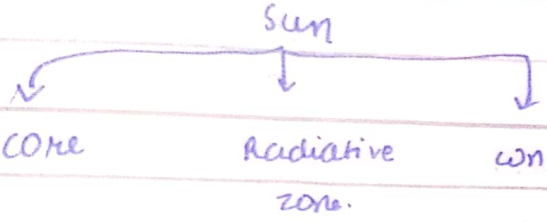
Q3

(a)

Structure of Sun.

Sun is also a star and elliptical body in space. In our solar system, it carries 99% of mass. Planets and comets orbits around it. It is 4.5 billion years old.

Sun is divided into 3 layers.



(i) Core:-

Core is the hottest region of sun where nuclear fusion reaction happens and energy is released. The temperature of core is 15° million degree centigrade due to release of energy.

(ii) Radiative zone:-

Radiative zone comes after core It's temperature slightly less than core. Radiative zone is called Radiative zone because of the way energy (radiations travel throught it.

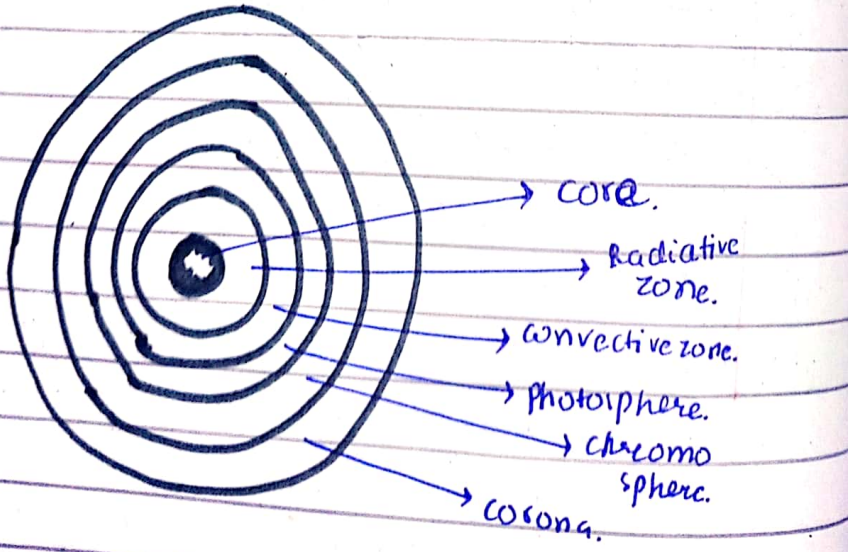
iii Convective zone:-

Heat travel through convection in this region that is why it is called the convective zone.

Atmosphere of sun:-

Sun's atmosphere is consist of three layers i.e photosphere, chromosphere and corona.

photosphere is layer which comes after convective zone and it is visible through earth. chromosphere is in between photosphere and corona. It is the coloured part of the sun that is why it is called chromosphere. corona is last layer in which there is ionized particles and photons. due to high temperature. It is much more hotter than chromosphere.



Q3
b

Tsunami

Tsunami is a japaneese word which means Harbour wave.
It is series of waves caused by a rapid diplacement of a body of water (ocean, lake).
OR series of long displacement waves caused by an earthquake, Landslide or volcanic eruption.
It causes alot of destruction, people can die or trapped in building, damage infrastructure and cause damage to crops.

How it is produced?

Tsaunami canbe generated due to earthquake in ocean or due to volcanic eruption in the ocean due to which the sea bed must be lifted or lowered which cause huge waves in ocean and in result tsunami is generated.

Some recent Tsaunamis:

(i) Indian ocean tsaunami in 2004.

(ii) 2011 Japan Tsaunami

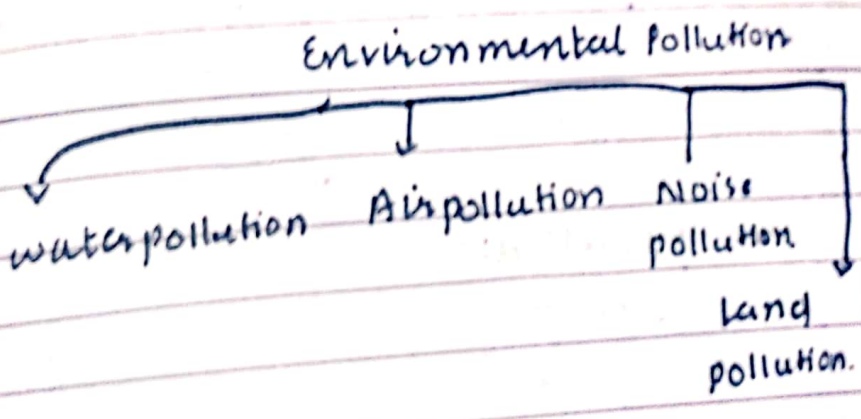
(iii) Indonesia Tsunami 2018.

Q3.

(a)

(i) # Environmental Pollution

Environmental Pollution is undesirable change in the physical, chemical or biological characteristics of air, water and land due to man's activity that can affect negatively to living organism and other resources.



Harmful effects of pollution.

Environment pollution has adverse effects to water, air, and land. Some of the adverse effects are given below

(i) Water pollution.

Water pollution causes harmful effects to living organisms. contaminated water can be dangerous to human beings. alot of diseases can be caused by it. Hepatitus C is very common disease which is caused by impure water.

water pollution is not only harmful to human beings but it can also be harmful for aquatic organisms. The life of aquatic species is based on water and if water is not safe for them, they will not be able to survive.

Land pollution:-

land pollution causes harm to food. Many toxic pollutants into plants due to contaminated soil and it can mess up the food chains.

Moreover due to land pollution, harmful toxins like arsenic can be entered into ground water which would cause illness in human beings

Dust with toxic chemicals can also cause skin cancer and deseases related human respiratory system.

iii Air Pollution:.

Air pollution has devastating effects on humans. Alot of respiratory diseases have become common due to increasing Air pollution in the atmosphere. like asthma.

It can also increase global warming infact earth has entered into global boiling era.

Increased air pollution can also damage ozone layer.

A few measures to curb it

As technology has evolved, humans have found out many ways to make environment less polluted.

Encouraging people to use bicycles and public vehicles is a great way to control Air pollution.

Tree plantation in busy streets.

Industries and waste disposal sites should be outside the city.

Industries and factories should be built to consult with environmental experts.

Paris Agreement is great initiative after kyoto protocol to control the pollution and use of global warming gas.
waste should be properly disposed so that it don't get mixed with water.
In every city, there should be solid waste management that should work after waste.

Environmental pollution is contamination of environment due to toxins and chemicals which happens due to poor management of waste and resources by human and proper measures can be taken by them to control it.

Q3
d

Wireless Communication

Wireless communication is the exchange of information between the devices without the use of cables, wires or any physical connection. wireless devices use the radio waves or electromagnetic waves.

wireless communication can be used by technologies such as mobile phones, radio, Wi-fi, Military operations.

Working of a satellite

Satellite is any object that revolves around a planet in a circular or elliptical path. satellite can be manmade or natural.

First satellite was launched by soviet union and then America.

Rockets launch satellite in Orbits communication satellite receive information from transmitters. The

working of satellite is based on 3 phases uplink, transponders and downlink.

Q5

(a)

Difference between Eukaryotic and Prokaryotic Cell.

Cell is the small unit of living organisms and was discovered by Robert Hooke in 1665. Cell is of two types Eukaryotic and Prokaryotic.

Prokaryotic Cell	Eukaryotic Cell.
Have no nucleus	Have Nucleus.
Don't have membrane bounded organelles	Membrane bounded organells.
Simple DNA	complex DNA.
Cell wall is made of peptidoglycan	Not
DNA floats freely	DNA is present in chromosomes.
divide due to Binary fusion.	Mitosis
Unicellular organisms	Uni or Multi cellular organisms
Eg. Bacteria.	Eg.. plants.

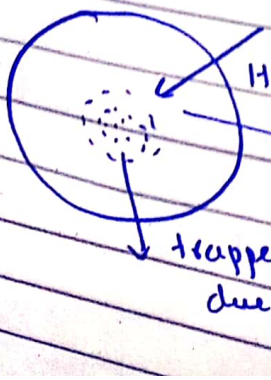
(b)

Global Warming

Global warming refers to the long term increase in the Earth's average surface temperature due to the accumulation of greenhouse gases such as CO_2, Methane, N_2O. in the atmosphere.

Global warming is due to increase in green house effect due to increase in the green house gases.

Green house effect is the process when gases such as Methane, CO_2 trap heat in atmosphere and don't allow it to go back to space, this effect is necessary for living organisms but human activities have intensified it due to which temperature of earth has increased so much.



Kyoto protocol.

Kyoto protocol was an agreement signed to limit the use of greenhouse gases by mostly all the countries of the world to make the environment easy to live..

It was legally binding to reduce the emissions of greenhouse gases. It defined the limit of every country that this much ~~can be~~ greenhouse ~~gas~~ gases can be used by countries. From this agreement carbon trading arose, the country who wanted to use more carbon then it buys from the country who is not using so that the agreement is maintained.

Q5.

(c)

GIS:-

GIS stands for Geographic information system. It is computerized mechanism to capture, store, display, query and analyze geographic data.

Data is of two types here.

① Spatial data is location or extent of geographic features.

② Nonspatial data stores details of geographic features.

a)

Antioxidants:-

Antioxidants are substance that provide electrons to cells in body that have lost it to prevent them from being fall ent to disease.

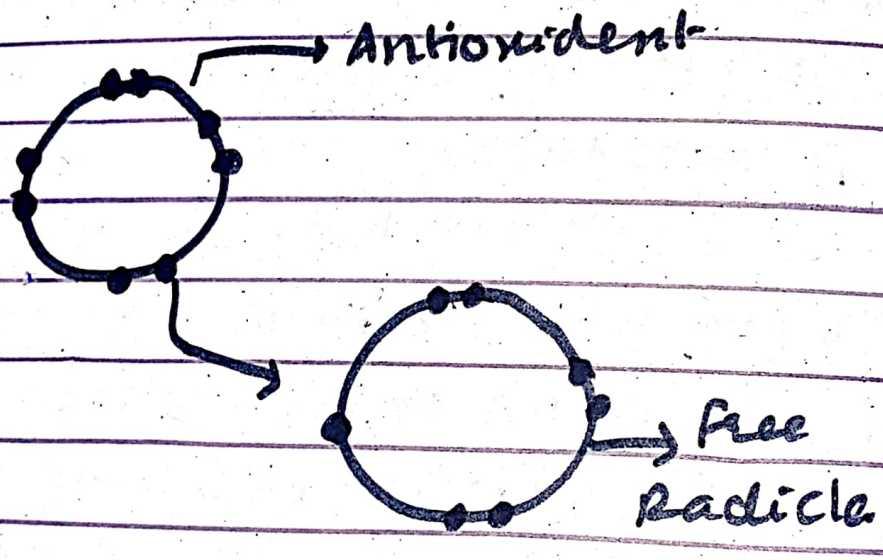
Cells in body are neutral but when they are oxidized lose hydrogen, gain oxygen or loser electron. The problem arise when cell want to come in their previous state and start gaing electron from other cells, starting chain reaction which cause oxidative stress which causes critical diseases, such as

Deterioration of eyelense.
Inflammation of joints.
Acceleration of aging

Body has antioxidants that fight these free radicles such as vitamin E, zinc, iron, vitamin A and selenium

How Antioxidents work

Antioxidents provide their electrons to free-radicles and making them stable.



In processed foods, Antioxidents are also added to increase their life.

Section II.

Q6.

(a) if sum of the 3 digit number is 15. Sum of 10th and unit digit is 12. The difference of the unit digit from 10th digit is equal to 2. What is the three digit number?

Sol:-

let the 3 digit number be a.

Unit digit is x

10th digit is y

100th digit is z.

given

$x+y = 12 \rightarrow (1)$

$y-x = 2 \rightarrow (2)$

$x+y+z=15 \rightarrow (3)$

Add equation 1 and 2.

$x+y+y-x = 12+2$

$2y = 14$

$y = \frac{14}{2} = 7.$

so the 10th digit is 7.

For unit digit lets put 7 in equation 1

$x+y = 12$

$x+7 = 12$

$x = 12-7 = 5$

lets find out 100th digit from equation 3

$x+y+z = 15$

$5+7+x = 15$

$12 + z = 15$

$z = 15 - 12$

$\boxed{z = 3}$

As $x = 5$, $y = 7$, $z = 3$ so the 3-digit number is

~~573~~. $\boxed{375}$ Ans.

(b) A man ordered pizzas of small, medium and large sizes for 18 persons, one slice per person. Each size contains different numbers of slice and the ratio of their slice is 2:3:4. If each slice is of 40gm and the price of a smaller pizza is Rs320 find the price and weight of a total pizza.

Solution..

Person 18.

Slice perperson so total slize = 18

Ratio of slize = 2:3:4.

weight of one slize = 40gm.

As there are 18 slizes so the weight of total slizes will be = 40 x 18

= 720

weight of total pizza = 720gm

$2x + 3x + 4x = 18$

$9x = 18$

$\boxed{x = 2}$

Small pizza = $2x = 320$

$x = 160$ Rs

Medium pizza = 3(160)

480 Rs

large pizza = 4(160)

640 Rs

Total = 160 + 480 + 640

1280 Rs.

Q6

(c) Diameter of a circle is 6cm. Find the circumstance and area of a circle.

Sol:

Diameter of a circle = $2r = 6cm$.

A = ?

Circumstance = ?

Area of a circle = πr^2

$= \frac{22}{7} \times r^2$. $\quad \therefore 2r = 6$

$r = 3$.

$= \frac{22}{7} \times (3)^2$

$= \frac{22}{7} \times 9$

$= 9\pi$

Area of circle = 9π

Circumference = $2\pi r$

$= 2 \times \pi \times 3$

$= 6\pi$

(d) Identify the missing

① 13, 24, 46, 90, 178, ?

Sol:-

13, 24, 46, 90, 178.

13-1=11

24-13= 11

46-24= 22

90-46= 44

So:- 88×2 = 176

178+176 = 354

354 Ans.

ii 5, 6, 9, 14, 21, ...

Sol:

5, 6, 9, 14, 21.. x

1 3 5 7 9

21+9 = x

x = 30 Ans.

Q1

(i) Difference b/w IQ and EQ.

IQ stands for Intelligence Quotient and
EQ stands for Emotional Quotient.

Both are mental abilities but have differences.

IQ is related to intelligence and how much the person do critical thinking and have analytical abilities However EQ is concerned with Emotions and how much a person can handle emotional pressure.

b) what is the presentage of Aman, if after 20 years, his age will be 10 times his age 10 years back?

Solu.

Presentage of Aman = x.

Aman's age After 10 years = $x+10$

Aman's age before 10 years = $x-10$

Aman's age after 20 years = $x+20$.

$y = x+20 = 10(x-10)$

$y = x+20 = 10x-100$

$y = 10x-100$

$x+20 = 10x-100$

$120 = 9x$

$\boxed{x = \frac{120}{9}}$ Aman's presentage.