

# Mock Exam

## GSA

QNO : 2

Answer : (a)

### Dengue :-

Dengue is a mosquito-borne viral disease. It is caused by a female mosquito **Aedes Aegypti**. In tropics this is transmitted due to weather conditions. Severe dengue was recognized in 1850s during epidemic in Philippine and Thailand and then spread in Asians and Europeans, now over the globe.

### Transmission :-

Dengue is transmitted

by bite of infected *Aedes Aegyptia* which is main vector of dengue. After incubation of 4-10 days virus starts to transmit in the life. An infected individual also transmit disease when an un-infected mosquito bites him and carry virus. This mosquito live in urban areas and breed in man-made containers. Its feeding time is early in the morning and in the evening before dusk.

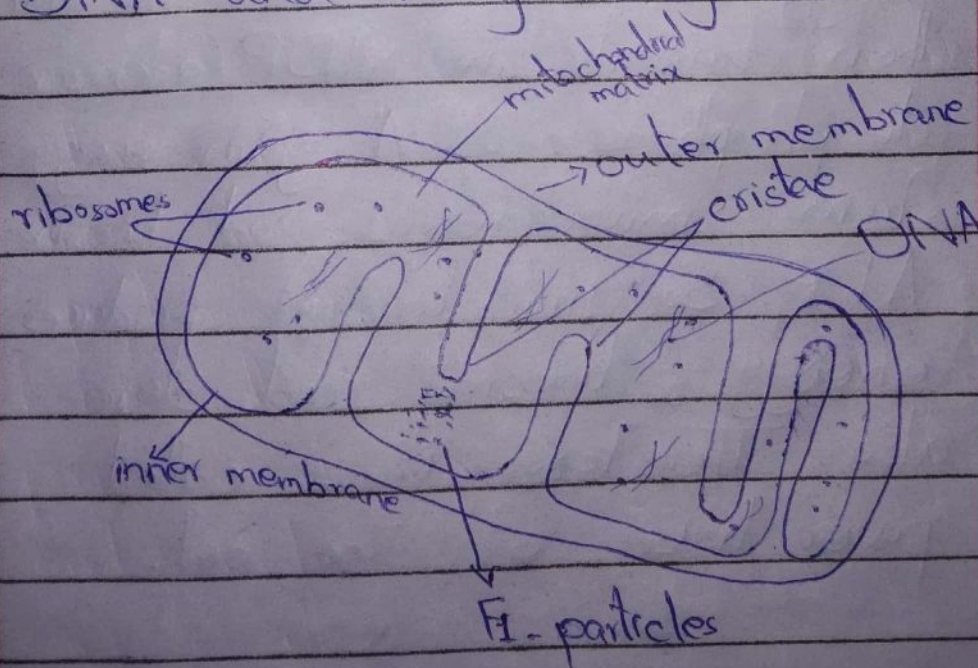
### Symptoms:-

Dengue is a flu-like illness. If fever is  $40^{\circ}\text{C}$  or  $104^{\circ}\text{F}$  then it is dengue fever have symptoms like headache, pain behind the eyes, muscle and joint pain, vomiting, anxiety, swollen glands and rashes. These symptoms appear after incubation period (4-10 days) and last for 2-7

It manufacture and transmit energy to the cell so it is called power house of the cell.

### Structure :-

Mitochondria is a rod, vesicle or filament shaped double membrane-bound organelle. Outer membrane is smooth and inner membrane form many infoldings called **cristae**. Inside the inner membrane is matrix and knob like particles called  $F_1$ -particles. Mitochondrial matrix contains ribosomes, DNA and many enzymes.



Mitochondria is a self-replicating organelle. New mitochondria are formed by old one.

### Functions:-

Many metabolic processes occur in mitochondria like Krebs cycle, aerobic respiration and fat metabolism. The energy released during organic food break-down during metabolism transmit to energy rich ATP molecules called adenosin tri-phosphate. These ATP supply energy to cell on demand and then convert into ADP (adenosine di-phosphate). ADP gains energy from mitochondria and become ATP. So mitochondria produces energy, transmit and store also. Therefore it is called power house of the cell.



Ans: (d)

## Covalent Bond :-

A bond that is formed by the sharing of electron pair between two atoms is called covalent bond.

### Types :-

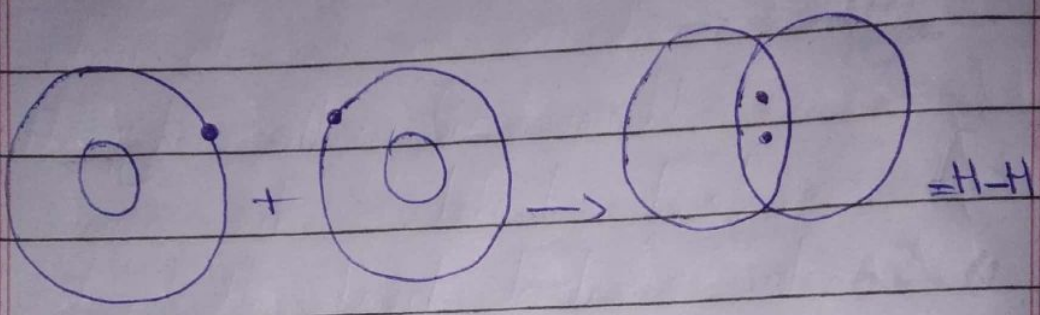
There are three types of covalent bond.

- 1) Single covalent bond
- 2) Double covalent bond
- 3) Triple covalent bond.

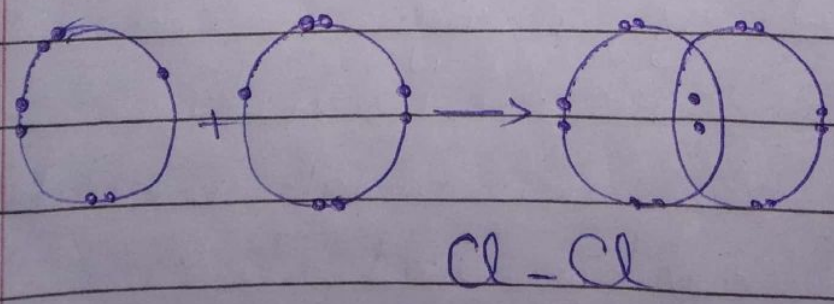
## Single Covalent Bond :-

The bond that is formed by sharing of one electron pair between two (non-transition) non-metals is called single covalent bond. It is denoted by single line between two atoms. For example hydrogen

gas, two atoms, ~~sk~~ join by sharing electron pair. It is a diatomic molecule. It shares one electron pair to gain the nearest atomic configuration of noble gases and is denoted as  $H-H$ .



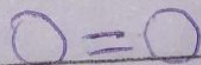
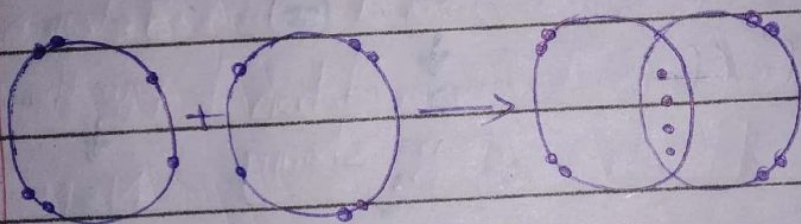
Similarly chlorine has seven electrons in valence shell but one electron pair take part in bonding and these are the pair of electrons.



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

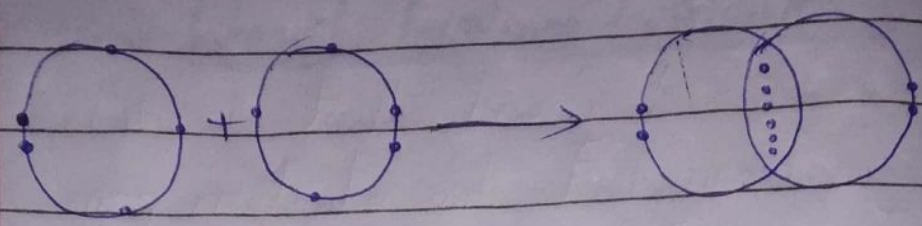
## Double Covalent Bond :-

A bond that is formed by sharing of two electron pairs between two atoms is called double covalent bond. It is denoted by double lines. For example Oxygen has six electrons in valence shell and form double covalent bond by sharing two electron pair.



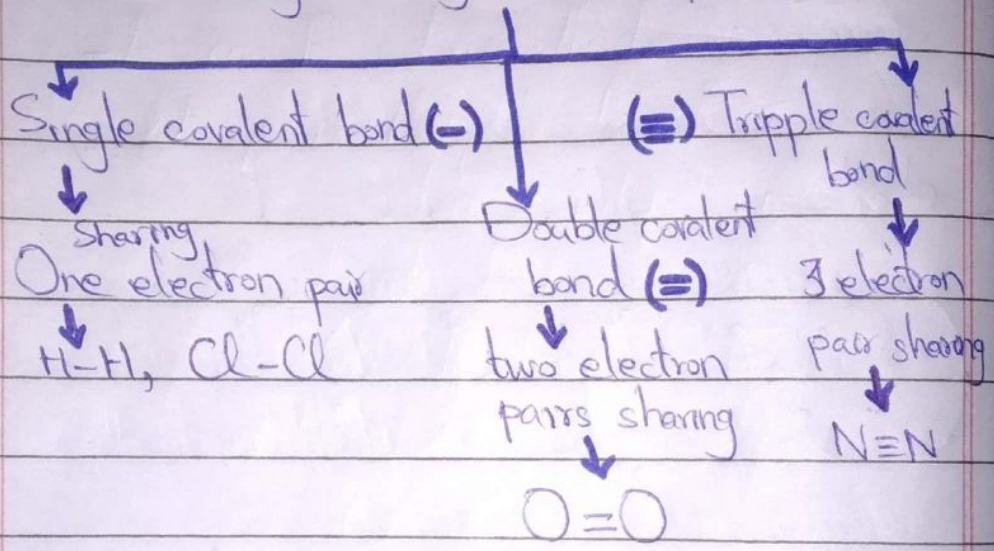
## Tripple Covalent Bond :-

The bond that is formed by sharing of three electron pairs between two atoms is called tripple covalent bond. It is denoted by three lines. For example in Nitrogen gas.



# Covalent Bond

by sharing electron pair



## Question NO: 3

Ans (a)

Lunar Eclipse :-

(When) Earth revolves around the sun and moon



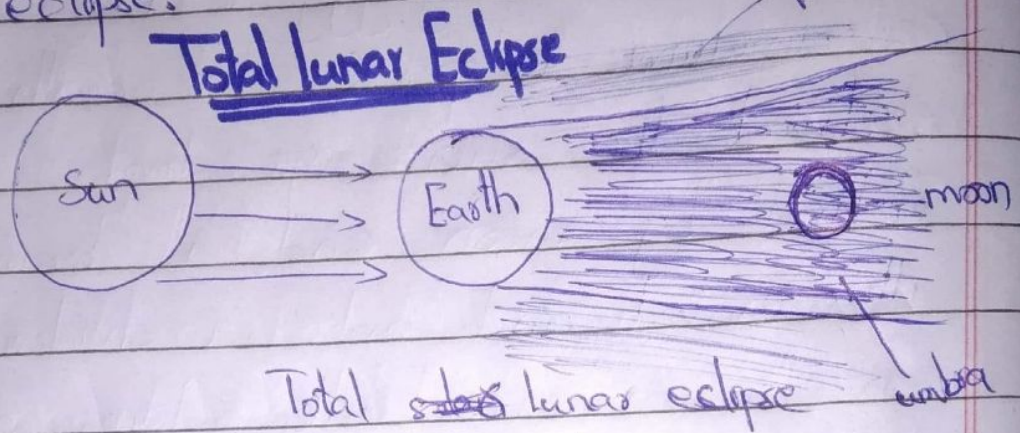
revolves around the earth. During revolving when earth comes between the sun and moon and form a syzygy, it is called lunar eclipse. The earth obstruct the sun rays that reflect by moon and it becomes illuminated and make a shadow on the moon. Earth forms a conical shadow, its darker portion is called **umbra** and less or partial dark portion is called **penumbra** region. Lunar eclipse occurs when moon is full and lasts for few hours and easily can be seen at night on earth.

## Types

### Penumbra Lunar Eclipse :-

When moon passes through the penumbra region of earth

shadow and is (not totaly) shown by different coloured lights it is called penumbral lunar eclipse.



In this eclipse moon passes through the umbra region of earth's shadow and look red called bloody moon.

### **Partial Lunar Eclipse :-**

When some portion of moon body passes in umbra region and rest in penumbra region it is called partial lunar eclipse.



Date: \_\_\_\_\_ Day: \_\_\_\_\_  
Ans (b)

## Enzymes:-

Enzymes are organic polymer of amino acids that act as a catalyst to regulate speed of different chemical process in the metabolism of living organism. They are protein in nature.

## Functions:-

One enzyme catalyse only one chemical reaction. Enzymes help in metabolic processes like digestion and in respiration. Enzymes regulate the hormone secretions, blood clotting, help in healing of wounds. Some enzymes control the toxic invaders and micro-organisms.

**Amylase:-** Help in digestion of carbohydrates.

Lipase: Help in break-down and digestion of lipids and fats.

Pepsin / Trypsin :- Influence the protein break-down into amino acids.

Urease: Break-down of urea.  
Kinase and Phosphatase

They help in dissolution and stimulation of plant cell

Protein Myosin :-

help in muscle contraction.

Abscic Acid :-

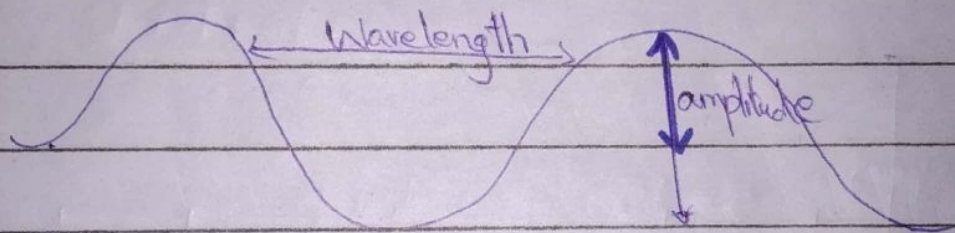
Inhibits plant growth.

←————→  
Ans (c)

Electromagnetic Radiations :-

The light rays present around us are called electromagnetic radiations like visible light, micro waves, radio-

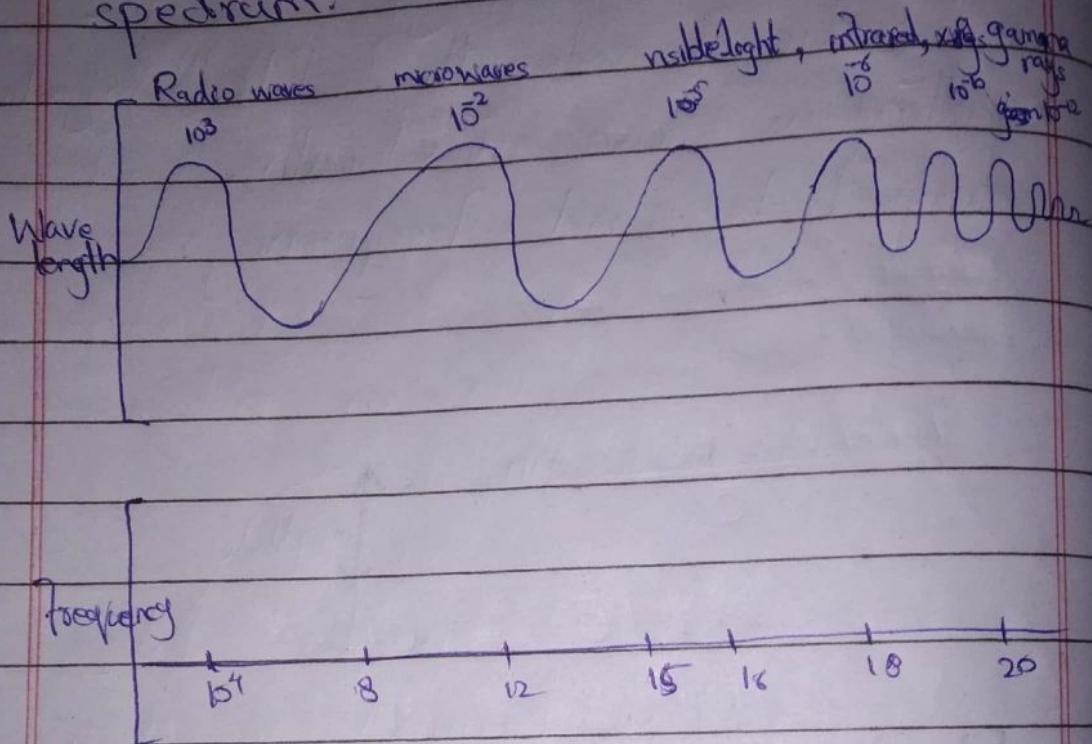
waves, X-rays and gamma rays etc. The visible portion is small in electromagnetic spectrum have broader range of electromagnetic wavelengths. Electromagnetic radiations have wavelength, amplitude and frequency.



## Electromagnetic Spectrum:-

Electromagnetic radiations having variations in frequency and wavelength during oscillations form a region called electromagnetic spectrum as frequency increases and wavelength decrease. Radio waves, microwaves, visible

light, infrared radiations, X-rays and gamma rays. This array form electromagnetic spectrum.



Ans: (d)

## Earthquakes :-

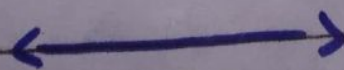
The sudden release of energy in the form of seismic waves causing abrupt shaking of earth surface by movement of tectonic

plates is called earthquakes.

## Volcanic eruption:-

The release of energy in the form of lava on the earth surface is called volcanic eruption.

Earthquakes and volcanic eruption both are inter-connected as both create vent on the earth surface. In both cases energy is released. Both are too much destructive and cause huge loss. Earthquake is result of movement of tectonic plates. Volcano is caused when hot molten liquid magma comes out on the earth surface in the form of lava and create vents on earth surface.



## Section - II

Question NO : 6

Answer(a)

Value of  $K = ?$

arithmetic mean =  $\frac{\text{sum of numbers}}{\text{total numbers}}$

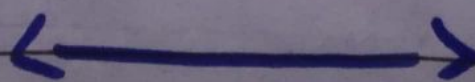
$$15 = \frac{9 + 8 + 10 + K + 12}{5}$$

$$5 \times 15 = 39 + K$$

$$75 = 39 + K$$

$$75 - 39 = K$$

$$K = 36 \text{ Ans}$$





Ans(b)

Sugar soln

coloured  
Water

$$4x : 3x$$

if 10L coloured water added

$$3x + 10 \rightarrow (1)$$

Then ratio

$$4x : 5x$$

$$4x \times (3x + 10) = 4x \times 5x$$

$$12x + 40 = 20x$$

$$40 = 20x - 12x$$

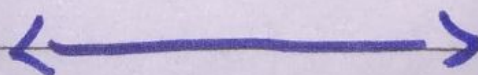
$$40 = 8x$$

$$x = \frac{40}{8} = 5$$

(Putting in eq(1))  
 ~~$= 3x + 10$~~

$$= 3(5)$$

Quantity of ~~Sugar Soln~~ =  $4 \times 10 = 40L$



(c)

Radius of football = 12cm

Volume of football = ?

$$V = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} \times \frac{22}{7} \times (12)^3$$

$$= \frac{4}{3} \times \frac{22}{7} \times 1728$$

$$= \frac{152064}{21}$$

$$V = 7241.14 \text{ cm}^3$$

Date \_\_\_\_\_ Day \_\_\_\_\_  
QNO: 7

(a)

if 20% of  $x = y$  then  
Y% of 20 is

$$\frac{20}{100} \times x = y$$

$$\frac{x}{5} = y \rightarrow (1)$$

$$Y\% \times 20$$

$$= \frac{Y}{100} \times 20$$

By putting value of 'y' in eq(1)

$$= \frac{x}{5} \times \frac{1}{100} \times 20$$

$$= \frac{x}{25}$$

In %age

$$= \frac{x}{25} \times \frac{100}{100} = 4\% \text{ of } x$$



(b)

$$P + Q = 5050 \times 2 = 10100 \rightarrow (1)$$

$$Q + R = 6250 \times 2 = 12500 \rightarrow (2)$$

$$P + R = 5200 \times 2 = 10400 \rightarrow (3)$$

$$\text{eq(1)} + \text{eq(2)} + \text{eq(3)}$$

$$(10100 + 10400)$$

$$(P+Q) + (P+R) + (Q+R) = 10100 + 10400 + 12500$$

$$2P + 2Q + 2R = 33000$$

$$2(P+Q+R) = 33000$$

$$P+Q+R = \frac{33000}{2} = 16500$$

$$P+Q+R = 16500 \rightarrow (4)$$

$$\text{eq(4)} - \text{eq(2)}$$

$$P+Q+R - (Q+R) = 16500 - 12500$$

$$P+Q+R - Q - R = 4000$$

$$P = 4000$$



(c)

$$\text{Tossed events} = 500$$

$$TE_1 = H-H = 105$$

$$TE_2 = H = 275$$

$$TE_3 = \text{no head} = 120$$

$$PE = \frac{\text{value of event}}{\text{total number}}$$

$$P(E_1) = \frac{21}{100} = \frac{21}{100} = 0.21$$

$$P(E_2) = \frac{55}{100} = 0.55$$

$$P(E_3) = \frac{24}{100} = 0.24$$

(d)

$$\text{Father} = 4 \text{ Son}$$

$$F = 4S$$

$$F + 14 = 2(S + 14)$$

$$4S + 14 = 2S + 28$$

$$4S - 2S = 28 - 14$$

$$2S = 14$$

$$S = \frac{14}{2} = 7$$

$$F = 4S$$

$$F = 4 \times 7 = 28$$

Sum of present age of Father

$$\text{and son} = 28 + 7 = 35$$

