

Q#2:-

(d)

Sources and effects of air pollution:

Sources:

"Any unwanted substances present in air and causes serious damaging effects are called air pollution". Its major sources are, SO_x , NO_x from vehicular emissions, open burning of garbage, woods, CO_2 emissions due to fossil fuels burning etc. Air pollution's effects are numerous. For example: Acid rain, Breathing diseases (Asthma), Eyes infection, lungs diseases etc.

Impacts on Human health & Environment.

Asthma, Eyes infections, Lungs diseases are common due to air pollution. Accumulation of pollutants in food due to acid rain causing health problems such as liver infection during detoxifying these chemicals.

Similarly, damages of monuments such as Taj-mahal, affecting the photosynthesis efficiency of plants leave due to acid rain, and disturbing the balance of ecosystem.

→ Primary Air pollutants

Those pollutants that are directly enter into air due to either human activities or by any natural disaster are known as primary air pollutants.

For example:

Oxides of nitrogen and Sulphur.

Secondary P

Those pollutants that are formed by the reactions or breakdown of primary pollutant are termed as Secondary air pollutants.

For example:

Example: H_2SO_4 (by reacting with water molecule).

→ Recommendation:

Air pollution can be reduce by individual and Collective actions.

→ At individual level:-

- i) Use public transport instead of personal vehicles to reduce emission.
- ii) Reduce Carbon foot print by using eco-friendly products.

→ At collective action:-

- i) Rise awareness through Social-media Campaign.
- ii) Use high Octane fuel.

(C) Different Earth's Layers.

Earth consists of 3 main layers i.e. Core, Mantle, Crust. They interact with each other.

Mantle is the

hottest portion of

Earth in molten form. **Heat** from magma

move upward and try to excrete from crust. As a result, it pushes the

tectonic plates and causes earth

quakes. Similarly, the spinning of Core

produces **electromagnetic radiation** that

travel from Core to outward layer.

Water Cycle:

Sunlight is the driving force of water cycle on earth. Water evaporate

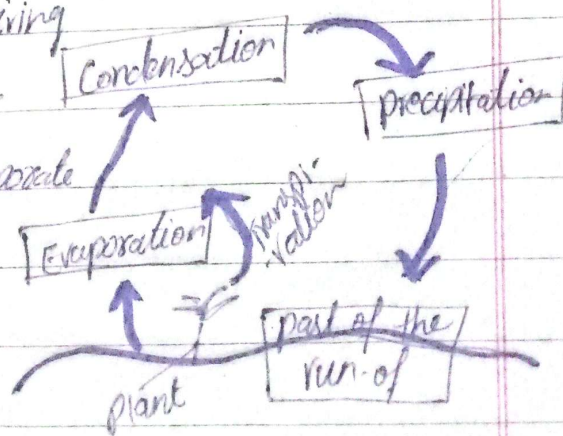
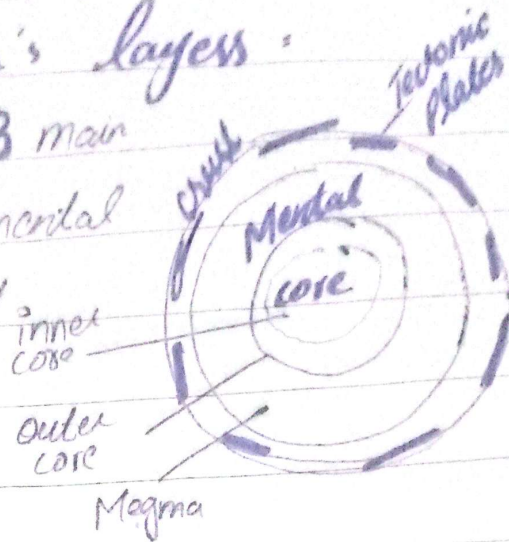
from rivers, oceans, lakes and become

the part of air.

It's condense here and through precipitation

again the part of surface water.

Water also evaporate through transpiration from



Through water cycle, temperature of earth remains balance. Water move from one place to another, and in growing vegetation, ^{and} sustain life on earth.

Impacts of Human activities:

Interaction between the biotic and abiotic components make the earth's ecosystem. Human activities causing impacts on ecosystem and natural resources. Such as:-

- Air pollution, a major cause of acid rain.
- Water pollution due to industrial, agricultural and domestic pollutants causing a severe threat to marine life. and spread water born diseases
- land pollution by dumping open garbage spread enormous diseases. Cause pandemics, effect the natural beauty of land.
- Dependency on non-renewable energy resources harm ^{the} natural resources with an alarming rate.

(b)

Mobile phone:

Mobile phone is an advance technology that enable the communication among people. It works on the principle of artificial intelligence. Different AI models enable it work smart and help to transfer data from one part of the Country to another.

Advantages & disadvantages:

-) Mobile phone turns the world into global village. → It cut-off the people from people and minimize the
-) It helps to highlight personal interaction the Crimes of the world → false news spread and rise voice for fastly through mobile phone Justice.
-) Those who are illiterate and generate can easily use it and panic situation take help to manage for public. their personal affairs. → Black marketing
-) It helps to boost also flourishing the economy not only due to evolving at individual level but advance tech. at all the global level. - no logies used

- Day: _____
- Students seek help in mobile phones in this education and have easy access to the world knowledge.

Impacts on Social interaction & mental health:

Mobile phone increasing distance from people to people. even between the families. Excessive usage of mobile phone locked the natural potential of person's mind and they highly dependent on this gadget to solve their problems.

Changed the way of Communication & interaction:

- It reduce the distances and turn the world into a small village.
- people can easily communicate with each other not only in their territory but also across the border.
- They have access to global information just far from one button.
- But it is also challenging to filter

the false information to the right
over

(a)

Main Components of Cell:

- Nucleus
- Ribosomes
- Golgi apparatus
- Mitochondria
- Endoplasmic-reticulum
- plasma membrane
- Cell membrane
- Cytoplasm
- Genetic material
- Cell wall
- Vacuole

Cellular Function:

Every part (component) of a cell interact with each other to maintain its functions. For Example

→ Cell membrane act as a filter and allow few materials to enter in the cell. That's why it is also known as Semi-permeable membrane.

→ Nucleus contain genetic material. process of "translation" and "transcription" help to make protein.

→ Mitochondria is the "power house" of the cell. Generate its own ATPs.

Prokaryotic

→ Prokaryotic cells have not its true nucleus.

→ Genetic material directly lies in the cytoplasm.

Eukaryotic

Eukaryotic cell has its own true nucleus.

Genetic material enclose in the nucleus.

Response of cell to external stimuli..

Cells have receptor cell (sites) on its membrane. As the external environment of cell changes, it immediately sense it and give response accordingly.

For example: When there is need of protein, cell immediately transfer message to the nucleus, proteins are generated and transport outside of the cell where it is needed.

Maintain Homeostasis

"Homeostasis" is a process to maintain temperature. Cell can also maintain temperature to continue its internal functions.

For example: Some plants create a layer of wax on their leaves to protect from ice crystal formation during winter seasons.

Q#4:

(d)

Sources & effects of Water pollution:

Any unwanted, harmful material in water that affects its standard parameters are known as water pollution.

Sources:

- Industrial waste
- Agricultural ^{waste} (fertilizer - run-off)
- Precipitation in acidic nature
- Domestic wastages
- Hospital wastes

Effects:-

- Depleting clean water resources.
- Rising temperature as oceans
- Capacity to absorb heat reduces due to pollution
- Less Evaporation as clean water - decline in rain fall

Impacts on Human Health:

Drinking polluted water is a major source of human diseases.
For Example.

- Hepatitis A, B - Typhoid
- Accumulation of Heavy metals in blood stream.
- Brain diseases due to Heavy metals such as Pb, Cr, Mg etc. (Alzheimer diseases).

Impact on Environment

- Marine life effected.
- Algal bloom in Ocean & river that block the way of Sun light to penetrate in deep and reduce dissolve Oxygen (DO) level. This thing lead to Suffocation for fishes and they ultimately died.
- Accumulate toxicants from grass root level to tertiary level and became the part of food chain.

Prevention:

- Strict policies by government to

- Waste Clean water both at domestic and industrial level
- Industries treat water prior to add it into main-stream water flow.
 - Farmers Construct hedger across their farmland to prevent fertilizers run-off
 - Net-measuring Sys install at house level to prevent water wastage.

(C) Balance diet

A diet containing all nutrients that are compulsory for a healthy life is called balance diet.

It is essential to maintain good health because nutrient perform specific function in our body.

Carbohydrates
Proteins
Lipids

} These are
macro-nutrients

Macro nutrients required in large

quantity.

- **Vitamins** (A, B, C, D, E, F)
 - **Calcium**
 - **Proteins**
 - **Anti-Oxidants**
- } These are micro-nutrients and are required in less quantity.

In a balance diet, all micro and macro nutrients must present in Calculated amount. Excess and deficiency, both are bad for good health. For example: excess of fat cause Obesity.

Similarly deficiency of calcium in bones ~~are~~ weaken them. **Osteo-prosis** is a disease ^{of bones} due to calcium deficiency most Common in women.

Chronic diseases:-

Those disease that having long lasting impacts in our body are termed as Chronic disease. Such as heart disease is a chronic disease.

Limited usage of fat-containing food prevent to ^{become} heart patient.

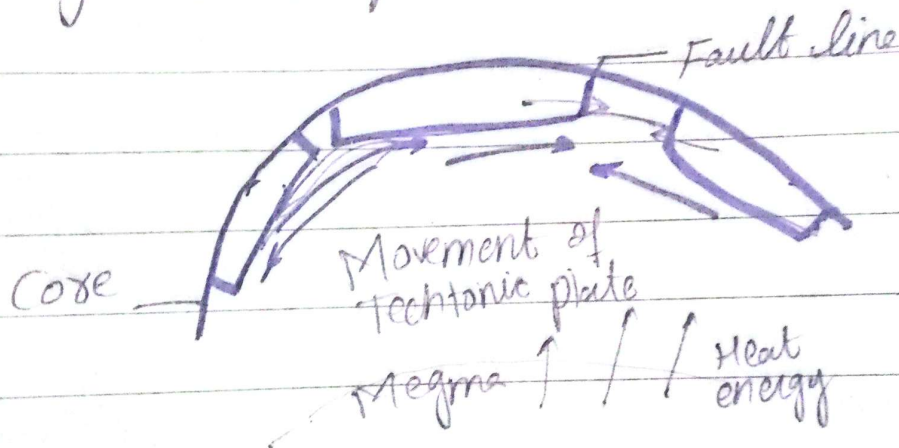
Because layer of fat surround/cover the heart and Cause heart attacks.

(b) Causes and effects of earth quakes:-

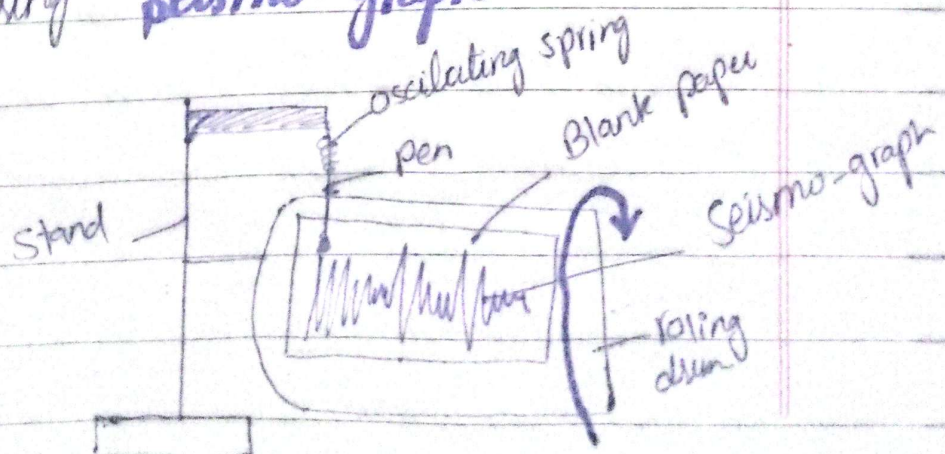
There are some natural and man made causes of earth quake:

For example:-

Collision between tectonic plates due to heat pressure from magma cause earth quake. Those countries lies on the fault lines effect badly as compare to others.



Seismic waves are generated as a result and it can be recorded by using **Seismo-graph**.

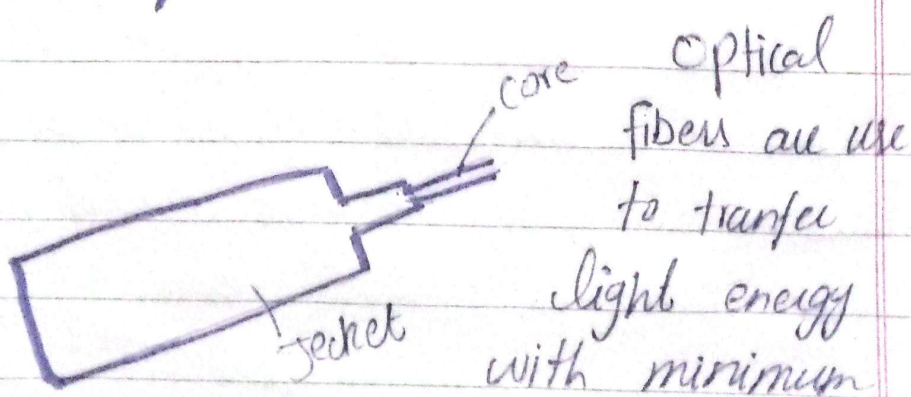


To reduce the impacts of earth quake:-

- Construct building having ability to absorb shocks.
(oscillating buildings in Japan)
- Install early warning system to evacuate large building.
- Install heavy oscillating sys at the centre of large markets, halls, business offices or any other public areas. It can absorb the shocks of earth quake and help to ^{prevent from} collapse a building.

(a)

Fiber Optics:-



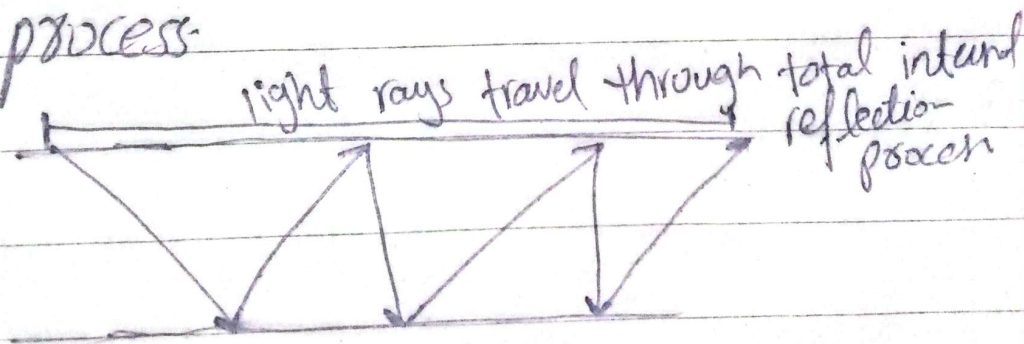
absorption. It uses the phenomenon of Total internal reflection.

Advantages of Fiber Optic Communication :-

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- Optical fibers use the "total internal reflection" phenomenon, which helps to transfer light with minimum data loss.
- It helps to ~~(Sp)~~ speed-up the transmission process.
- Copper wire communication dissipates data due to resistance and it slows down the transformation process.



High Speed data transmission:-

Data should be transferred without power loss, without resistance (heat dissipation due to resistance) by using optical fiber.