

# General Science and Ability

## Section A

Q. No. 3

(a)

### Proteins

Proteins are made up of amino acids. One gram of protein contains 4Kcalories. They are essential for our growth and are found in meat, beans, grains and milk.

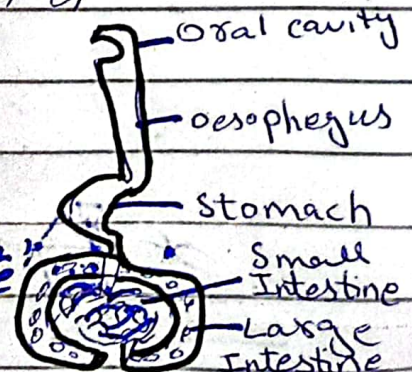
### Carbohydrate

Carbohydrates are the primary source of our food. One gram of carbohydrate also contain 04 Kcalories. They are found in grains, wheat and milk.

### Digestion of Carbohydrate and Proteins:

The digestion of carbohydrates and proteins start at two different places.

'Protein' digestion starts from oral cavity whereas 'Carbohydrate' digestion starts in stomach.



For digestion of protein and carbohydrates in stomach following acids



are used.

ii) Carbohydrates  $\xrightarrow{\text{HCL}}$  Glucose

iii) Proteins  $\xrightarrow{\text{Pepsinogen}}$  Amino acid.

The digestion of proteins and carbohydrates completes in Jejunum and from Ileum their absorption process is started.

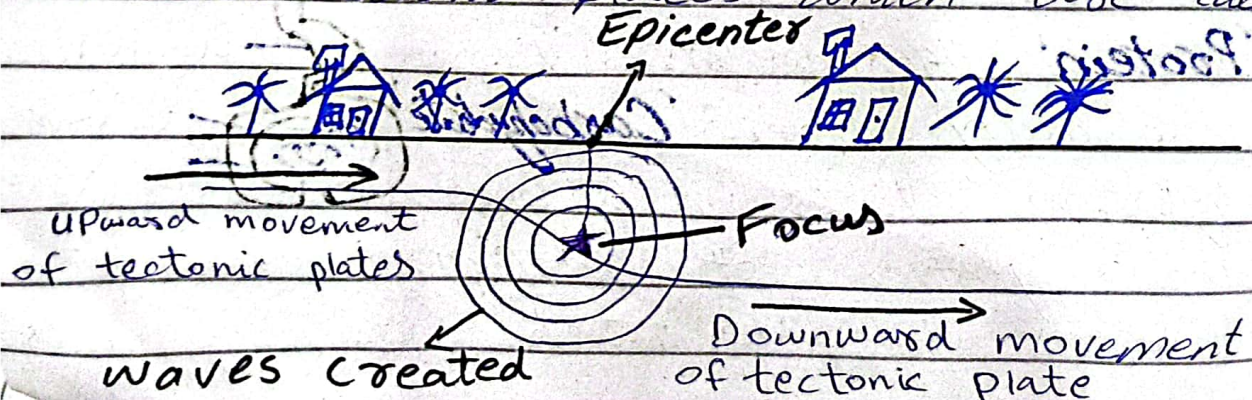
(C)

## Earthquake

Earthquake, as name implies, means shaking of Earth. This occurs due to the pressure waves created after movement of tectonic plates.

Ephemeron of Earthquake:

Our earth is not like a plane sheet of paper rather it has several plates which are called



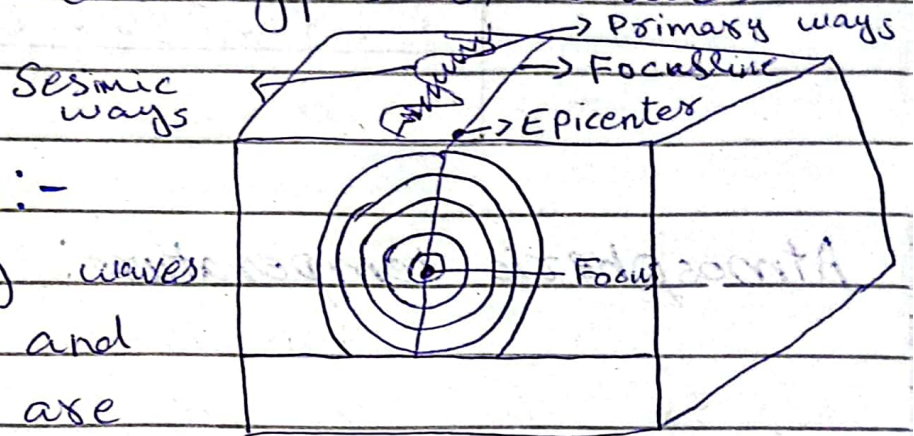


tectonic plates. These plates move inch by inch. When these movement is closed air is accumulated in them. This creates air pressure which results in wave formation and ultimately earthquake.

There are two types of waves produces.

### Primary Waves:-

Primary waves move 'upward and downward'. They are first to produce. They are also called P-waves.



### Sesimic Waves:-

Sesimic waves are also called secondary waves. They move fastly and move side to side.

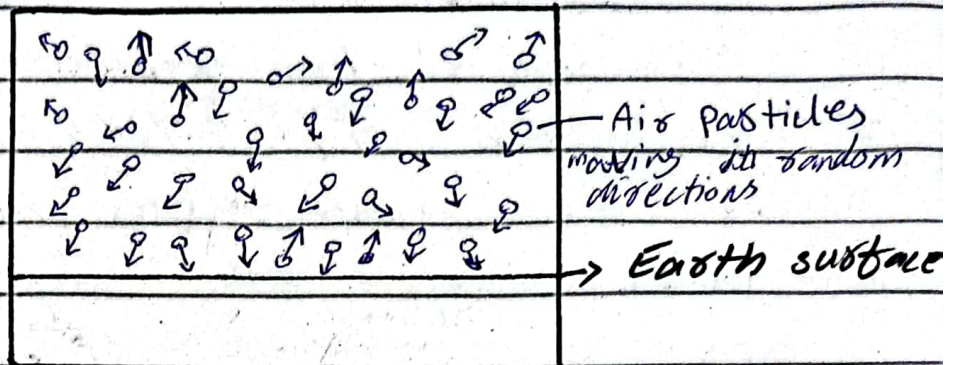
(b)

### Atmospheric Pressure / Temperature

Atmospheric pressure is the pressure that is exerted by the atmosphere. Since atmosphere is made of gas molecules, these gas molecules move in random direction



and hit objects continuously. Thus putting a pressure as shown in Diagram.



## Atmospheric temperature:

Atmospheric temperature refers to the temperature of atmosphere and it varies place to place. Atmospheric temperature affect weather through many ways. For example, its temperature <sup>of air</sup> above the clouds is lower than the temperature of clouds, it will result in heavy rain.

Atmospheric temperature is directly linked to sun light. Sun light when enters into the atmosphere it warms up the air particles. Similarly, when less sun heat enters the earth, earth atmospheric temperature reduces.



## Humidity:

Humidity is the presence of water molecules or vapour in the air. Humid environment is good for breathing. During summer season due to hot temperature, water is evaporated at high pace. Even though evaporation process is very continuous but during summer due to high speed water vapours accumulate at troposphere lower region. Thus resulting in humid environment.

## Q.NO.4

(a)

## Solar System:

The solar system in a universe is named to that area where planets revolve around a giant sun or star. For example, our solar system has one star named sun with eight planets and some dwarf planets. Earth also known as blue planet is in third position comes after Mercury and Venus. After Earth there are five more planets named as Mars,



Jupiter, Uranus, Saturn and Neptune.

Not all but many planets have their own moon in the solar system.

Earth has only one moon, which is believed to be a part of our earth, separated after a collision between earth and other planet. The sun of our solar system is in its yellow giant phase. In a solar system, planet orbits around their stars.

It takes approximately 24 hours for our earth to complete one revolution, but different planets have different time duration. There exist an asteroid belt around ~~Uranus~~<sup>Saturn</sup> and are called as Saturn rings.

The nearest planet to our earth is Mars. Mars is also called red planet.

Is not it strange that all heavenly big objects are spherical in nature.

(b)

Importance of pituitary gland:

Pituitary gland is of vital importance in our brain. Pituitary gland is also called



## Master gland.

- (a) Pituitary gland stimulates the Thyroid gland and its secretions.
- (b) Pituitary gland stimulates the adrenal glands.
- (c) Pituitary gland is also involved in secretion of progesterone in women.
- (d) Without pituitary gland body cannot function properly.
- (e) Without pituitary glands other glands and hormone secretions are badly affected.

(d)

## COP 29

Of course, COP 29 targets to limit temperature rise upto  $1.5^{\circ}\text{C}$ . The global temperature is rising at very high pace. The green house gas emission is increasing day by day. The major impact of climate change is in developing countries like Pakistan.

It is estimated that if temperature rises with same pace then till 2050 there would be  $2^{\circ}\text{C}$  rises in temperature. If this occurs then human (population) civilization would



sea level floods due to glaciers melting; food insecurity because crops are highly temperature sensitive; heavy drought due to hot temperature...

This is a well timed agenda by conference of parties. For this purpose they have to limit fossil fuel burning by developed countries heavy industry; cattle farming as cows are one of the major source of methane, they are domesticated for meat; and capacity building with proper financial support to developing countries, especially Pakistan.

(C)

## RAM

## ROM

→ RAM means Random Access Memory.

ROM means Read Only Memory

→ RAM is used to run a program.

ROM is used to store data.

→ RAM is the Temporary memory

ROM is the permanent memory.



→ It has direct impact on CPU speed.

It has impact on data transfers and processing speed.

→ RAM has CPU specific types like DDR3 ram won't run in DDR4 ram slot

ROM has different types like SSD and HDD and both can be used in all CPUs.

## USB:

USB is abbreviation of Universal serial bus. It is a type of ROM and usually used to store and transfer data. It comes in different storage capacities.



A typical USB with male head.

## Motherboard:

Motherboard is the most important component of all computers. If processor is the brain of computer then motherboard is the body with organs of computer. Motherboard comes in different



types with their specific processing units.

Q.NO. 6

(a)

Data

Present value  $= V = 8748$

Depreciate rate  $= r = 10$  percent or 0.1  
time  $= 3$  years ago.

To find:

Price of machine three years ago

$\Rightarrow P = ?$

Formula:

$$P = \frac{V}{(1-r)^t}$$

Solution

Put values in formula mentioned above.

$$P = \frac{8748}{(1-0.1)^3}$$

$$P = \frac{8748}{(0.9)^3}$$

$$P = \frac{8748}{0.729} \times \frac{1000}{1000}$$

$$\begin{array}{r} 0.9 \\ \times 0.9 \\ \hline 8.1 \\ \times 0.9 \\ \hline 0.729 \end{array}$$



$$P = 8748000$$
$$729$$

$$P = 12000$$

**Result:** The value of washing machine three years ago was 12,000.

(b)

**Data**

Father age = 4 × daughter age  
After 5 years father age = 3 × daughter age

**To Find:**

Father age after 10 years.

**Solution:**

Let → Daughter age =  $Z$

→ father age =  $y = 4Z$

After 5 years

→ Daughter age =  $5 + Z$

Father age =  $y = 4Z + 5$

It is given after 5 years father age would be 3 times of daughter age. So

$$4Z + 5 = 3(5 + Z)$$

Further after 5 years







$$\text{So } r = \frac{21}{2} \times 6$$

Put value of  $r$  in formula

$$V = \frac{4}{3} (3.14) (6)^3$$

$$= \frac{4}{3} (3.14) (216)$$

$$= 4 \times 3.14 \times 72$$

$$= 12.56 \times 72$$

$$= 194.32 \text{ cm}$$

**Result:**

Volume of football whose radius is 6 cm is 194.32 cm.