

19 July 2022

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Day: \_\_\_\_\_

Name Nareem Ullah

Batch #038 LMSI 27688

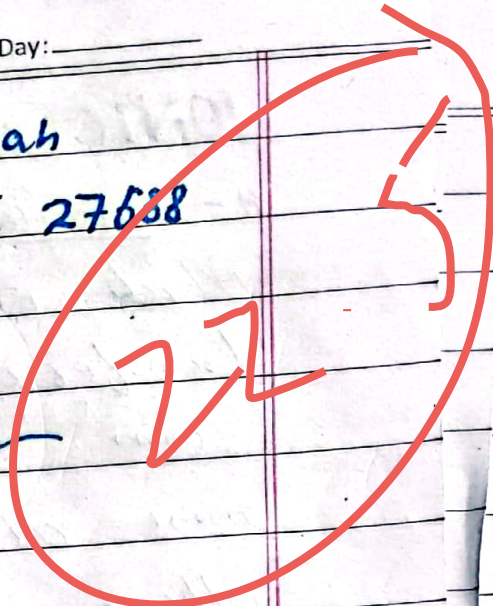
### General Instructions

1. Give numbering to headings
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings.
3. Do not use table for comparison and contrast questions.
4. Draw figures, diagram/flowchart where needed.
5. Start new question from fresh page.
6. Write unit of the answer in ability section.
7. Explain mathematical steps and the reasoning for a better score.
8. Change colour scheme for references to give them more visibility.
9. Manage time well.
10. Wide page borders are discouraged. Should be reasonable.
11. Avoid writing wrong references.
12. Give more weightage to expressedly asked parts of the question.

PART II  
SECTION-A  
Show diagrammatically how an ionic bond and a covalent bond is formed?

Introduction  
Ionic bond is a chemical bond which is formed by a complete transfer of an electron from one atom to another while a covalent bond which is formed by which is formed by the mutual sharing of electrons between the atoms is called covalent bond. Atom forms bond for stability.

Lets show how they form one by one.





# IONIC BOND

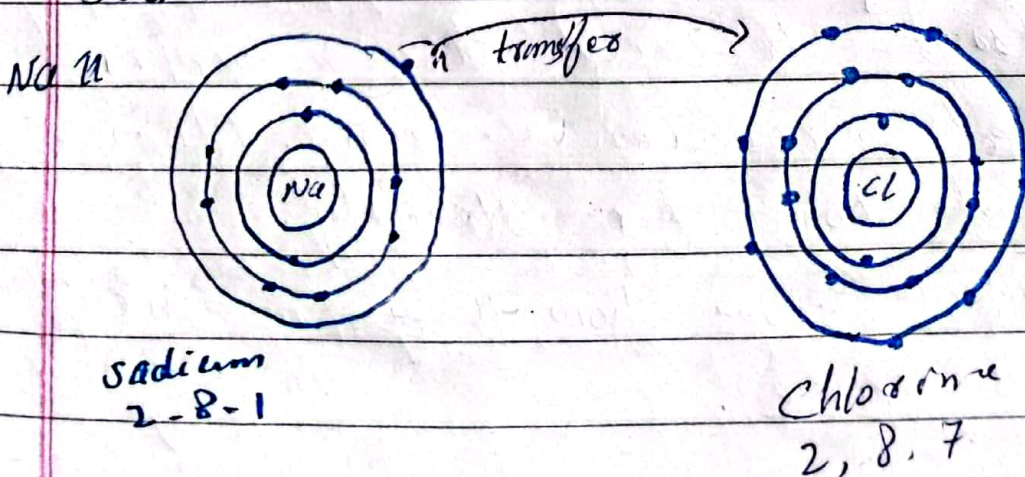
A- Introduction A chemical bond which is formed by the complete transfer of an electron from one atom to another. One atom or more atoms lose electron and other atoms gain them in order to produce noble gas electronic configuration. The bond is called an ionic bond.

B- Why bond is formed?

Bond is formed for stability.

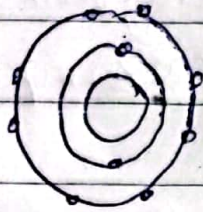
C- Diagram of ionic bond:

In order to give an example with diagram of ionic bond, let's consider the example of sodium chloride.

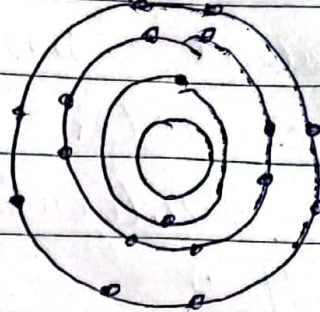




Sodium will get rid of an electron in order to become stable.



sodium



Chlorine.

0 - Explanation:

2, 8, 8

As it already pointed out that ionic bond is formed by a complete transfer of electron from one atom to another, so here in the above diagram sodium has transferred one electron to chlorine and formed ionic bond.

## COVALEN BOND

### Introduction -

Covalent bond is formed by the mutual sharing of electrons between two or more atoms. In other words, a type of ~~chemical bond~~ chemical bond wherein two or more atoms share one or more electron pairs.

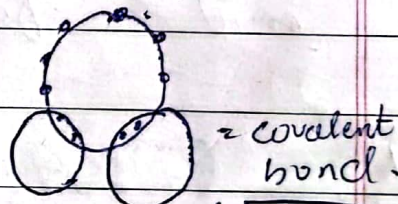
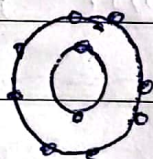
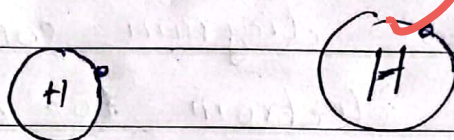
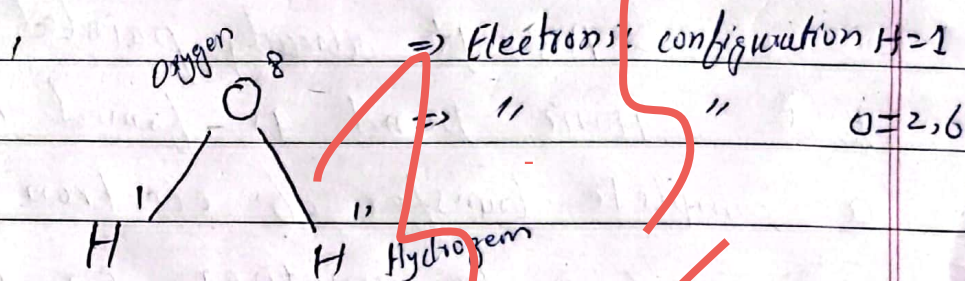


### B - Diagram =

In order to give an example of covalent bond diagrammatically, let consider the example of water molecule.

$H_2O$  = water molecule

$Z^{\circ} = 8, Z^{\prime} = 1, Z^{\prime\prime} = 1$



### Explanation:

Water molecule.

Water molecule consists of two hydrogens and ~~eight~~ one oxygen. Hydrogens and oxygen will share electron mutually due to Octet rule. Hydrogens needs one electron in its outer shell and oxygen need two in its outermost shell, so they will mutually sharing electrons with each other in order to form covalent bond.



## Question 4. a

Artificial intelligence has revolutionized the World. Comment.

### Introduction

Artificial intelligence is a field of computer science that works on the development of machine and apps which would work like human beings.

~~Artificial~~

How Artificial intelligence revolutionized the world?

It has revolutionized the world in a sense that it brought drastic changes in every field of life. Its application can be found in every sphere of life. Artificial intelligence spread throughout the world and its use is common in every part of the world.



## Applications of Artificial Intelligence in different fields of life.

Artificial intelligence is used in every field of science like natural sciences, Robotics and cognitive science.

Apart from it, it is also used in daily life communication, time management, product purchase and marketing.

Furthermore, it is used in transportation, infrastructure and agriculture sectors.

### Conclusion:

In conclusion, it can be said that artificial intelligence revolutionized the world because of its use in every field of life which are mentioned above. It brought drastic changes in the world.



## Question No. 4-b

### Introduction:

Water is the worthy natural resource which is used in every sector of life. UNESCO Reports that water use has been increasing globally by roughly 1% per year over the last 40 years and expected to grow at a similar rate through 2050. Water will become expensive as rising demand from people.

UNESCO warned that four billion people experience severe water scarcity for at least one month each year. Due to this unfavorable concern, it needs effective measures for solution.

measure to deal with the issues of water scarcity.

Due to the increasing demand and its depletion of water, some concerted efforts-



should be taken to resolve the issue of water scarcity.

Suggestions for resolving the issue of water scarcity:

A- Building water channels to most irrigated areas.

The concerned authority needs to build water channels for controlling water scarcity issue.

B- Reduce water intensive crops:

Some crops requires more water than the other, so farmers should be ~~given~~ advised to ~~stop~~ <sup>switch</sup> the crops that need less water and drip irrigation.

C- Recycling.

For the resolution of issue of water scarcity efficient recycling is the obvious key.

- D- Controlling population growth
- E- Reducing industrial use of water
- F- construction of new dams.



## Question - 4 - C

### Introduction:

~~Definition~~

Vaccine is an immuno biological substance which protect people against harmful diseases and infection. There are different types of vaccines which include attenuated, killed, toxoid vaccine, conjugate vaccines.

### What is a vaccine ?

A vaccine ~~is~~ is a biological preparation that improves immunity to a particular disease. It contains agent that resembles the disease-causing micro-organisms. The agent stimulate the immune system to recognize the foreign agent which cause infection.

It kills the foreign agents who pose threat to human health.



## Different types of Vaccines.

These are different types of vaccines which protect human ~~eyes~~ health against infection by stimulating the immune system.

Other types?

Some of the common types of vaccines are the following:

→ **Attenuated**: It is a type of weakened live viruses which are used in measles, mumps, and rubella vaccines. It kills viruses.

→ **Toxoid vaccine**:

It contained an inactivated toxin produced by the bacterium.

→ **Conjugate vaccine** =

It contain parts of bacteria combined with proteins.

→ **Subunit vaccine** =

- part or product of microorganism  
e.g - hepatitis B vaccine

→ **Construction of new clones.**



## Question NO.2. b

### Introduction:

Carbohydrates are the human body's key source of energy, providing 3.9 calories of energy per gram. They help to form structural and protection component. ~~It has~~ Carbohydrates are classified into simple carbohydrates and complex carbohydrates.

### What are carbohydrates?

Carbohydrates are ideal source of energy for the body. They aid in regulation of nerve tissue and the energy source of for brain. Composed of organic compound like carbon, hydrogen and oxygen.



## Classification of Carbohydrates

Carbohydrates are classified into two type ~~ten~~ simple carbohydrates and complex carbohydrates.

### Simple carbohydrates:

Monosaccharides  
Disaccharide  
Polysaccharide

Simple carbohydrates are sugar based carbohydrates that give us a short burst of high energy that spikes our blood sugar making the body crave more and more ~~no~~ sugar.

e.g. Glucose, ~~lactose~~ Galactose and fructose.

### Complex carbohydrates

Complex carbohydrates are starch based carbohydrates which keep us fuller for longer and give the body longer lasting energy.

e.g. sucrose, lactose and maltose.



## Question No. 2. C

### A- Introduction

Water pollution is the contamination of water bodies. The introduction of something which has harmful effect on water is called water pollution. Common types of water pollution include Ground Water pollution, Natural pollution, suspended matter and chemical water pollution. Water pollution is caused by domestic waste, solid waste, industrial waste and acid rain.

### B- Water pollution.

Any change in the physical, chemical and biological properties of water which will have harmful effect on living thing called water pollution.

Water pollution is the contamination of water bodies such as lakes, rivers, oceans.



## Types of Water Pollution:

There are various types of water pollution some of the common types are the following:

### Ground water pollution

When chemical ~~from~~ fertilizers and pesticides contaminate ground water, it causes ground water pollution.

### Natural pollution

The pollution caused by bacteria and protozoa is called natural pollution.

### Suspended pollution

Some chemicals and other substances do not dissolve in water easily. These suspended particulate matters settle at the bottom of the water body harming aquatic life.

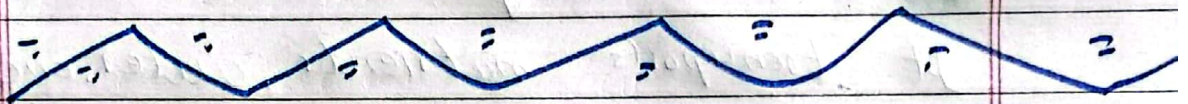
### Chemical Water pollution

Most of the industrial let-off and ~~or~~ chemical fertilizers used in farming mixed with water bodies, which make the soil infertile and kills aquatic life organisms.



## Causes of Water pollution.

Some of the common causes which contaminate water bodies are include domestic waste sewage system, solid waste Acid rain and industrial waste.



## Question No 2 - d

~~What~~

### Introduction:

The circulatory system is made up of various vessels and muscles that control the flow of the blood around the body. It plays an important role in the circulation of blood in human hearts. It is responsible for circulating blood in human body.



## B- What is circulatory system?

The circulatory system contains the heart and the blood vessels and moves blood throughout the body. It is mainly responsible for circulating the blood and for transporting materials throughout the entire body.

It transports nutrients, water, and oxygen to body cell.

### C => Components of circulatory system

The circulatory system consists of four major components: heart, arteries, veins, and blood.

Lungs?

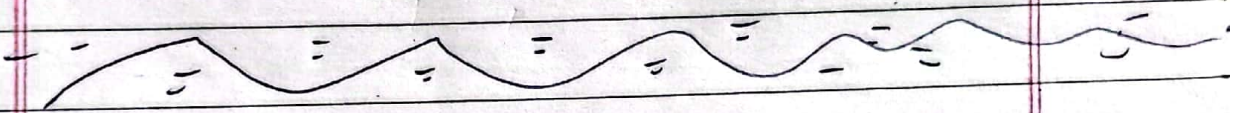
### D => Role of human heart in circulation of blood

Diagram?

The human heart plays important role in the circulation of blood. because it is the human heart which send blood throughout -



our bodies. The human ~~oxygen~~ heart carries oxygen to cell. It is divided into different parts, the right side of heart deal with Deoxygenated blood and the left side of heart deals with oxygenated blood.



### SECTION - B

Q. B - (d)

Find ~~the~~ the missing one:

- (i) 8, 4, 32, 7, 5 \_\_\_\_\_ (ii) 17, 19, 23, \_\_\_\_\_, 31, 37

Solution:

- (i) 8, 4, 32, 7, 5 35

Solution: In this series each next term is obtain by ~~the~~ multiplication of the two number.

- (ii) 17, 19, 23, 29, 31, 37.

In this series, it is the prime number starting from 17 to 37.