

Part - II
Section - I

①

a) Answer.

I totally agree that data is the new oil. Just like oil was super valuable in the past for running industries, AI helps people and industry make smart decision earn money and improve services. Data drives technology, business, and even daily life. In our daily life, we see the power of data everywhere. ~~data~~

When we use social media apps like Facebook Instagram or Tiktok, the platforms study our likes, comments and

Searches. Based on that data, they show us the kind of posts or videos we enjoy the most.

Real life example.

1. Social Media: Apps like Instagram, Tiktok use our data (likes, views, and shares) to show us the kind of video we enjoy the most.
2. Online shopping: website like Amazon or Daraz suggest products based on what ~~you~~ we search or buy.
3. Maps and navigation: Google maps uses data from millions of phones to tell us the fastest route or where traffic is heavy.

Therefore data really feeds the modern world; just like oil once did.

b) Answer

The expanding universe is like a balloon that is being blown up. If we make small dots on a balloon, and each dot stands for a galaxy. When the balloon is small, the dots are closer together.

As we blow air into it, the balloons grow bigger, and the dots move farther apart. The same happens with our universe. The space between galaxies is stretching, so galaxies

move away from each other, ^{and} as
the universe gets bigger. This shows
that the universe has no center.

It does not matter where we
are, it looks like everything else

is moving away. Even though

the universe is 3D and balloon

is 2D, this idea helps us

to understand how space grows.

Therefore, just like a balloon

gets larger when we blow air

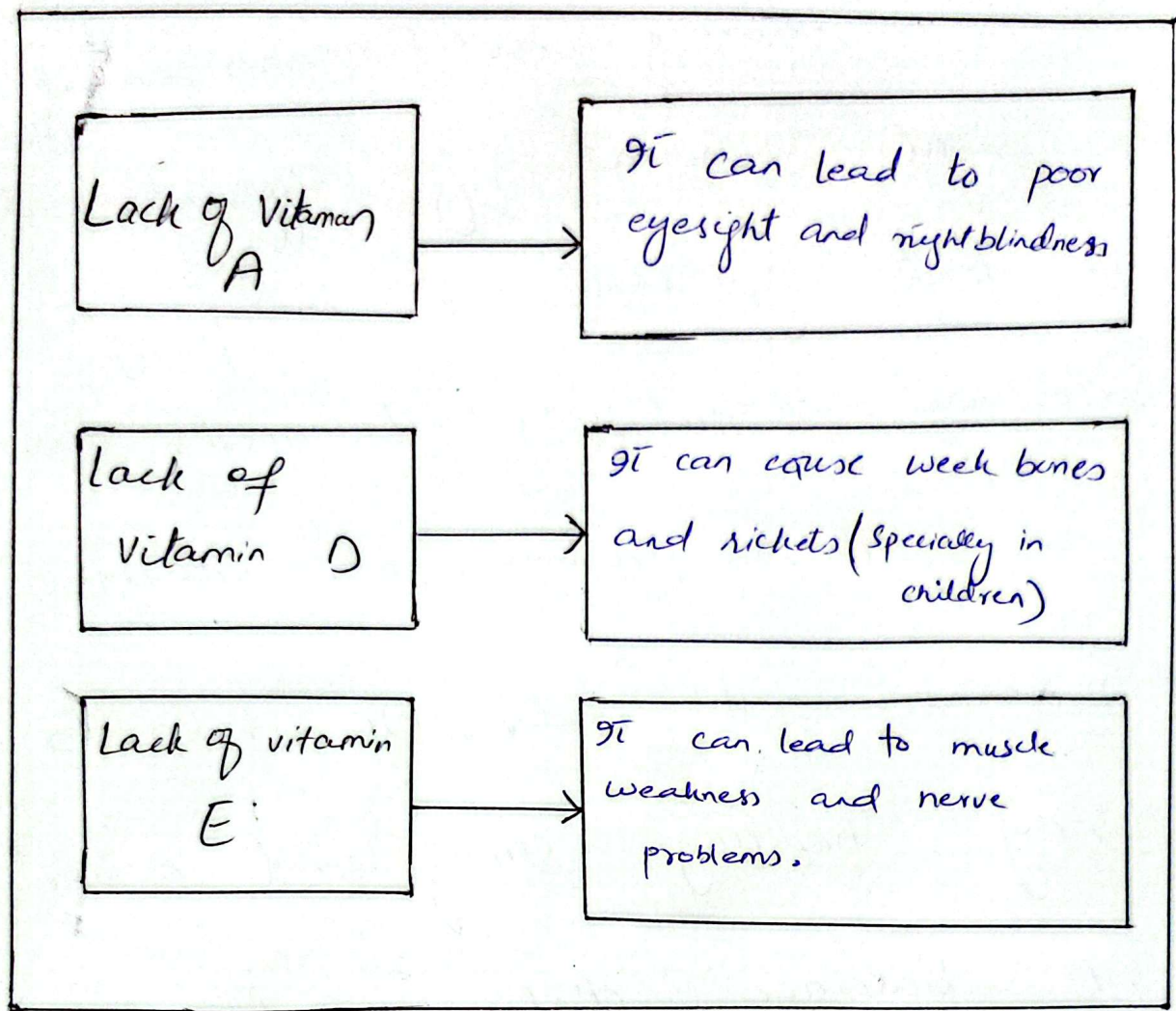
into it, the universe keeps

expanding and moving galaxies
apart over time.

- Answer.

A balance diet means eating the right amount of different kinds of foods so that our body gets all the nutrients it needs. like carbohydrates, proteins, fats vitamin mineral, and water. It help us stay healthy, strong, and active.

A balance diet includes fruits, vegetables, grains, milk, meat and plenty of water. if a person doesn't get enough vitamin A, D and E it can cause several health problems. Deficiency of vitamin A, D and E can cause following imbalances in human body.



d) Answer. GPS (Global positioning system)
Global positioning system (GPS) is a system that help us to find exact location on Earth. It works through a network of satellites that orbit around the earth. These satellites send

signals to GPS receivers on the ground. The receiver ~~can~~ calculates our position by measuring how long it takes for signals from at least four satellites to reach it. This process helps find our exact location.

Fiber optic:-

Fiber optic is a type of cable that carries information as light signal instead of electricity.

It is made of very thin glass or plastic fibers, because light travels very fast, fibre optics are used for

high speed internet, phone calls, and Area
data transmission over long distances
with very little loss or delay.

2D and 3D Location Measurement by
Satellites.

Satellites measure 2D location (latitude
and longitude) using signals from
at least three to four satellites.

To get a 3D location (latitude, longitude
and altitude) signals from four or
more satellites are needed. This
extra satellite measure height or
elevation above sea level, giving
a full 3D position.

Q.No. 3

5

(a) Answer.

Why cells from organelles.

Cell from organelles to make their work easier and more organized. Each organelle has a special job, just like workers in factory. Some make energy, some ~~some~~ make proteins and others store a transport material "by dividing work among organelles. the cell can function smoothly and efficiently.

Mitochondria in a human cell.

Mitochondria are known as the powerhouses of the cell. They produce energy in the form of

molecule called ATP (adenosin triphosphate),

through a process called cellular respiration.

So mitochondria play a ~~are~~ very important role in keeping human cells alive and full of energy.

(b) Answer.

Doping.

It is the process of adding a small amount of another element (called a impurity) to a pure semiconductor.

like silicon etc. This changes shows how well it conduct electricity. Doping increases the number of free electrons or holes in the material, making it more useful for making electronic devices like diodes and transistors.

Types of Semiconductors.

(i) N-type Semiconductor.

N-type semiconductor made by adding elements that have more electrons than silicon, such as phosphorus or arsenic. These extra electrons act as negative charge carriers. The "N" stands for negative.

(ii) P-type Semiconductor.

The "P" stand for positive. It made by adding elements that have fewer electrons than silicon, such as boron or gallium, this create a hole (positive charge carriers) in the material.

(C) Answer

Merits of Volcanic Eruptions.

- (i) Fertile soil:
- (ii) New land formation
- (iii) Geothermal energy
- (iv) Tourism
- (v) Mineral resources.

Demerits of volcanic Eruptions.

- (i) Loss of life and property.
- (ii) Air pollution
- (iii) Climate change
- (iv) Destruction of crops
- (v) Displacement.

Volcanic eruptions have both good and bad effects. They help nature in some way but can also cause serious damage.

1) Answer.

What is Dengue.

Dengue is a viral disease spread by the bite of ~~an~~ an infected Aedes mosquito, mainly Aedes aegypti.

It is common in warm and humid areas, especially during the rainy season. Dengue affects millions of people every year and can be serious if not treated properly.

Causative Agent

Dengue is caused by the Dengue virus (DENV), which has four types (DENV-1, DENV-2, DENV-3, DENV-4).

The virus spreads when an infected mosquito bites a healthy person.

Symptoms.

- High fever
- Severe headache
- Pain behind the eyes
- Skin rash
- muscle and joint pain.

Remedies and Prevention.

- There is no specific cure for dengue, but rest, fluids, and fever reducing medications ~~can~~ can help to overcome it.
 - Prevent mosquito bites by using repellents, wearing long clothes and covering water containers to stop mosquito breeding.
- So dengue is a mosquito-borne viral disease that can be prevented by keeping our surroundings clean and avoiding mosquito bites.

Section II

8

Q No 6# (9)

Flavors are in the ratio

Apple : Berry : cherry : Date = 3 : 6 : 2 : 5

So $\text{Apple} = 3n$

$$\text{Berry} = 6n$$

$$\text{cherry} = 2n$$

$$\text{Date} = 5n$$

Apple candies exceed date candies by 35

that means

$$3n - 5n = 35$$

$$-2n = 35$$

but apple greater than date ~~is~~

So,

$$2n = 35$$

$$n = 17.5$$

Now berry candies

$$\text{Berry} = 6n = 6 \times 17.5 = 105$$

105 berry candies.

(b) Answer

Original price = \$200

Discount = 25%

25% off $\rightarrow \$200 - \$50 = \$150$

6% tax $\rightarrow \$150 + \$9 = \$159$

Total amount paid = \$159.

(c) Answer

Distance = 36 km

Speed = 18 km/h

Start Time = 1 PM

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$T = \frac{36}{18} = 2$$

Time = 2 hours

$$\text{So, } \Rightarrow 1 + 2 = 3$$

The ~~bicycle~~ bicycle reaches at 3 PM.

(d) Answer

(i) STSTAICITS $\rightarrow$ STATISTICS

(ii) LGEBMAR $\rightarrow$ ALGEBRA

Q No 7

(a) Answer

Given data.

Diameter = 14cm $\rightarrow$ Radius = $\frac{14}{2}$ = 7cm

Solution.

Formule for volume of a sphere -

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

$$V = \frac{4}{3} \times \frac{22}{7} \times 7^3$$

$$V = \frac{4}{3} \times \frac{22}{7} \times 343$$

$$V = \frac{4}{3} \times 1078$$

$$V = 1437.3$$

$$V = 1437.3 \text{ cm}^3$$

(b) Answer.

Ratio $1:2:3:4:5$

Total parts $= 1+2+3+4+5 = 15$ parts

Total saving $= 25000$ Rs

Value of 1 part $= 25000 \div 15$
 $= 1666.67$ Rs

So, smallest share (1 part) $=$ Rs. 1666.67

(c) Answer

(i) Series 2, 6, 18, 54, 162, 486

$$2 \times 3 = 6$$

$$6 \times 3 = 18$$

$$18 \times 3 = 54$$

$$54 \times 3 = 162$$

$$162 \times 3 = 486$$

Each number multiplied with 3 to get the next number. So, there is no error, the series is correct.

(ii) Series: 3, 5, 7, 11, 13

These all are prime numbers.

After 13 the next number is 17.

So, the missing number is 17

New Series 3, 5, 7, 11, 13, 17.

(d) Answer

Triangle Sides: 5, 12, 13

So $5^2 + 12^2 = 13^2$, right angle triangle.

One angle is 90°

$$\tan A = \frac{5}{12}$$

$$A = 22.6^\circ$$

Other angle is $180 - (90 + 22.6) = 67.4^\circ$

Angles: 22.6° , 67.4° , 90°