

Good for math work  
 Increase length of theory portion  
 Add headings

## Past - II Section - II

Ans 6

4. 3 candidates : A : B : C  
 Received votes 15000 : 10000 : 8000  
 Total number of votes : 15000  
 10000  
 8000  
 Total. 33000

Percentage of winning candidate

$$\frac{15000}{33000} \times 100$$

$$\frac{15000}{33000} \times 100$$

$$\Rightarrow 45.45$$

$$\begin{array}{r} 45.45 \\ 11 \overline{) 500} \\ \underline{44} \phantom{0} \\ 60 \\ \underline{55} \\ 50 \end{array}$$

Answer: Winning candidate won  
 45.45% of votes.

Part b:

Ratios of angle A : 3:4:5

Each angle: ?

Total angles = 180.

$$\frac{3}{124} \times 180 \Rightarrow 45$$

$$\text{Side} = 3 \Rightarrow \text{Angle } 45^\circ$$

$$\text{Angle of side 4: } \frac{4}{12} \times 180 = 60^\circ$$

$$180 = 45 + 60 + x$$

$$180 - 105 = x$$

$$x = 75^\circ$$

Answers: The three angles are  $45^\circ$ ,  $60^\circ$  and  $75^\circ$

Part c:

Each

Each group 4 boys and 6 girls.

102 girls available

how many boys required?

$$4 : 6$$

$$x : 102$$

$$x = \frac{4 \times 102}{6}$$

$$68$$

$$= \frac{204}{3} = 68$$

$$\begin{array}{r} 51 \\ \times 4 \\ \hline 204 \\ 68 \\ \hline 3 \overline{) 204} \\ \underline{18} \\ 24 \end{array}$$

Answers: 68 boys required

Part d:

A & B : 6 : 7 } → present age

A & B : 7 : 8 } + 5 years

$$\Delta \left( \begin{array}{l} 6 : 7 \\ 7 : 8 \end{array} \right) 1$$

1 year = 5 years in ratio

$$A = 6 \times 5$$

$$= 30$$

$$B = 7 \times 5$$

$$= 35$$

Answer: Age of A 30 years  
Age of B 35 years.

Answer 7:

Part a:

$$OP = 300 \text{ km}$$

$$OQ = 400 \text{ km}$$

$$QR = ?$$

Pythagoras theorem

$$H^2 = P^2 + B^2$$

consider

$$OP = 3$$

$$OQ = 4$$

$$H^2 = (3)^2 + (4)^2$$

$$H^2 = 9 + 16$$

$$\sqrt{H^2} = \sqrt{25}$$

$$H = \sqrt{25}$$

$$H = 5$$

$$\therefore OP = 500$$

$$QR \text{ is } \frac{1}{2} OP$$

$$QR = \frac{1}{2} \times 500 = 250$$

$$QR = 250$$

Date \_\_\_\_\_

Part b: pentagon with size 5cm

Formula to find angles:

$$\frac{(n-2) \times 180}{n}$$

$$\frac{(5-2) \times 180}{5}$$

$$\frac{3 \times 180}{5}$$

$$540 \div 5 = 108$$

$\Rightarrow$

$$\Rightarrow 108$$

Answer: each angle  $\hat{=}$   $108^\circ$

Part c:

Mental age = 11

Person age = 9

Formula of IQ =  $\frac{MA}{PA} \times 100$

$$\frac{11}{9} \times 100$$

$$= \frac{1100}{9}$$

$$= 122$$

$$\begin{array}{r} 122 \\ 9 \overline{) 1100} \\ \underline{9} \phantom{00} \\ 200 \phantom{0} \\ \underline{18} \phantom{0} \\ 20 \phantom{0} \end{array}$$

$$200$$

$$18$$

$$20$$

Answer: IQ = 122

Part d:

Avg age of 3 = 15 years

3:5:7 ratio of ages

age of youngest = ?

$$\frac{x+y+z}{3} = 15$$

$$x+y+z = 45$$

total of 3 ages = 45

age of youngest =

$$\frac{3}{15} \times 45 = 9$$

$$= 9$$

ANSWER: Age of youngest is 9 years.

## Section-I.

Answer 5:

Part a:

1. Define food preservation:

Food preservation is a process of treating and handling food in such a way as to stop the food from spoilage and prevent from foodborne illness.

While, maintaining the nutritional value.

2. What are different methods of food preservation

2.1 Physical methods:

a. Drying:

It involves removing the moisture content of food naturally through sunlight.

b. Chilling:

Chilling is a simple technique which makes use of cold temperature ( $1-4^{\circ}\text{C}$ ) to store the food.

c. Freezing:

Freezing method makes use of freezing temperature to preserve



Teacher's Signature

Various food items, to increase longevity up to months.

#### d. Canning:

In canning different types of cans are used to sterilize the jars and food material kept.

#### e. Pasteurization:

In pasteurization high heat is used to destroy and deactivate pathogenic micro-organisms.

### 2:2 Chemical methods:

#### a. Sugaring:

Sugary substances are added to reduce moisture content.

#### b. Salting:

The addition of salt results into release of water content from desired food in order to prevent against harmful microorganism which destroy food.

#### c. Pickling:

Pickling makes use of natural preservatives, like salt, edible oil, sugar and spices. Vegetables can be fermented by adding brine solution.



Part b.

## 1. What is Milkyway:

Milky Way is a huge collection of stars, dust and gas. It is known as spiral galaxy because viewed from top or bottom, it looks like a spinning pinwheel.

## 2. Relation of Dark Matter to Galaxy:

Dark matter forms most of the masses of galaxies and galaxy clusters and is responsible for the way galaxies are organised on a larger scale.

Modern cosmological theory explains that dark matter haloes contain galaxies, providing structure for the galaxy to form.

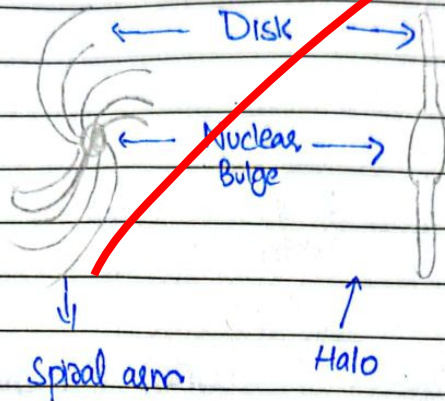
The halo envelops the entire galactic disk and extends beyond the edge of visible galaxy.

## 3. Different parts of galaxies:

- (i) Nucleus
- (ii) Central bulge.
- (iii) Disk



- iv) spiral arms
- v) spherical component
- iv) Massive halo

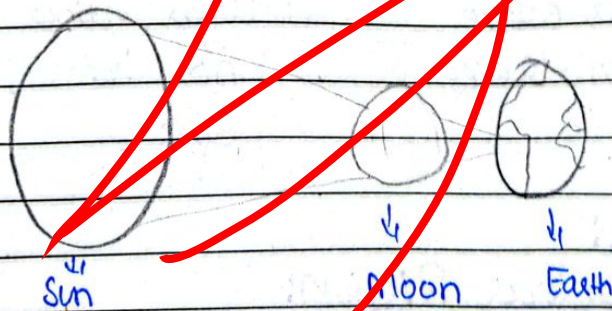


Part c:

Distinction between solar and lunar eclipse:

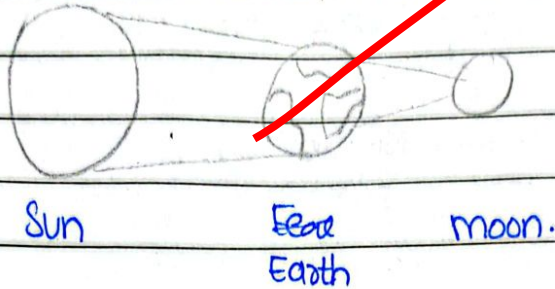
Solar eclipse:

Occurs when moon passes between the sun and Earth.



## Lunar eclipse

Occurs when earth passes between sun and moon.



## Solar eclipse

1. Moon passes in between earth and sun.
2. Moon hides sun rays partially or fully.
3. Occurs in 18 months and during daytime.
4. Solar eclipse harmful to eyes.

## Lunar eclipse

1. Earth passes in between moon and sun.
2. Shadow of earth hides moon partially or fully.
3. Happens twice a year at night.
4. Lunar eclipse not harmful to eyes.

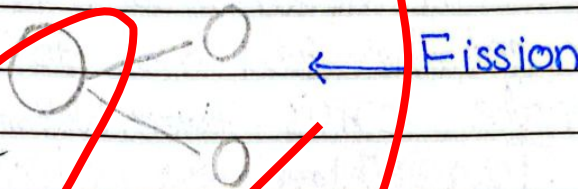
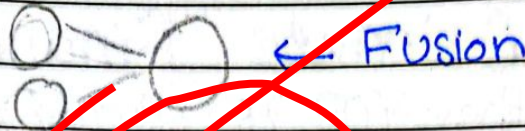
## Part d:

### 1. Nuclear Fission:

Fission is splitting of a heavy, unstable nucleus into two lighter nuclei. etc

## Nuclear fusion:

The process where two nuclei combine together releasing vast amount of energy.



## Ionic bonding in table salt / NaCl.

An atom of sodium (Na) donates one of its electrons to an atom of chlorine (Cl) in a chemical reaction. It results in positive ion ( $\text{Na}^+$ ) and negative ion ( $\text{Cl}^-$ ).

Forming a stable ionic compound (sodium chloride) based on ionic bond.

Answer 3:

Part A:

1. Major Hurdles in developing countries to tackle impacts of global warming.

i. Climate Financing:

In the COP-28 climate Finance has been a major theme of debate. The developing are the ones who need the food most to tackle climate crisis. However, World Bank is host of Finance.

ii Transition to climate friendly policies:

The poorest countries have been promised funds. However, the developing ones are supposed to transition to climate friendly policies to receive funds and raise their own funds. This could hinder their abilities to tackle and recover from on-going disasters.

iii Threat food security:

The agri-based economies face the threat of economy going down the hill. As well as the issue of ensuring adequate food supply for their population. Support of agri-food system remains below 20%.

## b. Balanced Diet:

A balanced diet supplies sufficient nutrients to the body to function smoothly and effectively. Without balanced nutrition, the body is prone to disease, infection, fatigue and low performance. Children who don't get enough healthy food face growth and developmental problems, poor academic performance and frequent infections.

### What includes a balanced Diet:

A balanced diet includes:

- Vitamins, minerals and antioxidants.
- Carbohydrates.
- Protein.
- Healthy fats.

Includes a variety of foods:

- Fruits
- Vegetables.
- Grains
- Dairy
- Protein foods.

Food avoided in balanced diet are:

- Highly processed foods.
- Refined grains.
- Added sugars and salts.



- Alcohol
- trans fat.

As per World health Organisation a healthy diet for adult include 400g of fruits and vegetables per day excluding sweet potatoes, cassava and other starchy roots.

Part c:

How has AI revolutionized the world?

AI has played a major role in digitalization of society as it has enabled us to collect, process and analyze large amount of data at a faster rate than before. It has lead to creation of new technologies, improving business processes and greater efficiency in industries. AI powered technologies such as natural language processing, image recognition and computer vision have revolutionized the way we interact and consume media. AI-powered personal assistant such as Siri and Google Assistant have become essential parts of everyday.

Additionally, AI has the potential to revolutionise the

Education offering personalized and individualized teaching to improve learning outcomes. It is expected to revolutionized the way people approach degrees and diplomas. AI has the potential to being a positive change in society. However, it essential to promote responsible AI use by creating policies and regulations. This will lead to ensuring AI remains a positive force in world, driving progress.

Part d:

## 1. Ram

Ram, stands for random access memory.

## 2. Rom

Rom, stands for read only memory.

## Difference between Ram & Rom

RAM	ROM
1. Temporary storage	1. Permanent storage
2. Store data in MBs	2. Store data in GBs
3. Volatile	3. Non-Volatile.
4. Used for normal operations	4. Used for standard process of computer
5. Writing data faster	5. Writing data slower.