

# GSA PAPER (MOCK 2023)

## (SECTION - A)

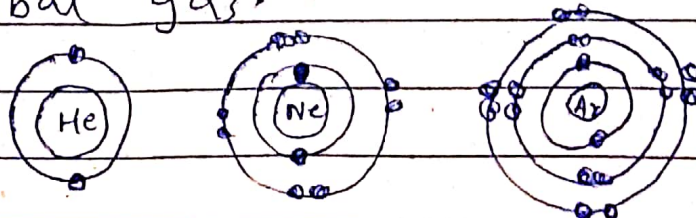
### → Question # 2 (a) :-

Chemical bond is the strong electrical force of attraction between the atoms or ions in the structure.

Atom form bond to make its outer electron shell stable as it maximizes the stability of an atom, as a result of sharing electron covalent bond forms resulted in highest stability of an atom.

Some noble gases don't form compound with other elements and exist as single atom other atom bond together to become stable.

**Octate rule**: the element gain or lose electrons to attain configuration of nearest global gas.

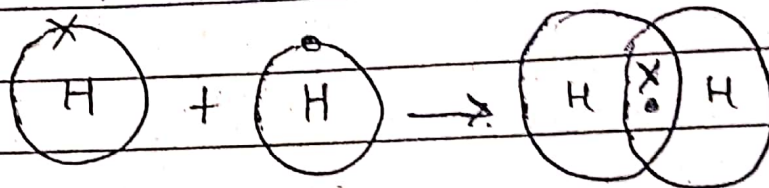


## COVALENT BOND :

A bond form from the mutual sharing of electron between the atom is called covalent bond

It is represented by a single line between atoms.

e.g:  $H - H$



(Hydrogen)

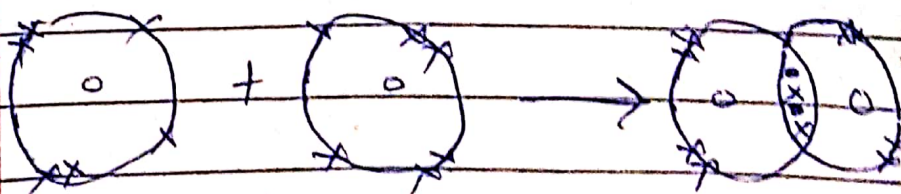


## Double - covalent bond :

Some atom can bond together by sharing two pairs of electron we call this a double covalent bond

It is represented by double line between atoms

e.g:  $O = O$



(Oxygen)



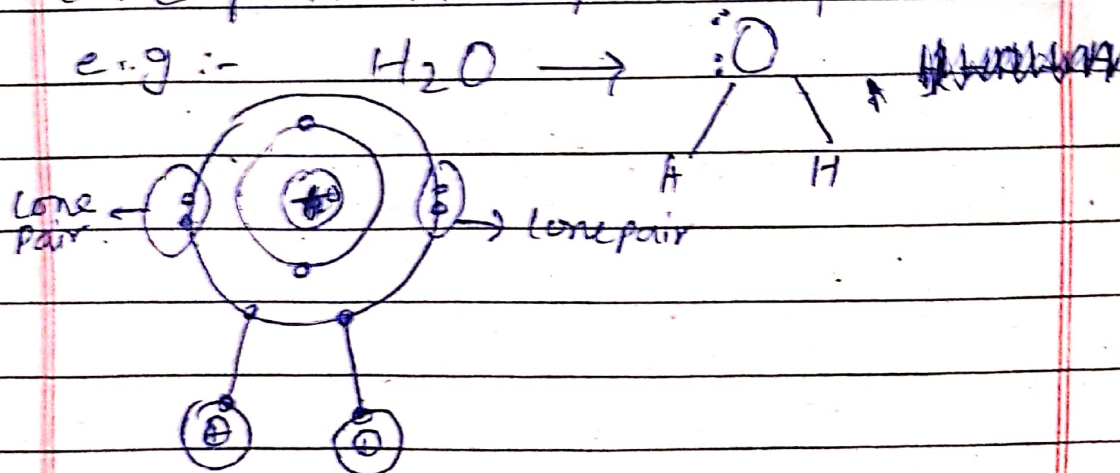
## Coordinate Covalent bond:

A bond formed by the donation of lone pair of electron from 1 atom to another is called Coordinate Covalent bond. It is represented by an arrow ( $\rightarrow$ ) from donor to acceptor atom.

e.g:  $\text{NH}_3$  (Ammonia)

## Q#2(b) :-

Water molecule is angular in structure due to its lone-pair lone pair repulsion.



Its angle is approximately  $105^\circ$

Q 2 \* (d)

## Cell structure :-

Cell is the unit of structure and function of all living things. It cannot be seen by a naked eye.

Cell is derived from Latin word 'cellula' means "little room".

## Cell organelles :-

There are many organelles present within a cell.

1. Endoplasmic reticulum
2. Ribosome
3. Lysosomes
4. Mitochondria
5. Nucleus
6. Golgi apparatus

## Ribosomes :-

These are roughly spherical shaped granules formed in nucleus.

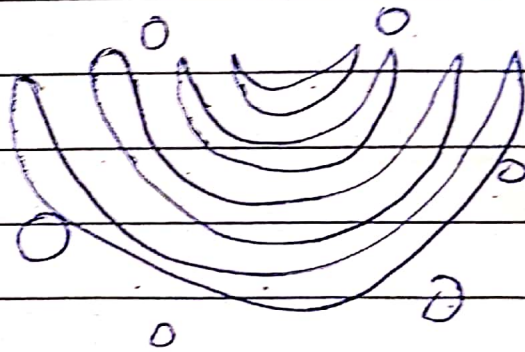
It is involved in protein synthesis.  
It is present in two forms

- a) freely dispersed in cytoplasm
- b) attached with RERs

## Golgi Complex :

It was discovered by Golgi  
It consist of vesicles and  
stacks of sacs are flattened. It is  
Complex structure with interconn  
tubules.

- The main function of golgi body is concerned with cell secretion.
- It synthesise protein at the RER transferred to the Complex
- It transport protein and enzymed outside the cell.



## Nucleus :-

Nucleus of cell is  
discovered by Robert brown  
The shape of nucleus is  
irregular or spherical.

It is present in the center  
of cell.

It is surrounded by a Nucleus  
membrane

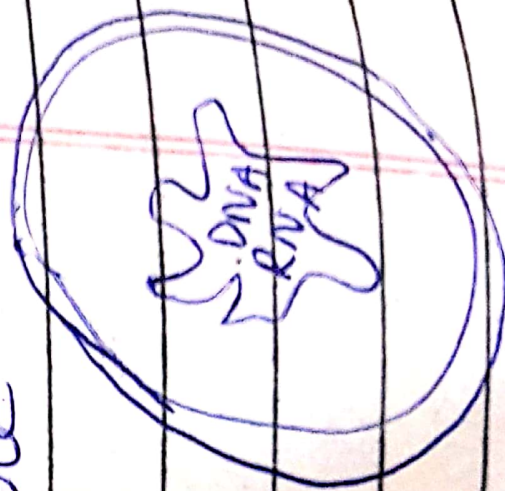
It contain one or more nucleol

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## functions:

1. Nucleus perform and control all activities of cell.
2. It transfer hereditary Characters from parents to Offsprings.
3. The 3 Types of RNA are synthesised in Nucleus.



# Polio:

It is an highly infectious viral disease. It mainly affects young childrens Afghanistan and pakistan never stopped transmission of polio.

## Symptom

paralysis  
fever

fatigue

headache

Vomiting

## Prevention

Immunization with polio vaccine is the best way to prevent polio.

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## Vaccines :

There are two types of Polio vaccine .

1. IPV (Inactivated polio vaccine)
2. OPV (Oral polio vaccine)



## → IPV and OPV :-

- Inactivated Polio vaccine (IPV) is given as an injection in leg or arm, depends on the age of child while (OPV) Oral polio vaccine is taken by mouth.

Inactivated Polio vaccine (IPV) is given at the age of Birth — 6 years.

## → Cause of Polio :-

People get infected with the virus through contaminated food and water.

It occurs in those areas

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where proper sanitation and hygiene is not available for example a contaminated water supply. It enters the body through mouth and passes through digestive tract to intestine.

## Carbohydrates :-

Carbohydrates are the chief source of energy.

It is mainly composed of atoms of Carbon, hydrogen and Oxygen.

It is the most abundant organic substances in nature.

The formula of Carbohydrates is  $C_m(H_2O)_n$ .

## Classification

Carbohydrates are mainly divided into four major groups.

1. Monosaccharide
2. Disaccharide
3. Oligosaccharide
4. Polysaccharide

### Monosaccharides :-

They are also known as simple sugars because they can't be hydrolyzed. They are subdivided into triose, tetrose, pentose, hexose etc.

Examples of Monosaccharides are glucose, fructose etc.

### Oligosaccharide :-

They are compound sugars. It yields 2 molecules of monosaccharide on hydrolysis. It is known as disaccharide.

General formula is  $C_n(H_2O)_{n-1}$  for disaccharide. Two monosaccharides can be linked together to form double sugar or Disaccharide.

### Polysaccharide :-

Polysaccharides are compound sugars and yield more than 10 molecules of monosaccharides.

Formula is  $(C_6H_{10}O_5)_n$

Examples are starch, glycogen etc.

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Poly saccharides are complex carbohydrates formed by the polymerization of large number of monomers.

## → Function of Carbohydrates :-

1. Carbohydrate are chief energy source in many animals, of energy. Glucose is broken down by glycolysis to yield ATP.
2. Stored carbohydrates act as energy source instead of protein.
3. It aid in regulation of nerve tissue and is the energy source for Brain.
4. It is stored as starch in plant and as glycogen in animals.
5. It get associate with lipid and protein to form antigens.

## → Importance of Preservative and Antioxidants in food :-

Food preservation is a method by which food is kept safe from spoilage after harvest.

The oldest methods are drying, refrigeration or fermentation while modern methods include canning, freezing and addition of chemicals.

Effective preservation of food can be done by heating, drying, cooling, sugar adding, salt and acid adding, smoking etc.

### Preservatives :

It prevents or slows down the growth of bacteria or fungi, so that food can be kept longer.

### Antioxidants :-

It slows down the oxidation of fat in food, which prevents oily or fatty food from becoming rancid.

## Two Parts of Nervous system :-

There are 2 parts of Nervous system

- 1- Central Nervous system (CNS)
- 2- Peripheral Nervous system (PNS)

CNS is ~~made up~~ <sup>consist</sup> of brain and spinal cord while cranial and spinal nerves form the peripheral nervous system.

Cranial nerves are attached to the brain and spinal nerves to the spinal cord.

Nervous system is the center of decision and communication in a body.

## Central Nervous system :-

It is a processing center for nervous system. It receives & sends information to peripheral nervous system.



# Human Brain :-

Brain is a <sup>main</sup> part of Central Nervous System.

Brain is made up of 3 parts :

Forebrain (Cerebrum, limbic, Thalamus)

Mid brain (

Hind brain (

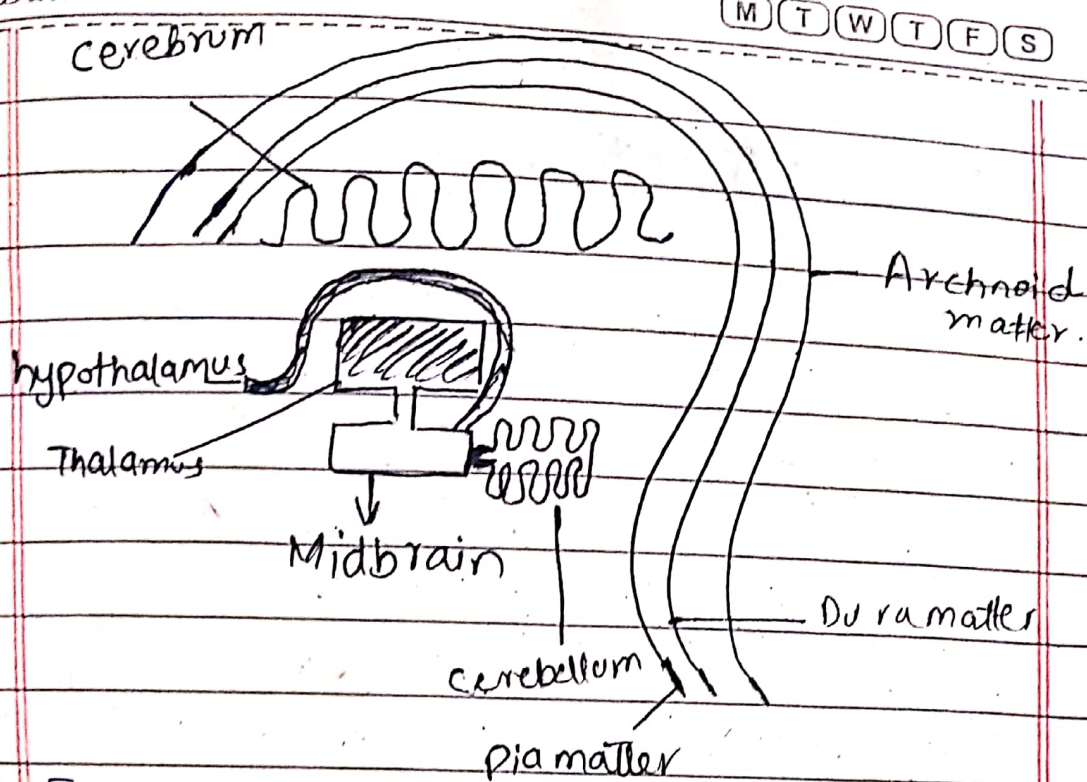
Forebrain is the frontal part of the brain. It is further divided into 3 parts.

Thalamus - which collect sensory information towards limbic system.

Limbic system is further divided into 3 parts → Hypothalamus, Amygdala, Hippocampus

Cerebrum is the largest part of Brain responsible for thinking and Judgement.

Mid Brain is a connecting brain between forebrain and hind brain. It is involved in controlling movement.



There are 3 kind of matters which are collectively called meninges.

- Arachnoid matter
- Dura matter
- Pia matter

It is a fluid filled part which function as to provide cushion to brain.

### 3- Hind Brain

It is further divided into 3 parts.

- a) Medulla oblongata responsible to control breathing, heart rate etc.
- b) PONS control the sleep pattern.
- c) Cerebellum responsible for memory storage.

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## Alzheimer Disease :-

It's a neurological disease in which the cells of brain die resulting in memory loss.

It is a common type of dementia.

Loss of connection occur between the nerve cells and neurons in the brain.

It is difficult for the patient to recognize people they know.

There is no proper treatment to this disease but it can be slowed through medications.

**Q # 8 (b)**

Solution:

If the code given for  
rose is 6821

Chair = 73456

Preach = 961473

Search will be = 214573

as, S = 2

e = 1

a = 4

r = 6

c = 7

h = 3

**Q # 7 (a)**

Given data :-

Ishaq can do a work in 6 hour

Abbass " " 4 hour

Irfan " " 8 hours

Ishaq 1 hour work =  $\frac{1}{6}$ Abbass " " =  $\frac{1}{4}$ Irfan " " =  $\frac{1}{8}$

$$\text{Q7(c) mean} = \frac{\text{Sum of values}}{\text{Total no. of values}}$$

$$\begin{aligned} \text{mean} &= \frac{18 + 18 + 19 + 19 + 19 + 21 + 21}{7} \\ &= \frac{135}{7} \end{aligned}$$

$$\text{mean} = 19.28$$

$$\text{Media} = \frac{n+1}{2}$$

$$= \frac{7+1}{2}$$

$$= \frac{8}{2}$$

$$= 4$$

So, the 4<sup>th</sup> value is 19

It is median.

$$\text{mode} = 19 \text{ (most frequent)}$$

$$\text{Range} = X_m - X_o$$

$$= 18 - 19$$

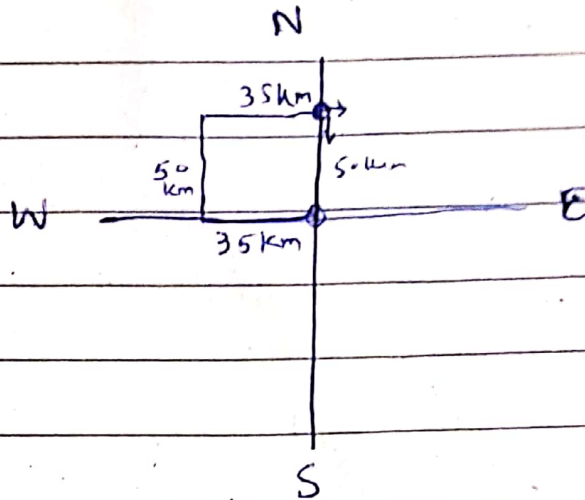
$$= 1$$

So, range is 1

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(M) (T) (W) (T) (F) (S)

Q# 8 (d)



Kashmala is 50 km far from her original position.

Q# 8 (a)

$$s = \frac{d}{t} \Rightarrow s = \frac{d}{t_1 + t_2}$$

$$\text{Average speed} = s = \frac{2d}{\frac{40 \times 60}{40 \times 60} + \frac{100 \times 2}{2400}}$$

$$\text{Average speed} = \frac{24 \times 2}{48} \text{ km/h}$$

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Q7 # (d)

Both of them aims to measure the power of brain but mental ability measure the intelligence abilities of a person while the IQ measures the intelligence abilities of a person with comparison of another person and in mental ability age is not required while in IQ it is required.

Q# 8 (c)

If A is brother of B

B is sister of C

C is father of D

How, D is related to A

D is male member. ?

So, D is the nephew of A.