic | 2. inorganic | 3. content | 4. water |
|------------|--------------|------------|----------|

18- **Soils which ..... a large percentage of small particles are called clay soils.**

- |            |            |            |             |
|------------|------------|------------|-------------|
| 1. context | 2. content | 3. contain | 4. conclude |
|------------|------------|------------|-------------|

19- **The main axis of a plant supporting or connecting plant parts is .....**

- |         |         |         |         |
|---------|---------|---------|---------|
| 1. root | 2. stem | 3. leaf | 4. vein |
|---------|---------|---------|---------|

20- **At the end of growing season, the ..... leaves and stems are incorporated with the soil.**

- |        |          |         |         |
|--------|----------|---------|---------|
| 1. die | 2. death | 3. died | 4. dead |
|--------|----------|---------|---------|

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21- **Diminish means:**

- |                           |                  |
|---------------------------|------------------|
| 1. become bigger          | 2. become larger |
| 3. become less or smaller | 4. become faster |

22- **Soil is a ..... in which microbes can live.**

- |        |          |           |           |
|--------|----------|-----------|-----------|
| 1. air | 2. earth | 3. planet | 4. medium |
|--------|----------|-----------|-----------|

23- **In arid climates, soil is eroded mainly by .....**

- |         |            |             |             |
|---------|------------|-------------|-------------|
| 1. wind | 2. grazing | 3. moisture | 4. humidity |
|---------|------------|-------------|-------------|

24- **Terracing:**

1. consists of shrubs on sloping land
2. consists of stones on sloping land
3. consists of making steplike areas on sloping land
4. consists of sloping areas on steepy land

25- **The presence of organic material has a great ..... on the ability of the soil to hold water.**

- |           |           |              |                |
|-----------|-----------|--------------|----------------|
| 1. effect | 2. number | 3. effective | 4. effectively |
|-----------|-----------|--------------|----------------|

26- **Stalk is:**

- |                             |               |
|-----------------------------|---------------|
| 1. seed coat                | 2. network    |
| 3. stem of a leaf or flower | 4. angiosperm |

27- **Frost and drought:**

- |                    |                          |
|--------------------|--------------------------|
| 1. absorbs water   | 2. kill tender seedlings |
| 3. send oxygen out | 4. are flowering plants  |

28- **Trap means:**

- |             |                   |               |                 |
|-------------|-------------------|---------------|-----------------|
| 1. dormancy | 2. catch and hold | 3. frost free | 4. dormant seed |
|-------------|-------------------|---------------|-----------------|

29- **Even if conditions are favorable,.....seeds will not germinate.**

- |           |         |          |           |
|-----------|---------|----------|-----------|
| 1. frozen | 2. hard | 3. black | 4. medium |
|-----------|---------|----------|-----------|

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30- Acre is:

1. a green pigment
2. more than half a hectare
3. equal to about a hectare
4. equal to about 4000 squar meters

1				X	ج
2			X		ج
3	X				الف
4			X		د
5	X				الف
6		X			ب
7				X	د
8	X				الف
9				X	د
10			X		ج
11		X			ب
12	X				الف
13	X				د
14	X				ج
15	X				الف
16			X		ب
17	X				ب
18	X				ج
19		X			ب
20				X	د
21			X		ج
22			X		د
23	X				الف
24			X		ج
25		X			الف
26					ج
27	X				ب
28			X		ب
29	X				الف
30				X	د

---

1- **Cumulative means:**

- |              |         |               |               |
|--------------|---------|---------------|---------------|
| 1. organized | 2. vast | 3. scientific | 4. increasing |
|--------------|---------|---------------|---------------|

2- **The goal of pure science is to find out..... of nature.**

- |                |                 |             |               |
|----------------|-----------------|-------------|---------------|
| 1. the objects | 2. the concepts | 3. the laws | 4. the stages |
|----------------|-----------------|-------------|---------------|

3- **The mass of cells and cell products in an animal body is..... .**

- |             |          |                |           |
|-------------|----------|----------------|-----------|
| 1. function | 2. organ | 3. combination | 4. tissue |
|-------------|----------|----------------|-----------|

4- **Water is made up of the ..... hydrogen and oxygen.**

- |             |          |             |           |
|-------------|----------|-------------|-----------|
| 1. products | 2. parts | 3. elements | 4. things |
|-------------|----------|-------------|-----------|

5- **Seeds serve a ..... function.**

- |              |                |               |                 |
|--------------|----------------|---------------|-----------------|
| 1. available | 2. combination | 3. functional | 4. reproductive |
|--------------|----------------|---------------|-----------------|

6- **Adequate means:**

- |                     |               |              |         |
|---------------------|---------------|--------------|---------|
| 1. place for living | 2. sufficient | 3. herbivore | 4. rare |
|---------------------|---------------|--------------|---------|

7- **Sunlight is needed for the ..... of food green plants.**

- |               |                |               |                 |
|---------------|----------------|---------------|-----------------|
| 1. generation | 2. manufacture | 3. decomposed | 4. reproduction |
|---------------|----------------|---------------|-----------------|

8- **Which function had to do with plants only?**

- |               |               |                   |                  |
|---------------|---------------|-------------------|------------------|
| 1. herbivores | 2. carnivores | 3. photosynthesis | 4. carbohydrates |
|---------------|---------------|-------------------|------------------|

9- **The division or class in a system of grouping is .....**

- |             |           |            |             |
|-------------|-----------|------------|-------------|
| 1. category | 2. phylum | 3. kingdom | 4. taxonomy |
|-------------|-----------|------------|-------------|

10- **The plum, peach and apricot belong to the same .....**

- |             |            |               |          |
|-------------|------------|---------------|----------|
| 1. organism | 2. species | 3. borderline | 4. genus |
|-------------|------------|---------------|----------|

11- **Students of botanical sciences should make themselves familiar with all aspects of plant growth. aspects means:**

- |           |            |            |           |
|-----------|------------|------------|-----------|
| 1. causes | 2. results | 3. species | 4. phases |
|-----------|------------|------------|-----------|

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12- **Plants and animals cannot exist on the earth .....** .

1. without carbohydrates and solid substance.
2. without solar energy.
3. without petroleum.
4. without materials from fuel.

13- **Clouds are formed by ..... of water from the surface of the earth.**

1. the evaporaton
2. the condensation
3. the generation
4. the derivation

14- **The soil of Shush( a city in Iran) is fertile enough to grow good and plentiful crops. fertile means:**

1. productive
2. industrily
3. evidence
4. crescent

15- **The most important advance which man has ever taken is .....** .

1. the discovery of the atom.
2. the development of industry.
3. the invention of writing or printing.
4. the birth of farming.

16- **Discoveries in many places ..... that early man killed and ate wild animals.**

1. indicate
2. advance
3. develop
4. found

17- **On farms, plants are .....** .

1. grow in a natural environment.
2. spread out in small groups.
3. gathered together in small spaces.
4. safe from pests and another micro-organisms.

18- **What does the barometer measure?**

1. wind speed and direction
2. eaporation amount
3. atmospheric pressure
4. sun shine duration

19- **Most farming operations cannot be ..... in winter.**

1. watched at
2. irrigated by
3. dried with
4. carried out

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20- **What is the weathering?**

1. the process of making a soil mature.
2. the process of repeated expansion and contraction.
3. the process of the formation of soil.
4. the process of the breaking down of rocks.

21- **Each ..... in the soil profile has distinctive characteristics.**

1. horizonation
2. horizon
3. horizontal
4. horizotally

22- **Trees ..... with water look green and healthy.**

1. in contact
2. in this respect
3. in porportion
4. in extent

23- **Air and water can easily pass through soils which ..... .**

1. form a good crumb- structure.
2. feel very smooth and drainage.
3. openings are formed in the soil.
4. a succession of pores touch each other.

24- **One of the chief differences between the surface soil and the subsoil is the darker color of the top layer and this is due to the fact that topsoil contains humus, while the subsoil is lacking in it.**

**the word this in the passage refers to ..... .**

1. the surface soil
2. the top layer
3. the chief differences
4. the darker color

25- **The life cycle of a plant begins with the ..... stage of the seed.**

1. germination
2. germinative
3. germinate
4. germinately

26- **Soil microbes are mostly found ..... .**

1. inside plant roots.
2. in the rhizosphere.
3. in the lowest layers.
4. in side the topsoil.

27- In the practice of strip- cropping, the land is ..... .

1. always covered with crops in some places.
2. sometimes covered with flowers and grasses.
3. never covered with crops.
4. usually covered with grasses in all places.

28- Plant roots ..... water from the soil.

1. absorb
2. absorption
3. absorptive
4. absorptively

29- Monocot and dicot leaves are similar in ..... .

1. the pattern of their veins.
2. their form of attachment to the stem.
3. the general shape of the leaf.
4. their function in photosynthesis.

30- Proper drainage helps the seeds ..... .

1. to recieve oxygen.
2. to obtain moisture.
3. to keep vaibility.
4. to erode the seed coats.

1				X	د
2			X		ج
3				X	د
4		X			ج
5				X	د
6	X				ب
7			X		ب
8			X		ج
9		X			الف
10			X		د
11	X				د
12		X			ب
13				X	الف
14		X			الف
15		X			د
16	X				الف
17	X				ج
18			X		ج
19			X	X	د
20			X		د
21			X		ب
22		X			الف
23			X		الف
24				X	د
25		X			ب
26			X		د
27		X			الف
28	X				الف
29		X			د
30	X				الف



- 1- Walters could face \_\_\_\_\_ for his role in the robbery.  
1) prohibition      2) prosecution      3) collaboration      4) violation
- 2- The officer's historical role as a street cleaner occasionally required a measure of \_\_\_\_\_ and imagination.  
1) embezzlement      2) submission      3) masterpiece      4) dexterity
- 3- The daughter had all the brains and did all the accounts—the son was just the \_\_\_\_\_ boss of the business.  
1) nominal      2) tenable      3) unpretentious      4) decent
- 4- After the tennis match the boys \_\_\_\_\_ the sandwiches in seconds.  
1) devoured      2) engraved      3) affronted      4) hallowed
- 5- Over the centuries, these animals have become \_\_\_\_\_ to living in a dry environment.  
1) inhibited      2) conducive      3) habituated      4) offensive
- 6- The results provide the most \_\_\_\_\_ and conclusive evidence to date of some enduring inequities in participation in such facilities.  
1) ambivalent      2) authoritative      3) inflexible      4) excessive
- 7- Language acquisition is one of the central topics in cognitive science. Every theory of cognition has tried to explain it; probably no other topic has \_\_\_\_\_ such controversy.  
1) assented to      2) appreciated      3) speculated      4) aroused
- 8- As supporter of the value of free trade, Bennett was often called upon to give speeches around the world extolling the \_\_\_\_\_ of unencumbered commerce.  
1) demerits      2) ambiguities      3) virtues      4) euphemisms
- 9- \_\_\_\_\_ those who challenge your thesis is more insulting than attacking them outright.  
1) Verifying      2) Amusing      3) Ignoring      4) Seeking
- 10- The student's purpose is specific and well defined, yet his method could be described as \_\_\_\_\_.  
1) wholehearted      2) haphazard      3) autonomous      4) credible

Since World War II, direct observation of marine organisms in their natural habitats has been made possible by underwater cameras, television, (11) \_\_\_\_\_, and submersible craft, or submarines, that can descend to great depths. Underwater television provides the observer with a continuous picture of events (12) \_\_\_\_\_ within the field of the submerged camera. The development of self-contained diving equipment made it possible (13) \_\_\_\_\_ marine organisms in their natural habitat.

Morphological and taxonomic studies of marine organisms are generally performed on preserved materials in connection with the work in museums and universities. Physiological and embryological investigations requiring the use of living material (14) \_\_\_\_\_ generally pursued at biological stations. These are situated on the seacoast, (15) \_\_\_\_\_ the rapid transfer of specimens to the laboratory where they may be maintained in seawater provided by special circulating systems.

- 11- 1) to improve diving equipment      2) improve equipment to dive  
3) improving equipment of diving      4) improved diving equipment
- 12- 1) that occur      2) to occur      3) occur      4) occurred
- 13- 1) that the investigator inspect      2) for the inspector to investigate  
3) to inspect the investigator by      4) that investigator's inspection of
- 14- 1) is      2) to be      3) are      4) being
- 15- 1) facilitated      2) and facilitate      3) that facilitates      4) thus facilitating

**Passage 1:**

Friction should be considered early in the system design by reducing it as much as possible through good hardware design. There are, however, cost constraints that may be prohibitive. Dither is a simple way to reduce static friction that has been used for a long time. Dither can be introduced electronically or mechanically by a vibrator (e.g., in early auto pilots). Recent advances in computer control have also shown the possibility to reduce the effects of friction by estimation and control. Static friction is the friction when sticking. The force required to overcome the static friction and initiate motion is called the break-away force. The maximum friction force typically occurs at a small displacement from the starting point. The main difficulty when modeling the friction is the problem of detecting when the velocity is zero. A remedy for this is found in the model presented by Karnopp.

**16- The paragraph is about -----**

- 1) Reaction force between two surfaces in contact
- 2) Design methods for reducing the vibration
- 3) Modeling of dither in mechanical systems
- 4) Early design of computer control systems

**17- The paragraph states that -----**

- 1) Auto pilot and dither have the same meaning.
- 2) Auto pilot is an example of using dither.
- 3) Auto pilot is the only application of using dither.
- 4) Auto pilot is the earliest system that has used dither.

**18- It can be inferred from the paragraph that -----**

- 1) The break-away force is constant.
- 2) Before sliding, the friction force is constant.
- 3) There is a pre-sliding displacement between contacting surfaces.
- 4) Before sliding, the relative displacement between contacting surfaces is zero.

**19- Which one of the following sentences is correct?**

- 1) Karnopp has explained the problem of detecting when the velocity is zero.
- 2) Karnopp has overlooked the problem of detecting when the velocity is zero.
- 3) Karnopp is the pioneer of the problem of detecting when the velocity is zero.
- 4) Karnopp has proposed a solution for the problem of detecting when the velocity is zero.

**20- The paragraph suggests that-----**

- 1) Friction has inverse effect on the control system.
- 2) Friction can be compensated via control design.
- 3) Control system can eliminate the friction from the system.
- 4) Control system is used to model and to estimate the friction.

## Passage 2

Mechanical engineering plays a dominant role in enhancing safety, economic vitality, enjoyment, and overall quality of life throughout the world. If something moves or uses energy, one will conclude that a mechanical engineer was probably involved in its design or production. At the same time, mechanical engineers are expected to understand and convey the real-world consequences of technology development alternatives to decision-makers and the public. Mechanical engineering is a profession requiring specific skills. These skills are acquired through education, training and experience. A solid foundation in mathematics, basic sciences, and the language arts is of crucial importance. Ability in oral and written communications is important to success in mechanical engineering studies, and courses in mechanical and technology-related subjects can help students begin to understand the important practicalities of technological projects. While mechanical engineering programs may vary in specific content, and detail, they are linked by a common educational philosophy.

The programs provide a broad-based education with a concentration on fundamentals and basic laws as the major tools required for the professional practice of mechanical engineering.

Employment prospects for mechanical engineers are strong, particularly where local economies are growing. Industrial sectors in which mechanical engineers have traditionally made substantial contributions are large in number. In addition, the medical and pharmaceutical industries present exciting opportunities for mechanical engineers to join forces with the life sciences. Even the entertainment industry relies heavily on mechanical engineers for special effects and amusement park equipment. The vast majority of this work is done in companies ranging from large multi-nationals to small local firms. With experience and further education, some mechanical engineers move into legal or management positions. Others choose the path of scholarly research and teaching. The work of a mechanical engineer is diverse and worldwide, and their careers are marked by an important common factor of continuous learning. One engineer's new product is another engineer's new tool. Mechanical engineers are in the business of advancing the technological state of the art and are doing so at a rapid pace and on a global scale. However, to remain competent and competitive throughout one's career, they must continuously learn about and use new developments in the field. Every project, promotion, and job change produces new learning demands. Engineers who are active in professional societies gain a competitive edge, enhance their knowledge and technical expertise, and acquire leadership skills.

21- All of the following are given in the passage EXCEPT ----- .

- 1) Mechanical engineers are born with a natural distinctive talent
- 2) Mechanical engineering is a profession requiring particular skills
- 3) Mechanical engineering influences almost every aspect of our daily life
- 4) Some mechanical engineers move into legal or management positions

22- According to the passage, mechanical engineering programs -----.

- 1) have fixed content and detail
- 2) influence the political movements
- 3) have a dim employment prospect
- 4) share the same educational philosophy

23- The phrase "this work" in line 20 refers to ----- .

- 1) medical industry
- 2) mechanical engineering
- 3) amusement park industry
- 4) pharmaceutical industry

24- In can be inferred from the sentence "One engineer's new product is another engineer's new tool" that ----- .

- 1) mechanical engineering is rapidly and globally advancing
- 2) there is a competition throughout an engineer's career
- 3) every new product causes promotion and new learning demand for another engineer
- 4) a new product of an engineer is an opportunity of new development in the field

25- Reading the passage, one can come to the conclusion that mechanical engineering is -----.

- 1) a field of study touching every aspect of life
- 2) a technical expertise with a concentration on fundamentals
- 3) a life-long process to gain a competitive edge
- 4) a profession requiring ability in oral and written communication

### Passage 3

Imagine a day without mechanical engineering. You wake up in a cold room because, without modern heating systems, every tree within 100 miles has already been burned. Stumbling over your cat, which you did not see because you can't switch on the lights, since electric generators were never invented, you decide to take a refreshing shower. Turning on the water, you are rudely reminded that hot water is available only at luxurious spas that import wood. Thank goodness for those clever chemical and electrical engineers who build battery-powered transistor radios. After 15 minutes of squeaky music (Oh, yeah, mechanical engineers also design music speakers), you decide to get breakfast. After getting on your bicycle (You still call it a bicycle although it rides more like a tank because its inflexible materials weigh 50 pounds, and it has no gearing), you struggle to the local cafe, dreaming of a more automated way of driving around or even of flying through the air. The morning has left you dark and cranky especially when you realize that the rest of the day has much more of the same in store for you. You dream of whirling machine that quietly sort, wash, dry, and fold clothes neatly, and flying machines that can outrun an echo in a canyon and others that are faster than a shooting star. You dream of tiny robots that probe and fix the heart, mind, and body-healing breaks, blocks, and bruises. It would take diverse communities of dedicated men and women who are bound together by the common goal of making life safer, healthier, more hospitable, and more fun. You realize that, like the pyramid builders or an army of ants, these engineers would get little individual recognition or appreciation. Engineers express love with better vacuum cleaners, more efficient power tools, and cleaner wastewater treatment plants. Their inventions are not always artistic, but neither is raw sewage thrown from a second-storey window. In a wordy world where talk is cheap, engineering has a concreteness and usefulness that is not easily faked. After a day without mechanical engineers, it makes you wonder what life would be like without even higher-priced professionals, such as lawyers, real estate brokers, or baseball players.

26- The passage suggests that -----.

- 1) human needs mechanical engineers to generate electricity
- 2) other professionals enable mechanical engineers to earn money
- 3) it is mechanical engineers' dream that led to inventions
- 4) human's life heavily depends on mechanical engineering

27- The word "cranky" in line 12 is closest in meaning to ----- .

- 1) gloomy
- 2) moody
- 3) unpleasant
- 4) unaffected

- 28- It can be understood that during life without mechanical engineering ----- .**
- 1) it takes 15 minutes to arrive at work by a bicycle
  - 2) diverse communities of professional are bound together
  - 3) individuals are more hospitable, confident, and healthier
  - 4) 50- pound bicycles are among the heavy vehicles to be used
- 29- The word "it" in line 23 refers to ----- .**
- 1) life without mechanical engineering
  - 2) a day without mechanical engineering
  - 3) a day without mechanical engineers and the trained
  - 4) life without mechanical engineers and other trained professionals
- 30- Which of the following can be inferred from the phrase "...these engineers would get little individual recognition or appreciation." (lines 18-19)?**
- 1) Mechanical engineers prefer to be recognized.
  - 2) Teamwork is the key of mechanical engineers success.
  - 3) Mechanical engineers prefer to have little recognition.
  - 4) Individuality is what makes mechanical engineers successful.

شماره سوال	گزینه صحیح
1	2
2	4
3	1
4	1
5	3
6	2
7	4
8	3
9	3
10	2
11	4
12	1
13	2
14	3
15	4
16	1
17	2
18	3
19	4
20	2
21	1
22	4
23	2
24	3
25	3
26	4
27	1
28	4
29	4
30	2



- 1- Police officers should be commended for their \_\_\_\_\_ service to the community.  
1) benevolent                      2) harsh                      3) hasty                      4) peculiar
- 2- Despite her \_\_\_\_\_ arguments, the candidate attracted an enthusiastic following.  
1) plausible                      2) wholesome                      3) specious                      4) thorough
- 3- Toni has been \_\_\_\_\_ to achieve musical recognition for the past ten years.  
1) prevailing                      2) displaying                      3) appreciating                      4) striving
- 4- Thousands of families came here seeking \_\_\_\_\_ from the civil war.  
1) remedy                      2) refuge                      3) remnant                      4) rebellion
- 5- Many persons in the \_\_\_\_\_ were awakened by the blast, and some were thrown from their beds.  
1) thrill                      2) urbanity                      3) vicinity                      4) fatigue
- 6- I cannot believe that your parents would \_\_\_\_\_ such rude behavior.  
1) endorse                      2) hinder                      3) postpone                      4) seclude
- 7- Although I had already broken most of her dishes, Jacqueline was \_\_\_\_\_ enough to continue letting me use them.  
1) thrifty                      2) indigent                      3) financial                      4) magnanimous
- 8- Even when someone has been found innocent of a crime, the \_\_\_\_\_ often remains.  
1) endeavor                      2) stigma                      3) urge                      4) quest
- 9- I was badly scared when the explosion made the whole house \_\_\_\_\_.  
1) vacillate                      2) resurge                      3) decline                      4) quake
- 10- The poison produced by the frog's skin is so \_\_\_\_\_ that it can paralyze a bird or a monkey immediately.  
1) pungent                      2) swift                      3) lethal                      4) treacherous

Air pollution has always accompanied civilizations. Pollution started from the prehistoric times when man created the first fires. According to (11) \_\_\_\_\_ in the journal *Science*, "soot (12) \_\_\_\_\_ on ceilings of prehistoric caves provides ample evidence of the high levels of pollution that was associated with (13) \_\_\_\_\_." The forging of metals appears to be a key turning point (14) \_\_\_\_\_ significant air pollution levels outside the home. Core samples of glaciers in Greenland indicate (15) \_\_\_\_\_ in pollution associated with Greek, Roman and Chinese metal production, but at that time the pollution was comparatively less and could be handled by nature.

- 11- 1) a 1983 article                      2) article for 1983                      3) a 1983<sup>rd</sup> article                      4) article in 1983
- 12- 1) was found                      2) having found                      3) found                      4) to be found
- 13- 1) inadequate ventilating open fires                      2) inadequate ventilation of open fires  
3) open fires inadequate ventilation                      4) open fires in inadequate ventilation
- 14- 1) for creation in                      2) in creation for                      3) in the creating for                      4) in the creation of
- 15- 1) increases                      2) increased                      3) the increasing                      4) they increased

Acid rain is a rain or any other form of precipitation that is unusually acidic, meaning that it possesses elevated levels of hydrogen ions (low pH). It can have harmful effects on plants, aquatic animals and infrastructure. Acid rain is caused by emissions of sulfur dioxide and nitrogen oxide, which react with the water molecules in the atmosphere to produce acids. Governments have made efforts since the 1970s to reduce the release of sulfur dioxide into the atmosphere with positive results. Nitrogen oxides can also be produced naturally by lightning strikes and sulfur dioxide is produced by volcanic eruptions. The chemicals in acid rain can cause paint to peel, corrosion of steel structures such as bridges, and erosion of stone statues. The most important gas which leads to acidification is sulfur dioxide. Emissions of nitrogen oxides which are oxidized to form nitric acid are of increasing importance due to stricter controls on emissions of sulfur containing compounds. 70 Tg(S) per year in the form of SO<sub>2</sub> comes from fossil fuel combustion and industry, 2.8 Tg(S) from wildfires and 7–8 Tg(S) per year from volcanoes. The principal natural phenomena that contribute acid-producing gases to the atmosphere are emissions from volcanoes. Thus, for example, fumaroles from the Laguna Caliente crater of Poás Volcano create extremely high amounts of acid rain and fog, with acidity as high as a pH of 2, clearing an area of any vegetation and frequently causing irritation to the eyes and lungs of inhabitants in nearby settlements. Acid-producing gasses are also created by biological processes that occur on the land, in wetlands, and in the oceans. The major biological source of sulfur containing compounds is dimethyl sulfide. Nitric acid in rainwater is an important source of fixed nitrogen for plant life, and is also produced by electrical activity in the atmosphere such as lightning.

**16. According to the passage,.....**

1. acid rain and fog normally have as high as a pH of 2 of acidity
2. sulfur containing compounds are major source of dimethyl sulfide
3. fossil fuel combustion produces 70 Tg(S) of the SO<sub>2</sub> used in industry
4. wildfires do not produce as much sulphur-oxide as volcanoes

**17. It might be understood from the passage that.....**

1. governments did not use to consider acid rain a serious issue
2. nitric acid in rainwater is an important source of fixed nitrogen
3. the main source of acid-producing gasses is found in wetlands
4. corrosion of steel structures leads to the formation of acid rain chemicals

**18. It is mentioned in the passage that.....**

1. lightning strikes produce sulfur and nitrogen dioxides
2. vegetation near any volcano causes irritation to the eyes
3. acid-producing gasses may be produced even in water
4. any form of precipitation is acidic pH (lower than two)



**19. The passage points to the fact that.....**

1. electrical activities such as lightning consume the nitric acid in the atmosphere
2. sulfur dioxide emissions have been controlled earlier than nitrogen oxide
3. one of the craters of Poás Volcano create extremely high amounts of acid rain
4. emissions of nitrogen oxides form nitric acid and two other nitric compounds

**20. The word 'fumarole' in the passage (underlined) is.....**

1. the foot of a volcano
2. harmful volcanic gases
3. an opening in or near a volcano
4. the activity of a volcano

**PASSAGE 2**

Nonpoint source (NPS) pollution refers to both water and air pollution from diffuse sources. Nonpoint source water pollution affects a water body from sources such as polluted runoff from agricultural areas draining into a river, or wind-borne debris blowing out to sea. Nonpoint source air pollution affects air quality from sources such as smokestacks or car tailpipes. Although these pollutants have originated from a point source, the long-range transport ability and multiple sources of the pollutant can make it a nonpoint source of pollution. Nonpoint source pollution can be contrasted with point source pollution, where discharges occur to a body of water or into the atmosphere at a single location. NPS may derive from many different sources with no specific solution may change to rectify the problem, making it difficult to regulate. Nonpoint source water pollution is difficult to control because it comes from the everyday activities of many different people, such as fertilizing a lawn, using a pesticide, or constructing a road or building. It is the leading cause of water pollution in the United States today, with polluted runoff from agriculture the primary cause. Other significant sources of runoff include hydrological and habitat modification, and silviculture. Contaminated stormwater washed off parking lots, roads and highways, and lawns (often containing fertilizers and pesticides) is called urban runoff. This runoff is often classified as a type of NPS pollution. Some people may also consider it a point source because many times it is channeled into municipal storm drain systems and discharged through pipes to nearby surface waters. However, not all urban runoff flows through storm drain systems before entering water bodies. Some may flow directly into water bodies, especially in developing and suburban areas.

**21. We may understand from the passage that.....**

1. water pollution is the primary cause of disease in some countries
2. car tailpipe emissions are not by definition an NPS type of pollution
3. urban runoff flow entirely through storm drain systems
4. hydrological and habitat modification are significant sources of runoff

**22. According to the passage,.....**

1. compared to pesticides, pollution from fertilizing is easily controllable
2. water in rural areas flows directly into developing and suburban areas
3. wind-borne debris drain into polluted runoff from agricultural areas
4. both urban and agricultural runoff are the sources of NPS pollution

**23. The passage mentions that in NPS pollution pollutants.....**

1. are not discharged into the atmosphere at a single location
2. water pollution from diffuse sources also pollutes clean water
3. are seldom discharged through pipes to surface waters
4. in NPS discharges occur into the atmosphere at two related locations

**24. It is stated in the passage that.....**

1. stormwater washed off lawns are not usually contaminated
2. pollutants originate from a point source, the long-range transport ability and multiple sources of the pollutant can make it a nonpoint source of pollution.
3. road construction is a source of nonpoint source pollution
4. small bodies of water are not usually affected by NPS pollution

**25. The word 'silviculture' in the passage (underlined) is closest to.....**

- |            |              |
|------------|--------------|
| 1. 'lawns' | 2. 'forests' |
| 3. 'farms' | 4. 'gardens' |

**PASSAGE 3**

Overexploitation, also called overharvesting, refers to harvesting a renewable resource to the point of diminishing returns. Sustained overexploitation can lead to the destruction of the resource. The term applies to natural resources such as: wild medicinal plants, grazing pastures, game animals, fish stocks, forests, and water aquifers. In ecology, overexploitation describes one of the five main activities threatening global biodiversity. Ecologists use the term to describe populations that are harvested at a rate that is unsustainable, given their natural rates of mortality and capacities for reproduction. This can result in extinction at the population level and even extinction of whole species. In conservation biology the term is usually used in the context of human economic activity that involves the taking of biological resources, or organisms, in larger numbers than their populations can withstand. The term is also used and defined somewhat differently in fisheries, hydrology and natural resource management. Overexploitation can lead to resource destruction, including extinctions. However it is also possible for overexploitation to be sustainable, as in some fisheries. In the context of fishing, the term overfishing can be used instead of overexploitation, as can overgrazing in stock management, overlogging in forest management, overdrafting in aquifer management, and endangered species in species monitoring. Overexploitation is not an activity limited to humans. Introduced predators and herbivores, for example, can overexploit native flora and fauna. Overexploitation need not necessarily lead to the destruction of the resource, nor is it necessarily unsustainable. However, depleting the numbers or amount of the resource can change its quality. For example, footstool palm is a wild palm tree found in Southeast Asia. Its leaves are used for thatching and food wrapping, and overharvesting has resulted in its leaf size becoming smaller.

**26. It is stated in the passage that.....**

1. fisheries have solid mechanisms for sustainable overexploitation
2. overexploitation is in most cases necessarily unsustainable
3. humans, like most predators, overexploit nature's flora and fauna
4. overexploitation can lead to a decrease in the quality of a resource

**27. We may understand from the passage that.....**

1. biological resources put pressure on organism populations
2. resource destruction is not equal to extinctions
3. footstool palm is a wild palm tree in Southeast Asia
4. overexploitation is not an issue in scientific hydrology

**28. According to the passage, .....**

1. extinction at the population level results in extinction of species
2. herbivores may harm the environment as humans do
3. harvested populations generally have higher levels of mortality
4. overharvesting often occurs for thatching and food wrapping

**29. The passage points to the fact that.....**

1. conservation biology is an essential branch of human economic activity
2. overdrafting includes different types of overgrazing and overlogging
3. overexploitation of water aquifers is a threat to global biodiversity
4. overexploitation is the most dangerous activity threatening global biodiversity

**30. The word 'withstand' in the passage (underlined) means.....**

- |            |          |
|------------|----------|
| 1. 'take'  | 2. 'get' |
| 3. 'bring' | 4. 'set' |

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25	2
26	4
27	2
28	2
29	3
30	1

- 1- Ted's father seems eccentric; he is frequently observed behaving in an \_\_\_\_\_ manner.  
1) enthusiastic      2) adept      3) enduring      4) unconventional
- 2- The \_\_\_\_\_ of scientific thinking has institutionalized the idea that knowledge has to progress and can do so only through research.  
1) artifact      2) advent      3) oversight      4) renown
- 3- Paul \_\_\_\_\_ the fact that his closest friend didn't trust him.  
1) resented      2) procured      3) notified      4) raised
- 4- Jill's dinner parties quickly became monotonous on account of her \_\_\_\_\_ for Mexican dishes.  
1) dispersal      2) flavor      3) penchant      4) rumor
- 5- When participating in a yoga class, Katarina attains a placid state; the \_\_\_\_\_ music and soft lighting invoke a serenity that is otherwise lacking in her frenzied existence.  
1) uproarious      2) sporadic      3) soothing      4) skyrocketing
- 6- Eighteenth-century urban dwellers lived in much worse conditions than their modern \_\_\_\_\_.  
1) mediators      2) residents      3) rivals      4) counterparts
- 7- However, many couples who have been unable to have children are, understandably, \_\_\_\_\_ to adopt mentally handicapped children.  
1) reluctant      2) insufficient      3) benevolent      4) fallacious
- 8- One of our students was unable to \_\_\_\_\_ her wheelchair up the ramp.  
1) enhance      2) propel      3) salvage      4) initiate
- 9- After the organization aided the catastrophe victims, it was given an award for \_\_\_\_\_.  
1) innovation      2) conciliation      3) lavishness      4) altruism
- 10- Although many women had little control over their own lives in medieval England, Margery Kempe's fifteenth-century autobiography \_\_\_\_\_ a remarkable degree of autonomy.  
1) compromises      2) negates      3) manipulates      4) demonstrates

Since antiquity, human beings (11) \_\_\_\_\_ are spread far and wide in the universe. Only recently (12) \_\_\_\_\_ come to understand the nature of life on Earth and (13) \_\_\_\_\_ life exists elsewhere. Recent discoveries of planets (14) \_\_\_\_\_ other stars and of possible fossil evidence in Martian meteorites have gained considerable public acclaim. And the scientific case for life elsewhere has grown stronger (15) \_\_\_\_\_ the past decade. There is now a sense that we are verging on the discovery of life on other planets.

- 11- 1) would have imagined      2) had imagined  
3) have imagined      4) imagined
- 12- 1) science has      2) has science      3) science had      4) is science
- 13- 1) it is possible      2) it is the possibility of  
3) that is possible for      4) the possibility that
- 14- 1) orbiting      2) orbit      3) orbited      4) they orbit
- 15- 1) while      2) than      3) during      4) from

The plastic hinge concept postulates that the cross-section of a member subjected to axial force and bending can have only two states: (1) completely elastic if the maximum stress is equal to or less than the yield stress, or (2) fully plastic under a distribution of tensile and compressive stresses equal in magnitude to the yield stress that equilibrates the forces on the section. The latter case defines a plastic hinge, a section that can undergo indefinite plastic strain under these forces if it is not constrained by the resistance of the remainder of the system.

16- If the stresses in some parts of a member cross section exceed the yield limit, that section is considered as ----- in simple plastic analysis.

- 17- If the deformation of a plastic hinge is not limited by other elements in a structure, -----

- 18- In the last paragraph, the underlined “that configuration” refers to:

- 19- The accurate location of plastic hinges in a mechanism -----

- 20- Which of the following statements best replaces the statement “admit departure form” in the last paragraph?

- 1) accept variations of
- 2) let the displacements increase in
- 3) allow for change of
- 4) allow for the beginning of

In the usual building the floor system (beam and slabs) is assumed to be rigid in the horizontal plane, and lateral loads are assumed to be concentrated at the floor levels. Floor slabs and girders acting together provide considerable resistance to lateral forces. Investigation of steel buildings that have withstood high wind forces have shown that the floor slabs distribute the lateral forces so that all of the columns on a particular floor have essentially equal deflection as long as twisting of the structure does not occur. When lateral forces are particularly large as in very tall buildings, or where seismic forces are being considered, certain specially designed walls may be used to resist large parts of the lateral forces.

- 21- Based on the passage, select the most accurate statement.  
1) Rigid floor system help reduce twisting of the building.  
2) Specially designed walls are needed to resist lateral forces.  
3) Floor system consisting of beams and slabs can be assumed as rigid.  
4) Most building floor systems have negligible deformations in their plane.
- 22- In the above passage, "acting together" means:  
1) acting as a unit  
2) deforming together  
3) resisting forces together  
4) acting within the same floor system
- 23- In the last sentence, the "specially designed walls" refers to:  
1) bearing walls  
2) retaining walls  
3) shear walls  
4) structural wall
- 24- Select the most accurate statement:  
In order to have equal column deflections on a particular floor:  
1) the structure must be symmetric.  
2) twisting of floors must be prevented.  
3) floors must be rigid and torsion must not occur.  
4) floors must be rigid and columns must be symmetric.
- 25- Which is the best technical expression for the below statement:  
"The floor system is assumed to be rigid in the horizontal plane"  
1) Pedestal  
2) Platform  
3) Stiff- berm  
4) Diaphragm
- 26- Ordinary buildings may sustain some ----- in strong earthquakes, but they designed to prevent ----- during these events.  
1) deformation, Plasticity  
2) damage , collapse  
3) vibration , damage  
4) deformation , collapse
- 27- Cofferdams are temporary structures that are used to ----- the flow of the river.  
1) divert  
2) relocate  
3) replace  
4) stop
- 28- In saturated sandy soils if the pore water pressure is -----, the soil substantially loses strength and stiffness, causing it to behave like a liquid.  
1) eliminated  
2) greater than soil pressure  
3) reduced to very small amounts  
4) great enough to carry all load



29- In reinforced concrete, the breakage of material from the member surface due to stress or inadequate cover is called -----

- 1) bending                      2) spalling                      3) shear cracking                      4) surface fracture

30- A drainage basin is an area of land where surface water from rain and melting snow or ice converges to a single point, which is usually the exit of the basin.

- 1) goes to                      2) passes through                      3) drains through                      4) accumulates in



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21	4
22	1
23	3
24	3
25	4
26	2
27	1
28	4
29	2
30	3

**1-One of a class of animals often having wings called:**

- |         |           |           |          |
|---------|-----------|-----------|----------|
| 1. lion | 2. fungus | 3. insect | 4. tiger |
|---------|-----------|-----------|----------|

**2-Phenomena are natural:**

- |           |            |           |            |
|-----------|------------|-----------|------------|
| 1. bodies | 2. sources | 3. events | 4. species |
|-----------|------------|-----------|------------|

**3-Reproduction:**

- |   |                            |
|---|----------------------------|
| 1. is the natural increase of living things | 2. is a non-living thing   |
| 3. means basic substance                    | 4. is a unit of protoplasm |

**4-Protoplasm consists of a special ..... of elements.**

- |         |                  |          |                |
|---------|------------------|----------|----------------|
| 1. part | 2. living things | 3. means | 4. combination |
|---------|------------------|----------|----------------|

**5-Release means:**

- |             |          |            |             |
|-------------|----------|------------|-------------|
| 1. set free | 2. place | 3. purpose | 4. increase |
|-------------|----------|------------|-------------|

**6-Almost all consumers are:**

- |           |            |           |              |
|-----------|------------|-----------|--------------|
| 1. plants | 2. animals | 3. stones | 4. producers |
|-----------|------------|-----------|--------------|

**7-Category is:**

- |                     |                                    |
|---------------------|------------------------------------|
| 1. name a plant     | 2. language of ancient Rome        |
| 3. stone- like seed | 4. a class in a system of grouping |

**8-The plum and peach belong to the same .....:**

- |          |            |           |            |
|----------|------------|-----------|------------|
| 1. genus | 2. species | 3. animal | 4. variety |
|----------|------------|-----------|------------|

**9-The sun"s rays are a major source of .....:**

- |           |            |         |           |
|-----------|------------|---------|-----------|
| 1. shadow | 2. disease | 3. soil | 4. energy |
|-----------|------------|---------|-----------|

**10-Carbohydrates:**

1. are different flowers
2. can be obtained from iron
3. are used as the basic substance in plant food
4. are simple elements

11- **Hunter is:**

- |                               |   |
|-------------------------------|---|
| 1. an area in Asia and Africa | 2. one who goes after wild animals for food |
| 3. a river flowing from Japan | 4. a kind of carbon dioxide                 |

12- **Domesticate means:**

- |                                     |                            |
|-------------------------------------|----------------------------|
| 1. adapt to human living conditions | 2. right for the purpose   |
| 3. having good health               | 4. plant with a sweet root |

13- **Which word refer to the environment?**

- |          |            |            |            |
|----------|------------|------------|------------|
| 1. alter | 2. product | 3. hectare | 4. habitat |
|----------|------------|------------|------------|

14- **Soil which is ..... produces good crops.**

- |              |              |            |                  |
|--------------|--------------|------------|------------------|
| 1. fertilize | 2. fertility | 3. fertile | 4. fertilization |
|--------------|--------------|------------|------------------|

15- **The barometer measures:**

- |                         |                  |
|-------------------------|------------------|
| 1. atmospheric pressure | 2. wind speed    |
| 3. evaporation          | 4. transpiration |

16- **Forecast means:**

- |                         |                        |
|-------------------------|------------------------|
| 1. damage to crops      | 2. predict the weather |
| 3. atmospheric humidity | 4. farming operations  |

17- **The basic framework of a soil is its ..... or mineral matter.**

- |            |              |            |          |
|------------|--------------|------------|----------|
| 1. organic | 2. inorganic | 3. content | 4. water |
|------------|--------------|------------|----------|

18- **Soils which ..... a large percentage of small particles are called clay soils.**

- |            |            |            |             |
|------------|------------|------------|-------------|
| 1. context | 2. content | 3. contain | 4. conclude |
|------------|------------|------------|-------------|

19- **The main axis of a plant supporting or connecting plant parts is .....**

- |         |         |         |         |
|---------|---------|---------|---------|
| 1. root | 2. stem | 3. leaf | 4. vein |
|---------|---------|---------|---------|

20- **At the end of growing season, the ..... leaves and stems are incorporated with the soil.**

- |        |          |         |         |
|--------|----------|---------|---------|
| 1. die | 2. death | 3. died | 4. dead |
|--------|----------|---------|---------|

21- **Diminish means:**

- |                           |                  |
|---------------------------|------------------|
| 1. become bigger          | 2. become larger |
| 3. become less or smaller | 4. become faster |

22- **Soil is a ..... in which microbes can live.**

- |        |          |           |           |
|--------|----------|-----------|-----------|
| 1. air | 2. earth | 3. planet | 4. medium |
|--------|----------|-----------|-----------|

23- **In arid climates, soil is eroded mainly by .....**

- |         |            |             |             |
|---------|------------|-------------|-------------|
| 1. wind | 2. grazing | 3. moisture | 4. humidity |
|---------|------------|-------------|-------------|

24- **Terracing:**

1. consists of shrubs on sloping land
2. consists of stones on sloping land
3. consists of making steplike areas on sloping land
4. consists of sloping areas on steepy land

25- **The presence of organic material has a great ..... on the ability of the soil to hold water.**

- |           |           |              |                |
|-----------|-----------|--------------|----------------|
| 1. effect | 2. number | 3. effective | 4. effectively |
|-----------|-----------|--------------|----------------|

26- **Stalk is:**

- |                             |               |
|-----------------------------|---------------|
| 1. seed coat                | 2. network    |
| 3. stem of a leaf or flower | 4. angiosperm |

27- **Frost and drought:**

- |                    |                          |
|--------------------|--------------------------|
| 1. absorbs water   | 2. kill tender seedlings |
| 3. send oxygen out | 4. are flowering plants  |

28- **Trap means:**

- |             |                   |               |                 |
|-------------|-------------------|---------------|-----------------|
| 1. dormancy | 2. catch and hold | 3. frost free | 4. dormant seed |
|-------------|-------------------|---------------|-----------------|

29- **Even if conditions are favorable,.....seeds will not germinate.**

- |           |         |          |           |
|-----------|---------|----------|-----------|
| 1. frozen | 2. hard | 3. black | 4. medium |
|-----------|---------|----------|-----------|

30-Acre is:

1. a green pigment
2. more than half a hectare
3. equal to about a hectare
4. equal to about 4000 squar meters

1				X	ج
2			X		ج
3	X				الف
4			X		د
5	X				الف
6		X			ب
7				X	د
8	X				الف
9				X	د
10			X		ج
11		X			ب
12	X				الف
13	X				د
14	X				ج
15	X				الف
16			X		ب
17	X				ب
18	X				ج
19		X			ب
20				X	د
21			X		ج
22			X		د
23	X				الف
24			X		ج
25		X			الف
26					ج
27	X				ب
28			X		ب
29	X				الف
30				X	د