

Syeda Tawad Fatima

NOA-OB-69

GSA Mock - I

Section - I

Qno: 2 (d)

Air Pollution: causes, effects, impact

Sources of air pollution:

Contamination of air by harmful gases like SO_2 , CO_2 , CO excreted by industries, burning of fossil fuels, electric vehicles, Transportation and nuclear power plants. This excretion contributes in polluting the air humans breath in. Carbon emission contributes **about 60%** in polluting the air.

Effects of air pollution:

The most significant effects of air pollution include;

↳ Global warming

↳ Ozone Depletion

↳ Acidic Rains

↳ Respiratory issues in humans

↳ Smog

Teacher Feedback _____

Impact on human health:

Clean and fresh air is the survival necessity of a man. But when a man breathes polluted and contaminated air, it badly effects his health. Health issues created by air pollution include:

- Respiratory diseases
- Tuberculosis
- Asthema
- Dry cough
- Even lung cancer

Moreover, insufficient supply of fresh air to human air can effect its efficiency.

Impact on environment

The environmental impacts due to air pollution include:

- Plant diseases due to acidic rains
- Accidents due to severe smog in cities
- Poor concentration of O_2 in environment
- Spread of deadly diseases among humans and animals.

Air Pollutants

Primary

The pollutants that directly contaminate air in the form of hazardous gases like SO_2 , NO_x , CO_2 are called primary pollutants.

Secondary

The pollutants that are produced as a result of chemical reaction with primary air pollutants are known as secondary air pollutants. e.g. photochemical reactions

Mitigating air pollution

Multiple plantation drives

Shifting to renewable energy

Limiting use of fossil fuels

Effective policies to counter CO_2

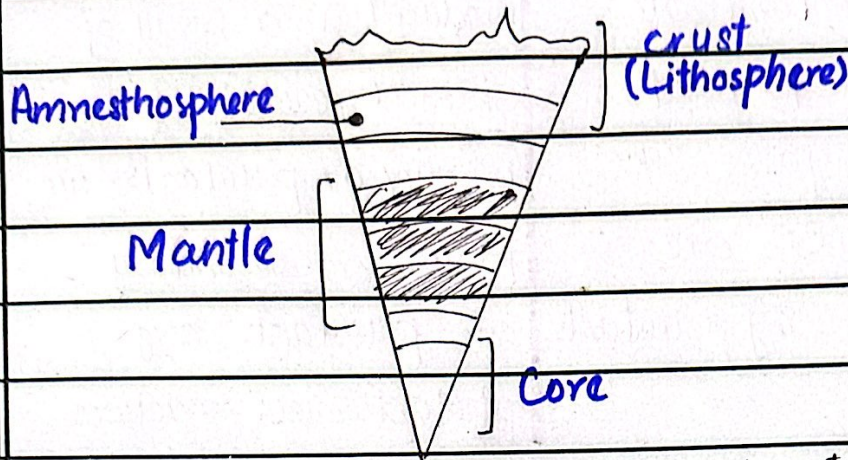
Shifting towards electric vehicles

Shifting industries outside of residential areas

Spreading mass awareness on air pollution

Qno: 2 (c)

Layers of Earth



Earth is a multi-layered planet which is mainly divided into three layers;

Crust (Lithosphere): The upper most, stiff layer that is also used for agriculture and living is known as crust or lithosphere. It also contains mountains and seas.

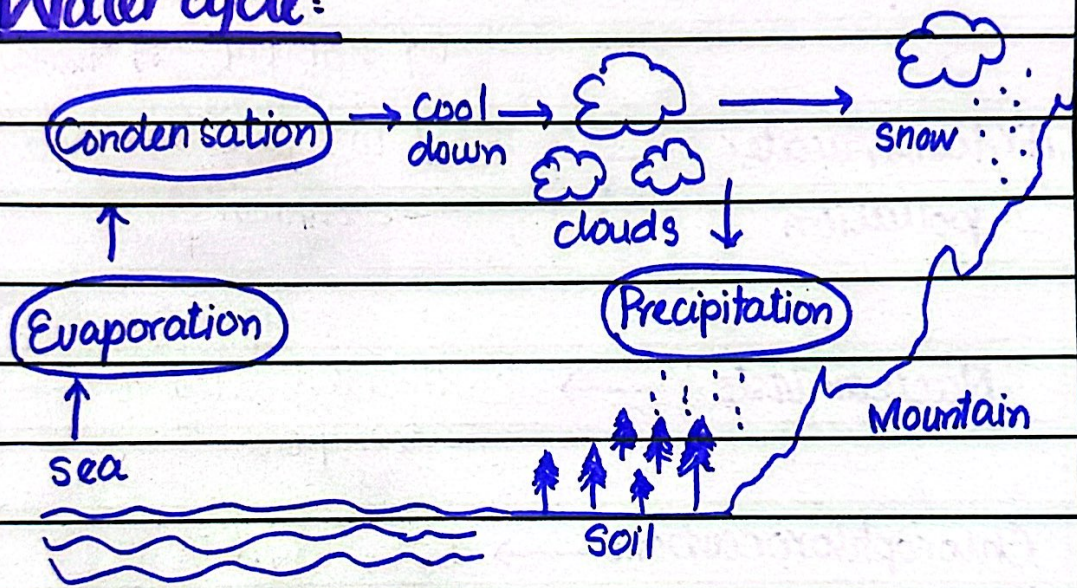
Mantle: The middle layer is known as mantle. Here temperatures are extremely high due to the presence of molten magma. This magma sometimes erupts to the surface of earth.

Core: Core is the inner most and central part of earth. It is hard because of extreme pressures.

Interaction of layers:

During any strong activity such as earthquakes these layers shift and interact. This movement is also known as tectonic movement. Due to strong earthquakes sometimes this magma erupts to the surface of crust.

Water cycle:



To maintain the water requirements, earth has its own water cycle consisting of three major processes;

Evaporation: Due to sunlight water from soil & water bodies is evaporated in the form of vapours.

Condensation: These vapours condense and form soft and heavy clouds.

Precipitation: These condensed water vapours (clouds) are converted into water in form of rain and snow.

Impact of human activities

Extreme human activities are destroying our planet taking earth at the brink of irreversible destruction. It is changing the natural demography of earth.

Deforestation → Soil erosion, floods, loss of habitat

Air, land, water pollution → Threat to aquatic life and ecosystem

Nuclear tests → Earthquakes, volcanic eruption

Chlorofluorocarbons → Ozone depletion

Carbon emission → Global warming

Excessive use of fossil fuels → Not preserving for future generations

Rising Temperatures → Melting glaciers

Tricking the nature → Climate change.

Qno: 2(b)

Mobile phone & Key technology

Mobile phones are the most common source of communication in 21st century. It uses radio signals and microwaves to transmit voice signals from one place to another. With the advent of smartphones and internet, mobile phone uses 3G, 4G, 5G internet services to connect anywhere world wide. It has made communication accessible on the finger tips.

Advantages

- Made communication easier & accessible.
- Learning platform
- Access to all kind of information.
- Swift source of entertainment and video games.
- Multiple apps addressing multiple requirements of man.

Disadvantages

- Distanced the hearts and meet ups.
- Isolated the man.
- Distanced the young generation from books and literature.
- Man is missing out mesmerising views of nature.
- heading to social media addiction.

Impact on social interaction and mental health

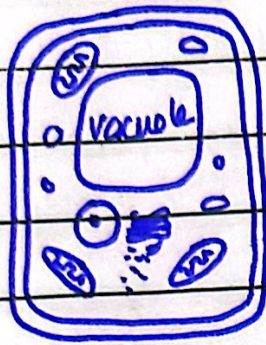
Mobile phones have adversely and dangerously impacted social interactions and mental health. With feasible communications, mobile phones show up with isolationism causing a paradigm shift in the personalities of upcoming generations. In an observatory manner, it can be deduced that gen-Z are mostly introverted while gen-(alpha)millinials are mostly extroverted. An emerging factor is mobile phone because gen-millinial alpha were least accessible to mobile phones as compared to gen-Z. These mobile phones end the grace of social gatherings and pursue the way for social media. Social media addiction has gripped the gen-Z and it has highly impacted their mental health. Minimum exposure to nature and human interaction can alter the activity of human brain creating mental health issues.

Communication & information access

Mobile phones were meant to be created for communication but now in 21st century mobile phones and internet have made the communication and all type of information accessible. One can access all kind of data on any topic just in a click. So it is of no doubt that mobile phones were a revolutionary change in human civilization. The message that used to take days to be delivered in ancient times now can be delivered in seconds. That's how mobile phones have made human life swift and broadened his exposure to all information.

Qno: 2(a)

Main components of Cell



Plant cell



Animal cell

"A cell is the basic structural and functional unit of organism"

Main components

Cell membrane:

Common in both animal and plant cells. It is the most outer membrane of cells enclosing the cell organelles.

Cytoplasm:

Cytoplasm is fluid enclosed by cell membrane and it contains all the cell organelles.

Vacuole:

Vacuole is a cell organelle common to both animal and plant cells.

Plant cells usually have larger vacuole because it assists in food formation.

Nucleus:

Nucleus is the main component of cell and it regulates the cell functioning.

Mitochondria:

It is present in both animal and plant cells. It is known as the energy storage device of the cell.

Function:

All these cell organelles combine to make a cell and regulates cell functioning together by maintaining energy and food molecules in human and plant bodies. These organelles are responsible for gaseous exchange, energy storage and food processing.

Prokaryotic cell

unicellular: Found in unicellular organism with no cell membranes

DNA: Circular DNA

Reproduction: Asexual

Example:

- Bacteria
- Viruses
- Fungi

Eukaryotic cell

multicellular: Found in multicellular organism with cell membraned organelles.

DNA: Linear DNA

Reproduction: Sexual

Example:

- Animal cell
- Plant cell

Response to stimuli

Cells are responsible to perform respective stimuli according to their environment. In animal cells, brain regulates this job. In a cell nucleus is responsible for any internal and external action. Cell maintain homeostatis via exocytosis and endocytosis by pinching cell membrane to create a pathway for that particle to enter or leave the cell.

Section-II

Qno: 6(a)

Sum of number?

Product of two numbers = 120 = xy

Sum of their square = 289

Sum of the number = ?

Let the numbers = x, y

sum of square = $x^2 + y^2 = 289$

$$(a+b)^2 = a^2 + b^2 + 2ab$$

$$((a+b)^2) = (x+y)^2 = x^2 + y^2 + 2xy$$

$$(x+y)^2 = 289 + 2(120)$$

$$(x+y)^2 = 289 + 240 = 529$$

$$\sqrt{(x+y)^2} = \sqrt{529}$$

So, the sum of two numbers $x+y$ is 23

Qno: 6(b)

Salman's age at present?

Ratio of age 6 years ago = 6:5

In 4 years, age ratio will be = 11:10

Salman's age at present = ?

$$6:5 :: 11:10$$

[Salman's age = a]

Kamran

Salman

6

:

5

11

:

10

6 years ago,

$$\frac{K-6}{S-6} = \frac{6}{5}$$

$$5K-30 = 6S-36$$

$$5K-6S = -36+36$$

$$5K-6S = -6 \quad \text{--- ①}$$

4 years,

$$\frac{K+4}{S+4} = \frac{11}{10}$$

$$10K+40 = 11S+44$$

$$10K-11S = 44-40$$

$$10K-11S = 4 \quad \text{--- ②}$$

Multiply eq ① with 2 and subtract.

$$10K-12S = -12$$

$$+10K-11S = +4$$

$$+S = +16$$

At present age of Salman = 16

Qno: 6(c)

Find second number

Sum of three numbers = 98

Let the numbers = x, y, z

Ratio of x to $y = 2:3$

ratio of y to $z = 5:8$

$$x:y :: y:z$$

$$\frac{x}{y} = \frac{y}{z}$$

$$y^2 = xz$$

$$x:y = 2:3$$

$$\frac{x}{y} = \frac{2}{3} \Rightarrow x = \frac{2}{3}y$$

$$y:z = 5:8$$

$$\frac{y}{z} = \frac{5}{8} \Rightarrow z = \frac{8}{5}y$$

$$x + y + z = 98$$

Putting values of x, y and z

$$\frac{2}{3}y + y + \frac{8}{5}y = 98$$

$$y\left(\frac{2}{3} + 1 + \frac{8}{5}\right) = 98$$

$$y\left(\frac{16+24+15}{24}\right) = 98$$

$$y\left(\frac{55}{24}\right) = 98 \Rightarrow y = \frac{98 \times 24}{55}$$

The second number = $y = 30$

Qno: 6(d)

Weekly sale = Rs 392

Gain on C.P = 22.5%.

Profit = ?

$$SP = CP + \text{profit}$$

$$C.P.\% = 22.5\% = \frac{22}{100} = \frac{9}{40} \text{ of CP}$$

$$SP = \cancel{300} CP + \frac{9}{40} CP$$

$$SP = \frac{49}{40} CP$$

$$C.P = 392 \times \frac{40}{49} = 320$$

$$\text{Profit} = SP - CP = 392 - 320 = \text{Rs } 72\%$$