Q.3

(a)

Cell is basic structural and functional unit of life. The internal structure of cell called as organelles. Each organelles has its own specific structure and function, maintaining efficiency and survival of Cell.

MAIN REASONS FOR CELL FORM ORGANELLE

1. DIVISION OF WORK:

Each organelles have their own task to perform. for instance, Ribsomes are responsible for Protein synthesis.

2. COORDINATION:

Each and every organelle works together in organised manners, to maintain overall cellular function. for example: Nucelus sends instructions to Ribsomes to make protein through messenger RNA (mRNA).

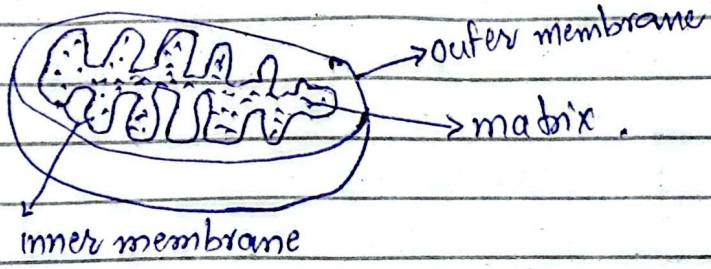
3. PROTECTION:→

Many Organelles in cell have also take part in Protection. like Cell wall

in plant cell gives a particular shape. Lysosomes helps to prevent any dangerous substances during digestive System.

MITOCHONRIA :-

Mitochondria is double membrane organelle found in all eukratic cell. The outer membrane is smooth while inner is floded into cristae, which responsible for increasing chemical reaction. The inner side contain matric including ribosomes, DNA and enzymes.



Mitochondria is known as power house of cell, because it generate energy in form of Adinosine Triphasphate (ATP) during Cellular respiration, using Gulucose and water

$$\text{Gulucose}(C_6H_{12}O_6) + H_2O(\text{water}) \rightarrow CO_2 + H_2O + ATP$$

Q.3
b

Dopping is the process of adding impurity to pure Semiconductors, like Silicon (Si), Germainum (Ge) that having very low conductivity at room temperature, for changing its electric conductivity.

There are two type of dopping
(i) n-type Doping.
(ii) p-type Doping.

TYPES OF SEMI CONDUCTORS

Semi conductors are materials that ~~have~~ electrical conductivity lies between conductor and insulator.

There are two types of Semiconductors.
(i) Intrinsic Semi conductors
(ii) Extrinsic Semi conductors

(i) Intrinsic Semi Conductors:-

These are pure semi conductor with no impurities elements are added. their electrical conductivity lies on temperature and nature of material.
for example: Pure Silicon etc.

2. Extrinsic Semiconductor

These Semiconductor formed by doping method, by increasing aditional charges.

c. Volcano Eryption :→

Volcano eryption occurs when megma, gases, and ash are expelled from the crust of earth.
These eryptions have merits as well as demerits.

Merits

(i) These ashes from volcanoes break down nutrient rich soil, which is very good for Agriculture.
(ii) Volcanic areas are rich in valuable minerals and ores such as Copper, gold etc.
(iii) Heat from volcanic regions can be used as geothermal energy.

Demerits

(i) The extreme eryption of volcanoes can destory many cities, villages and towns, causing deaths and injuries.
(ii) During these volcanic erpytion Sulpher Dioxide gas can cause air pollution and many respiratory issues.

(iii) Large Eruption can release many ash and ~~ash~~ gases which block the sunlight and cause Climate changes

(d)

Dengue

Dengue is viral disease spearded by bite of an infected Ades aegypti mosquito. It mostly occurs in tropical and sub-tropical region. The virus called Dengue virus, which has four types;

(i) Den V-I
(ii) Den V-II
(iii) DEn V-III
(iv) Den V-IV

Symptomology :→

The common symptoms due to dengue are given below;

(i) High fever
(ii) Severe Headache
(iii) Joint and Muscles pain
(iv) Bleeding
(v) Abdominal pain
(vi) Skin rashes

Causative Agents

The main cause is virus called dengue virus that is transmitted by infected female aede aegypti mosquitoes.

Remedies

This disease can be controlled and prevented by taking sufficient measures as given below;

(i) Elimination of mosquito breading sites like stagnant water in containers, ponds and pots etc.

(ii) Spreading of anti-mosquito aspary.

(iii) Usage of repellent and nets.

(iv) Wear full-sleeved dress

(v) Completely cover the water storage containers.

Q.6

(a) Data

Apple = 3

Berry = 6

Cherry = 2

Date = 5

Solution

Lets number of all candies may be x

$3x : 6x : 2x : 5x$

If apple candies exceed Date candies

then $5x - 3x = 35 \Rightarrow x = \frac{35}{2}$

$x = 17.5 \longrightarrow$ eq(i)

Total number of berry candies $\Rightarrow 6x$.

$\because x$ come from eq(i)

$\Rightarrow 6 \times 17.5$

$= 105 \longrightarrow$ Ans

Total number of berry candies are 105.

Q.6

b

Data

Camera Original price = 200 $

Discount 25% = 200 $ - 25%

Tax 6% = Price after Discount x 6%

Total amount paid = (Price after discount) + tax

Solution

price after Discount = original price - 25%

$200 - 25\%$

$200 - \left(\frac{25}{100} \times 200\right)$

$200 - 50$

Price after Discount = 150 $

Now 6% tax will be on amount = price after discount x 6%

$\text{Tax} = \frac{150 \times 6}{100} = 9\$$

Tax = 9 $

Total amount paid will be;

= price after discount + tax

= 150 + 9 = 159 $ Ans.

The amount will be paid is 159 $, after 25% discount plus 6% tax.

Q.6
(c)

Data

Distance = 36 km

Started Time = 1:00 PM

Speed = 18 km/h

Final Reaching time = $\frac{D}{S}$

Solution

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

$$\text{Time} = \frac{36}{18}$$

Time = 2 hours

The bicycle will reaches to distination after 2 hours i.e. 3:00 PM.

Q.6
(d)

(i) STSTAIICITS

↳ Ans :→ **STATISTICS**

(ii) LGEBMAR

↳ Ans :- **ALGEBRA**

Q.7

a. Data

diameter = 14 cm

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

Radius r = $d/2$

$\pi = \frac{22}{7}$

Solution

$V_{(s)} = \frac{4}{3}\pi r^3$

First we must found Radius (r)

$r = \frac{\text{Diameter}}{2}$

$r = \frac{14}{2}$

Radius r = 7 cm

Now we put radius value in volume formula

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

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

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

$= \frac{4}{3} \times 22 \times 49$

$\Rightarrow \frac{4312}{3} = 1437.33\ cm^2$

Volume of Sphere = 1437.33 cm^3 Ans.

Q.7

(b)

Data

Total Saving = Rs. 25000

Ratio of five friend = 1:2:3:4:5

Small share = ?

Solution

Sum of Ratio = 1+2+3+4+5 = 15

Value of Smallest share

$$\frac{25000}{15} \times 1 =$$

$$= 1666.66 \rightarrow \text{Ans}$$

The smallest share of one friend having ratio (1), amounting Rs. 1666.66.

Q.7

(c)

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

lets check

2, 6, 18, 54, 162, 486

Let compare each to another,

$\frac{6}{2} = 3$

$\frac{18}{6} = 3$

$\frac{54}{18} = 3$

$\frac{162}{54} = 3$

$\frac{486}{162} = 3$

Each term is divisible by 3, so there is every term is fit.

(ii) 3, 5, 7, 11, 13, ...

Solution

3, 5, 7, 11, 13, ____ .

all number in this series are prime number. so next number is 17.

3, 5, 7, 11, 13, 17 Ans