

## (Section-B)

Q: No. 6

(a)

Solution:

$$\text{Total money} = \$370$$

$$\text{Second part} = \frac{1}{4} \text{ of third part}$$

$$\text{Ratio between first and third part} = 3:5$$

Let us divide \$370 into A, B, C are three parts

$$\text{2nd part (B)} = \frac{1}{4}(C)$$

$$\text{Ratio between A and C} = 3:5$$

$$A : B : C$$

$$3 : \frac{1}{4}(C) : 5$$

$$3 : \frac{1}{4}(5) : 5$$

$$3 : \frac{5}{4} : 5$$

$$12 : 5 : 20$$

$$\text{Total parts} = 12 + 5 + 20 = 37$$

$$\text{Part of A} = \frac{12}{37} (370) = 120$$

$$\text{Part of B} = \frac{5}{37} (370) = 50$$

$$\text{Part of C} = \frac{20}{37} (370) = 200$$

So, 120, 50, 200 are the three parts respectively.



(b)

Required money = Rs. 800

Money in Bank = Rs. 200

Money borrowed from brother = 20%

$$\text{So, } 20\% \text{ of } 800 = \frac{20}{100} \times 800 = \text{Rs. } 160$$

Money funded by mother = 30%

$$\text{So, } 30\% \text{ of } 800 = \frac{30}{100} \times 800 = \text{Rs. } 240$$

$$\begin{aligned} \text{Total amount that is collected so far} &= 200 + 160 + 240 \\ &= 600 \end{aligned}$$

$$\begin{aligned} \text{Money needed to complete Rs } 800 &= 800 - 600 \\ &= \text{Rs. } 200 \end{aligned}$$

So, Kashif left short of Rs. 200 to complete Rs. 800 to pay his fee.

(c)

Balls in bag one = 3 red, 7 black

Balls in bag two = 8 red, 2 black

Balls in bag three = 4 red, 6 black

$$\text{Total balls} = 3 + 7 + 8 + 2 + 4 + 6 = 30$$

$$\text{Total red balls} = 3 + 8 + 4 = 15$$

**Probability** =  $\frac{\text{No of ways of occurrence of an event}}{\text{Total possible outcome}}$



A ball is drawn from a bag randomly, which is a red ball, the probability of drawn ball from 3rd bag is

$$\text{Probability} = \frac{15}{30} = \frac{1}{2}$$

Drawn from third bag

$$P = \frac{4^2}{10^5} = \frac{2}{5}$$

The probability of drawing the red ball is  $\frac{1}{2}$  and drawing it from 3rd bag is  $\frac{2}{5}$ , so the overall probability is

$$P(\text{red ball}) = \frac{1}{2} \cdot \frac{2}{5} = \frac{1}{5}$$

(d)

The time interval between three different traffic lights is 24 sec, 36 sec, 72 sec

2	24, 36, 72
2	12, 18, 36
3	6, 9, 18
3	2, 3, 6
2	2, 1, 2
	1, 1, 1

$$\text{H.C.F} = 2 \times 2 = 4 \text{ sec}$$

$$\text{L.C.M} = 2 \times 2 \times 3 \times 3 \times 2 \times 1 \times 1 = 72 \text{ sec}$$



They change simultaneously at 8:20:00 hrs  
for the next time they will change  
simultaneously after 72 sec.

Q. 8

(a)

Speed of car during 1st half = 40 km/h

Speed of car during 2nd half = 60 km/h

Total Speed of car during journey =  $\frac{40+60}{2}$

As, we know that

$$\text{Average} = \frac{\text{Sum of all values}}{\text{no of values}}$$

$$\text{Average} = \frac{100}{2} = 50 \text{ km/h}$$

The average speed of car will be 50 km/h

(b)

R O S E	C H A I R	P R E A C H
6 8 2 1	7 3 4 5 6	9 6 1 4 7 3

by comparing the values from the given values

**SEARCH**

2 1 4 6 7 3

So, the code for the SEARCH will be

214673.



(c)

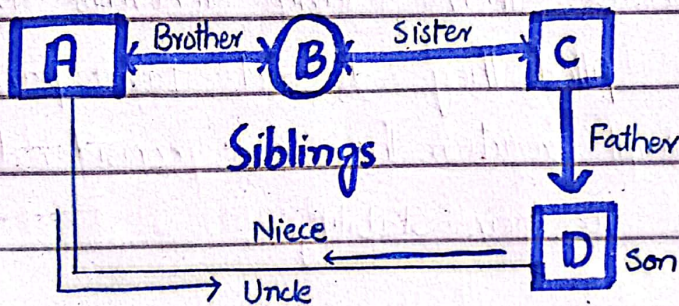
A is brother of B

B is sister of C

C is also brother of A and B

Also, C is father of D or D is son of C

As A is the brother of C, so, D will be the niece of A or A will be the uncle of D



(d)

Kashmala travels towards west = 35 Km

She takes right turn and travels = 50 Km

Again, she takes right turn and travels = 35 Km

According to pythagorean theorem

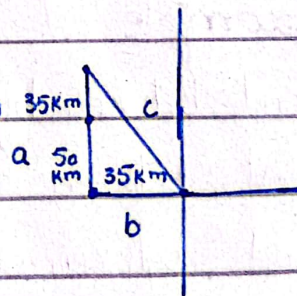
$$a^2 + b^2 = c^2$$

$$(85)^2 + (35)^2 = c^2$$

$$7225 + 1225 = c^2$$

$$8450 = c^2$$

$$c = \sqrt{8450} \text{ km}$$



$$a = 50 + 35$$

$$= 85 \text{ km}$$

$$b = 35 \text{ km}$$

$$c = ?$$







## Types of Covalent Bond:

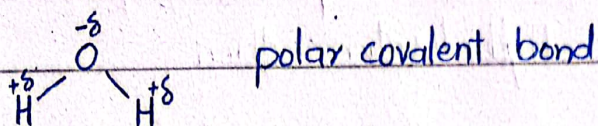
On the basis of polarity between two atoms, a covalent bond has two types:

- i) Polar covalent Bond
- ii) Non-polar covalent Bond

### Polar Covalent Bond:

A covalent bond between two different atoms which induce partial polarity on both atoms is called polar covalent bond.

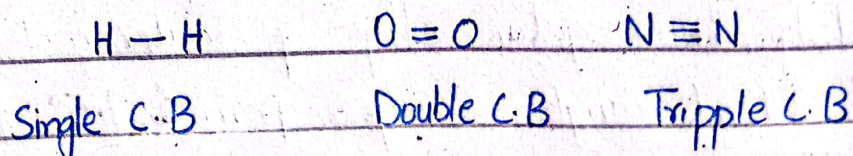
#### Example



### Non-polar Covalent Bond:

A covalent bond formed between two same atoms, or whose difference of electronegativity is zero is called non-polar covalent bond.

#### Example





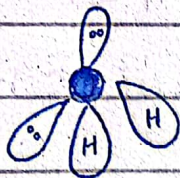
(b)

## Angular Structure of Water:

If we look at the structure of molecule, we come to know that the structure of water molecule should be **tetrahedral** due to  **$sp^3$**  hybridization in water molecule.

### $sp^3$ Hybridization:

A hybridization in which one s and 3p orbitals mix together to give 4  $sp^3$  hybrid orbitals. If we draw the structure of  $H_2O$  molecule on the basis of hybridization then



### Reason:

As we know that, Oxygen has two lone pairs of electrons. These lone pairs of electron do not take part in bonding. Instead they put lone pair-lone pair repulsion on other bonds of hydrogens with oxygen. The presence of these lone pair of electrons distort the regular shape of water molecule and bond angle changes from  **$109.5^\circ$**  to  **$104.5^\circ$** . This distortion in angles change



the geometry or shape of water molecule  
angular

(C)

## Human Brain:

Human Brain is considered as the main processing unit of body like CPU of a computer. It performs all the basic functions of movement, respiration, circulation, digestion etc.

Human brain is divided into three parts.

- i) Forebrain
- ii) Midbrain
- iii) Hindbrain

## Forebrain:

Forebrain is the first part of brain.

It is divided into three part:

- i) Thalamus
- ii) Limbic System
- iii) Cerebrum

## Thalamus:

It gives all the sensory informations to the limbic system. Most of the auditory and visual information. The information received from the skin is also transferred to the limbic system.



# Limbic System

Limbic System is further categorized into three parts.

- i) Hypocampus
- ii) Amygdala
- iii) Hypothalamus

## Hypocampus:

It maintains hunger, sleep cycle, appetite, menstrual cycle etc.

## Amygdala:

It is related to the emotions, feeling, sexual arousal, grief, pain, happiness etc.

## Hypothalamus:

It is related to the memory and storing of information.

## Cerebrum:

Cerebrum is the largest part of the brain. It is divided into two parts which are called hemisphere. Left hemisphere controls right part of the body, and vice versa. It is also involved in the collection of information and storing it for future use. It is also involved in voluntary motion of body.



## Midbrain:

It is the middle part of the brain. It connects forebrain with the midbrain. It is involved in the memory and storing or recalling of information.

The reflex movement of eye is also controlled by midbrain.

## Hindbrain:

Hindbrain is the last part of the brain. It is divided into three parts.

- i) Medulla
- ii) Pons
- iii) Cerebellum

## Q.No. 4

(a)

## Solid Waste Management:

The proper sampling and handling of solid waste products at urban and rural levels is called solid waste management.

## SWM Strategy in Pakistan

Pakistan has made many action plans at national



levels in which solid waste management strategy is also involved. The strategy is devised to collect all the solid waste from the metropolitan areas without any delay on regular basis. Along with many solid waste disposal methods were devised. In these methods landfills, incineration, pyrolysis are involved.

The solid waste collected from different parts of the country is segregated on the basis of

- i) **Organic** waste
- ii) **Inorganic** waste
- iii) **E-waste**

Organic waste is decomposed due to bacterial action which is less harmful. Inorganic and E-waste are not decomposed. These types of wastes are more dangerous and poses many threat to humans and animals health.

### **Suggestions:**

The government of Pakistan should take many steps towards the implementation of solid waste. These measure or steps may include:



- i) Implementation of strategies or plans into action
- ii) Active participation of public in preserving the environment from solid waste
- iii) Proper allocation of workers and funds is necessary on urgent basis.

By implementing the above measure, the government of Pakistan and public can take solid steps in this abysmal situation of solid waste management in Pakistan.

(C)

## Population of Pakistan:

The current population of Pakistan according to census 2023 is **240.49 million** excluding AJK and Gilgit Baltistan (Pakistan Bureau of Statistics)

## Causes of Population Explosion:

There are many root causes of population explosion in Pakistan.

- i) Illiterate masses
- ii) False interpretation of religion by out-dated Uleemas on family planning



- iii) Females are unaware of the use of contraceptive and other medications
- iv) Lack of family planning strategy
- v) Male dominating society
- vi) People do not know about the hazards of population explosion
- vii) Lack of unemployment
- viii) Desire for a male baby in rural areas
- ix) Less participation of women in working institution
- x) Numbers of children are decided by male

## Measures to Control over-population:

By analyzing the growing rate (2.5-1) of population, the government of Pakistan should take serious steps.

- i) Devising the strategies of family planning at rural level
  - ii) Active participation of politicians by informing the masses in this regard
  - iii) Educated the people who can understand the hazards of over-population
  - iv) More out-door working opportunities for women
- A change is necessary in patriarchal society



(d)

## Kyoto Protocol:

Kyoto protocol is a strategy which was devised on international level to cut down the emissions of green house gases (GHGs). These GHGs were depleting the ozone layer and causing many environmental changes. The global temperature was increasing due to GHGs. The major cause of these gases were chloroflourocarbons (CFCs) which were emitting from air conditioners, refrigerators and aerosols.

## Result:

This treaty was not binding and was devised on moral basis. The result was that no plan was implemented by any country because of its non-binding nature. It was a failure.

## Montreal Protocol:

After the failure of Kyoto protocol, the countries of the world again met on international level. They again devised a strategy for the preservation



of environment. In this protocol, each country was allotted with a specific quota according to which they can emit greenhouse gases. If they want to emit more GHGs, they can buy it from those countries which have less emissions of GHGs. This was binding in nature.

### **Result:**

As the countries have learned from the failure of Kyoto protocol, they made Montreal binding on the countries. Due to its binding nature, it was a success.

### **Carbon Market:**

The countries can buy the carbon quota in addition to their allotted quota. This is called carbon market.

In Montreal protocol each country was allotted with a specific quota to release the GHGs into the atmosphere. As the developed and advanced countries release more GHGs in comparison to the developing country. So, to fulfil their demands, the developed countries can purchase the carbon quota from the developing countries. It is carbon market.