

Final revision for first prep .

First Term

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Give reason:**1. Water is not used to extinguishing petrol fires**

Because the density of petrol is lower than that of water so, petroleum oil will float in water surface.

2. Equal masses of different substances have different volume

Because of their different densities

3. Sodium and potassium are kept under kerosene

To prevent their reaction with the oxygen of the atmospheric air

4. Silver and platinum used in manufacture of jewelries

Due to they are inactive metals so, they keep their metallic luster for long time

5. It is difficult to fragmentize a piece of iron, but it is easy to divide amount of water.

Because the attraction force among the molecules of iron is very strong while among molecules of water is weak .

6. Liquid take the shape of its container.

Because the intermolecular spaces among its molecule is relatively high

7. Solid matter changes into liquid by heating

Because the molecules of the solid matter gains heat energy ,so their speed increase and on melting temperature the molecules overcome the molecular attraction force so they will convert into liquid

8. The molecule of oxygen is an element while that of hydrogen chloride is a compound

Because the molecule of oxygen is composed of two similar atoms while hydrogen chloride is composed of two different atoms

9. The nucleus of the atom is positively charged

Because it contains of positive protons and neutrons electrically charged

10. The atomic mass is always more than the mass number

Because the mass number equals summation of number of protons and neutrons inside the nucleus while the atomic number is the number of protons only

11. The third energy level is saturated with 18 electrons

That is according to the relation $(2n^2)$ where $(n) = 3$

12.The relation $(2n^2)$ is applied only on the first four energy levels

Because the atom will be unstable if the energy level contains more than 32 electrons

13.The electrons filled the energy level (K) before (L)

Because the energy of the energy level (K) is lower than that of (L)

14.The inert elements can't share in the chemical reaction in the ordinary temperature

Because their outermost energy level is completely filled with electrons

15.The mass of the atom is concentrated in the nucleus

Because the mass of the electron is negligible in relative to the mass of the protons and neutrons

16.The value of weight of a body is differ from its mass

Because the weight of the body equals its mass \times the gravity acceleration

17.The potential energy of a body decreases gradually on falling to the ground

Due to the decreasing of the height of the body decrease gradually and ($P.E=w \times h$)

18. Although on falling of the body to the ground and its potential energy decreases but, its mechanical energy remain constant

Because the decreases in the potential energy of the body = increases in its kinetic energy

19.On dipping two plates of copper in dilute sulphuric acid , it is not represent simple cell

Because the electric simple cell composed of two different metals immersed in dilute acid

20.Sunrays transfers by radiation

Because it doesn't need a medium for transferring

21.Spider is not from insects although connection of its body with jointed legs

Because it contains 4 pairs of jointed legs while the insects contains 3 pairs of jointed legs

22.Secreting of sweat is considered functional adaptation

Because it includes the ability of the organ to do specific function

23.The modification of the forelimbs of mammals

To perform their motion

24.Modification occurs in the beaks and legs of birds

According to the food type ,the way of movement and environmental conditions

25.Predatory able to bend to control pouncing the prey

Because their four fingers end in strong and sharp claws

Write the name for each of the following symbol :

N - K - Cu - O - Br - Zn - F - Au - Mg -
Mn - Ba

Nitrogen - potassium - copper - oxygen- bromine zinc - fluorine - gold -
Masgnesium -manganese -barium

Write scientific term :

1. The mass of unit volume of the matter (**density**)
2. Elements reacts with oxygen on exposing to humid air (**very active metals**)
3. The spaces among molecules of the matter (**intermolecular spaces**)
4. The simplest form of matter which can't be analyzed(**element**)

5. Particles affected on the mass of the atom but don't affected on its charge(**neutrons**)
6. The amount of energy lost or gained by the electron to transfer from one energy level to another (**quantum**)
7. The amount of energy equals the difference between the energy of two levels (**quantum**)
8. In active gases in the ordinary conditions (**Nobel gases –inert gases**)
9. The atom which gain an amount of energy (**excited atom**)
- 10.The stored energy in an object due to work done on it (**potential energy**)
- 11.A form of energy transfers from higher temperature object to lower temperature object (**heat energy**)
- 12.Way of transferring heat through electric wires (**conduction**)
- 13.Transferring of heat energy through gases and liquids (**convection**)
- 14.Terrestrial plants reproduce by formation of spores (**ferns**) (**voughair and Adiantum**)
- 15.Plants their seeds are formed inside cones (**Gymnosperms**)
- 16.Branch of biology searching the similarities and differences among living organisms (**Taxonomy**)
- 17.The group of similar living organisms in shape that can reproduce to give birth of new fertile individual(**species**)
- 18.Adaptation studies the structure of one body organ (**structural adaptation**)
- 19.Adaptation of some organs and tissues to do a specific function (**functional adaptation**)

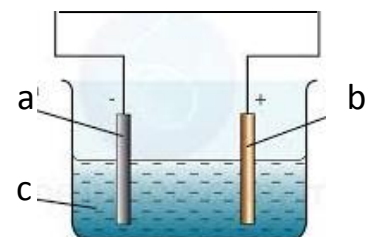
What happens when :

1. **Using of water inn putting out petrol fires**
The petrol floats on water surface, so fires don't put out
2. **Iron nail moisten by water is exposed to air for several days**
It rust due to the reaction with atmospheric oxygen
3. **Putting some of table salt in water**
The molecules of table salt spread throughout the intermolecular spaces among water molecules
4. **The nucleus of an atom doesn't contain neutrons**
The atomic number of the atom is equal the mass number
5. **A number of protons changes**
The charge of the nucleus change, and the atomic and the mass number change so, the element will change into another element
6. **The electron gains a quantum of energy .**
It transfers to higher level
7. **An exited atom loses a quantum of energy.**
The electron returns back to its original position in the normal atom

8. **Doubling the weight of an object (in relative to its potential energy)**
The potential energy doubled
9. **Dipping two different metals connected with a wire in acidic solution**
An electric current is produced
10. **Rubbing your hands together.**
Mechanical energy changes into heat energy by friction
11. **You fix the freezer in the lower part of the fridge**
The lower part of the fridge only is cooled, because the cooled air (of high density) doesn't rise up .
12. **The way of transferring heat in presence of medium or no medium .**
Radiation.
13. **Camels have strong hoofs at the end of their limbs**
They become unable to walk on hot desert sand
14. **The forelimbs of whales are not modified into fin-like structure**
The become unable to swim and dive
15. **The beaks of predatory birds are weak**
They become unable to tear the flesh of preys
16. **Predatory plants cannot capture insects for long time**
They can't get their needed proteins
17. **Elodea plants doesn't have air chambers**
The plant can't store the oxygen producing from the photosynthesis process
18. **Roots of desert plant are short**
It can't get water from the humid layers in soil.
19. **Stems of cactus plant are weak and long**
They will be broken by strong winds
20. **The temperature of the body of camel rises to 40° C**
It starts sweating.

From the opposite figure answer the following questions:

1. Mention the name of the opposite device
2. Mention the idea of its operation.
3. Label the figure



What is the meant by :**1. Melting point:**

It is the temperature which the solid start begins to change into liquid state.

2. Potential energy of an object is 30 joules

The stored energy in the object due to work done on it is 30 joules

3. The work done during motion of an object is 50 joules

The kinetic energy of this object is 50 joules

4. The potential energy of an object = zero

The object is at the ground

5. Element its atomic number equal its mass number

The nucleus of this element doesn't contain neutrons.

6. Exited atom :

The atom that gains a quantum of energy.

7. Conservation law of energy :

Energy neither created nor destroyed but it converts from one form to another

Give reasons for :

1. Equal masses of different substances have different volume.
2. The atom is electrically neutral .
3. The mass of the atom is concentrated in the nucleus.
4. When an object moves horizontally, its potential energy doesn't change.
5. Wheat plant is an angiosperm.
6. The forelimbs of bat are adapted to be wing

Write the symbols of the following elements

Sodium ...(Na)..... chlorine ...(Cl).... Potassium ...(K)... Nitrogen ...(N)... calcium (Ca)...

Phosphorus ...(P)... Aluminum...(Al)... silver ...(Ag)... mercury...(Hg)... hydrogen (H) Helium(He)

Write the electronic structure of the following elements :

23	40	24	4	32	27	31	35	
Na	Ca	Mg	He	S	Al	P	Cl	then:
11	20	12	2	16	13	15	17	

1. Indicate the number of electrons in the outer level in each atom.
2. Calculate the number of neutrons in each atom.

Write the relation by which you can find each of the following :

1. Number of the electrons in each energy level.
2. Density - potential energy for an object - Kinetic energy .

Mention one difference between :

1. Atomic number and mass number
2. Electron and proton

3. Insects and spiders.
4. Rabbit and squirrel
5. Atomic molecule and Diatomic molecule
6. Angiosperm and gymnosperm
7. Mussel and fish
8. Insects and Arachnids
9. Maize plant and wheat plant
10. Sodium and iron (in according to chemical activity)
11. Water molecule and ammonia molecule.
12. Heat transfer by conduction, by convection and by radiation

Choose the odd word and write the scientific term of it and of the rest :

1. Palm- vougheir – Adiantum – ferns
2. $_{10}\text{Ne}$ - $_{17}\text{Cl}$ - $_{8}\text{O}$ - $_{3}\text{Li}$
3. Iron molecule – Magnesium molecule – Hydrogen molecule – Copper molecule
4. Wheat – palm – Bean – Brown algae .
5. Armadillo – Lion – Hedgehog – Tiger.
6. Amoeba – Cockroach – Paramecium – Euglena
7. Locust – Mosquito – Spider – Flies – Cockroach
8. Elodea - Opuntia - Cactus - Calamagrostis

Point	odd word	Name of the rest

Problems :

1. A ball is thrown vertically to reach 20 m .height ,if the weight of the ball is 5 N ,calculate its potential energy at :
 - The height point
 - at the ground
 - at the mid-point
2. A piece of metal with 40 gm was immersed in a graduated cylinder having 60 cm^3 water , the level of water increased to 80 cm^3 .find its density

3. A boy threw a ball of mass 0.1 kg upwards vertically .it reached a maximum height of 2 m .Find the work done by the boy and the potential energy and kinetic energy of the ball at the highest point ($g=10\text{m/sec}^2$)

Mr. Alaa