

SECTION-II

ANSWER 7(b)

- (i) 53, 53, 40, 40, 27, 27, ..., 14, 14
- (ii) 14, 28, 20, 40, 32, 64, ..., 56, 112
- (iii) 8, 6, 9, 23, 87, ..., 24
- (iv) B, F, R, ..., D
- (v) V, U, W, V, X, W, ..., X



R 8, 6, 9, 23, 87, ... B, F, R 14, 28, 20, 14, 2

ANSWER 5(a)

$$59, 61, 67$$

$$59 + 61 + 67 = 187$$

Sum of three consecutive prime numbers is 187

—————x—————x—————

ANSWER 5(d)

Data

Eggs $\rightarrow$ 20 dozens $\rightarrow$ 1 dozen $\rightarrow$ 12 eggs $\rightarrow$ 20 dozens $\rightarrow$ 240 eggs

Cost $\rightarrow$ Rs 375 per dozen

Sold $\rightarrow$ Rs 33 per egg

Solution

Total cost $\rightarrow 20 \times 375 = \text{Rs } 7500$

Sold $\rightarrow$ Rs 33 $\rightarrow$ 1 egg

total eggs $\rightarrow 240$

33×240

Total selling price $\rightarrow 7920 \text{ Rs}$

Profit $\rightarrow$ ~~cost price~~ selling price - cost price

Profit $\rightarrow 7920 - 7500$

Profit $\rightarrow 420 \text{ Rs}$

Profit in % $\Rightarrow \frac{420}{100} = \boxed{4.2\%}$

SECTION-I

ANSWER # 2(a)

Definition of cell

Cell is the basic structural and functional unit of life.

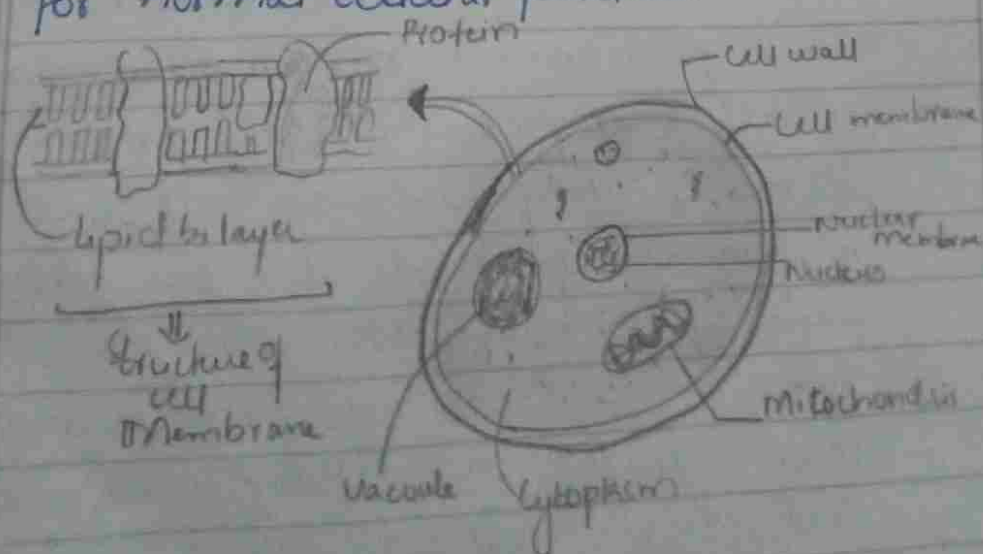
Components of a cell

- (a) Cell wall
- (b) Cell membrane
- (c) Cytoplasm
- (d) Nucleus → enclosed with nuclear membrane
- (e) Mitochondria
- (f) Lysosome
- (g) Vacuole
- (h) Ribosome

Working of cell components together to maintain cellular function

Cell wall is the outmost membrane of plant cell and its main function is to maintain shape of cell and protect it. Cell membrane is inside along side with cell wall in plant cell while it is the out layer of animal cell. It acts as a barrier and it has transport channels that regulate the substance in and out of the cell. It is made up of

lipoproteins. Cytoplasm is the fluid inside the cell. It act as a medium to hold organelles and for their activities. Nucleus is the most important part of the cell. As it controls all the activities of cell. It has genetic material (DNA) and RNA will help in the process of cell division (meiosis and mitosis). Mitochondria is known as the power house of the cell. It help to generate Adenosine-tri-phosphate (ATP) which is the energy currency of the cell and necessary to run the processes. Lysosomes contains enzymes which help in degradation. Vacuole helps in food storage specially in plant cell. Ribosomes are necessary for the genetic process. All these components of cell must function well for normal cellular functions.



Structure of cell

Difference between prokaryotic and Eukaryotic cell

Prokaryotic cell

Prokaryotic cell found in members of kingdom prokaryote (Monera). It lacks nuclear membrane. It just have the nuclear material (RNA or DNA) in the cytoplasm. It is only present in unicellular prokaryotes.

Eukaryotic cell

Eukaryotic cell found in all remaining kingdoms (Plantae, fungi, Animalia). It has true nuclear membrane and have all organelles of cell which are discussed earlier. All multicellular organisms have eukaryotic cells.

Cells response to external stimuli and Maintenance of homeostasis

Due to the vital components of cell, it response to external stimuli and maintain homeostasis. As when ever an external stimuli like an bacteria come and infection white blood cells plays a key role to maintain homeostasis. Cell shrink or swell as per stimuli. When hand touch on any hot thing, nerve cell sense and withdraw of hand for that way maintain homeostasis.

—————X—————X—————

Q/ANSWER 2(b)

Working of mobile phones

A mobile phone is a portable communication device. It works with the help of chips inside in them. Which carry network and help to communicate.

Key technologies that enable mobile phone communication.

It includes net technology which is accessible through WiFi or network packages that help to communicate to the entire globe and other technology includes SIMs of different networks and that helps to communicate as per availability of their network.

Advantages of mobile phone use

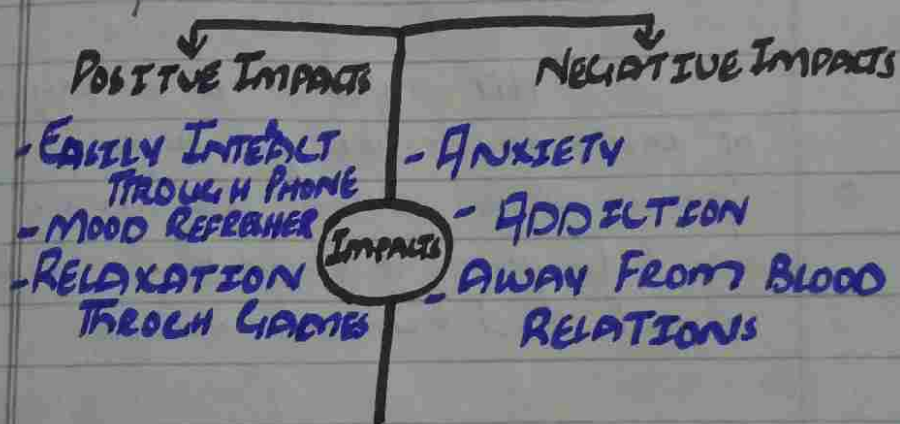
It is a portable communication device which helps to communicate within milliseconds to the whole globe. It provides easy, fast and safe communication.

Disadvantages of mobile phone use

People have stopped to use formal way of communications and that's the reason they have decrease their writing skills. People become addicted to it.

Impacts on social interactions and mental health.

Impacts are illustrated in a chart below



Mobile Phones change the way of communication and access information

Communication becomes easy, safe and fast through mobile phones than the traditional way of communication i.e. writing letters. Access information is quick with the help of internet as newspapers still take time to print.

* * *

ANSWER 2(c)

Different layers of earth

Core

Mantle

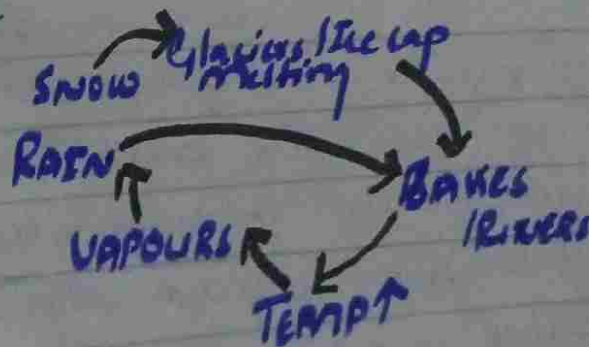
Asthenosphere

Interaction of layers

Asthenosphere is a layer of earth responsible for tectonic plates while core is the inner most layer and above it is mantle which had numerous minerals.

Earth's water cycle

Earth water cycle can be understood from the chart diagram below.



Water cycle support life on planet

If it is not maintained, life on planet will not maintain. As glaciers are the largest source of fresh water for many animals. Ice cap give habitat to polar bear and like wise river or lakes for the aquatic life.

Impact of human activities on earth's ecosystem and resources.

Global warming, climate change, and depletion of ozone and smog are the impacts of human activities on earth. Air pollution, water pollution are destroying the earth's ecosystem. Due to human activities resources are depleting like excessive melting of glaciers.



Q-NUWA 2(15)

Definition of Air pollution

"When atmosphere contains the pollutants in such a concentration that is harmful to humans, animals, plants, aquatic life and environment is called Air pollution"

WHO

Main sources of Air pollution

Emission of NO_x , SO_x , VOCs are the main source of emissions of air pollution. That emissions occur to human activities like burning of fossil fuels, deforestation, using ozone depleting substances, vehicle usage, burning of crop residue and Industrialization.

Effect of Air pollution

Global warming, Climate change, depletion of ozone are the key effect.

Impact of Air pollution on human health and environment

Diseases

Respiratory diseases like Asthma & COPD become more prevalent due to air pollution. Certain skin cancers occur due to this.

Badly impact on plants

Due to air pollution, abscission, necrosis of plants occur and plants become damaged.

On Environment

Smog (Smoke + fog) accumulate in atmosphere due to air pollution and damage badly the life. Global warming due to ^{polluted} gases excess in atmosphere.

Recommendation / ~~and~~ Suggestions

Afforestation, Reforestation & Deforestation control
Use of renewable source of energy → solar panels,
Pollutant absorbing instruments → Carbon sinks
Pollution control → proper methods
Sustainable Carbonization. ^{disposal} spray division

—X—X—