JANBAZ KHAN (OB-59).

General Science And Ability

PART # II
Section - I

Q#2

a) Answer:

Climate:

Climate is an average of precipitation, Temperature and humidity over a long period of time is called climate.

Environment:

Surrounding in which an organism live is called its environment.

Climate	Environment
i) Consist of factor like: precipitation, humidity and Temperature	consist of all living and non-living factors around the org.
ii) Climate consistitute weather phenomenon.	Environment constitute of biotic and abiotic factors.

Causes of air pollution in Pakistan:

i) **Over population:** One of the major cause of air pollution in Pakistan is rising population. More the population more will be production of pollutant. More area will required for housing led to deforestation.

ii) **Deforestation:** Pakistan have less than 5% of land cover with forests. While global standard is 25% of land. Therefore, deforestation is a major cause of Air pollution in Pakistan.

iii) **Vehical Emission:** Unfortunately, Pakistan's metropolitan lack efficient public transport. which led to excessive use of the vehicles. causing extreme emission of CO_x, SO_x.

iv) **Agriculture Activities:** The farmers in punjab used old technique of burning crops remains. which adds to the Air pollution.

v) **Thermal Energy:** Pakistan produce 60% of its energy by Thermal

resources, which is a major cause of air pollution.

---

b) Answer :-
Vitamins:
These are essential nutrients required for normal functioning of human body. Vitamin is combination of two words vital and amine. means the most important amine. Although, not all vitamins are amine but the first discovered vitamin was an amine.

Types of Vitamins:

1) Fat soluble:
Those vitamins which solve in fats like vitamin, A, D, E and K. are called fat soluble vitamin.

2) Water soluble:
Those vitamins which are soluble in water like vitamin B complex and vitamin C, are called water soluble vitamin.

2

	Vitamins	Role
i)	A	Function in development of eye and brain.
ii)	D	Required for Bone development.
iii)	E	Perform role in skin, nerve, delay Aging and development of reproductive organs
iv)	K	Role in Blood clotting
v)	C	Immunity and skin.
vi)	B-Complex	Role in Digestion, Blood cells development, nerve transmittion, appetite, cell regulation.

d) Answer:

Active Sensors: Those sensors who have their own source of light means it does not depend on other source and can detect information actively day and night.

Passive Sensors: Those sensors who doesn't have their own source of light rather dependend on natural source i.e. sun light and can detect information only when exposed to sunlight.

Use of Sensor in GIS:

GIS consist of following components.

1) Hardware
2) Software.
3) Data
4) User.

The Data is mainly receive through remote sensing. In remote sensing these active and passive sensor play a critical role in collection of data and transmission. The sensors role in remote sensing is illustrated by given diagram.
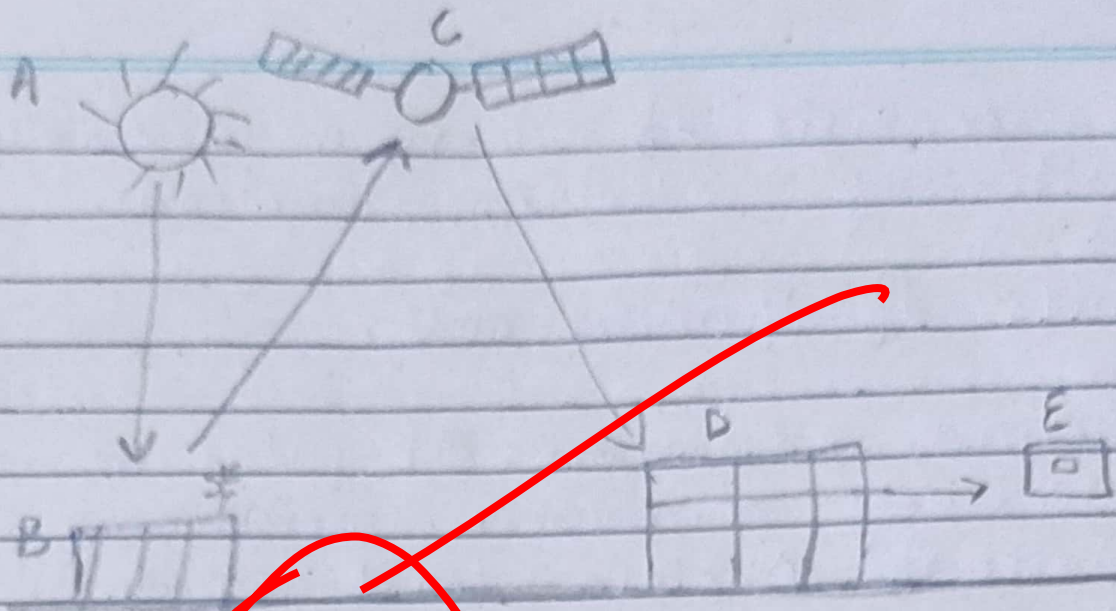
Fig: Remote Sensing.

→ If the only source of illumination of source is them it will be passive sensing.

→ If the source have their own light it will be called active sensing.

Active sensing enable GIS experts to collect data anytime they want, But, in case of passive sensor they have to wait for sun.

Answer:
Human cell:
                    Cell is the basic structural and functional unit.

It consists of various organelle performing specific functions.

Units of Human cell:

i) Plasma membrane: It is a selectively permeable membrane. Made of protein and lipid Bilayer. It allow only those material which are required by cell.

ii) Cytoplasm: The medium in which all organelles are suspended are called cytoplasm.

Function:
1) Site for certain reactions like glycolysis.
2) Hold neutrients and all organelles.

iii) Golgi Apparatus: Named after its discoverer camillo golgi. It is membraneous sac involve in various important functions.

Functions:
i) Storage of protein
ii) Packing of releaved proteins.

iii) Modification in protein structure

iv) Endoplasmic reticulum: It is also a membraneous orgenelle surronding nucleus.

Types:

a) Smooth Endoplasmic Reticulum: The type of reticulum which have no ribosomes attached to it is called smooth endoplasmic reticulum.

Functions:
→ Production of fats.
→ Involve in elimination of toxocity

b) Rough Endoplasmic Reticulum: This type of Endoplasmic ~~red~~ Reticulum have ribosomes attached to its surface.

Function:
→ production of protein.

Ribosomes: These are small orgenelle consist of two sub-units. It is made up of rRNA and protein.

Human cell have 80S ribosomes which means each subunit consist of 40S and 60S subunit

Functions:
Production of proteins.

vi) Centrioles:
These are microtubular bodies involve in separation of chromosome during cell division.
Structure:
Each centriole consist of triplet of nine microtubules which means each of them consist of 27 microtubules.
Function:
→ Support to cell.
→ Seperation of chromosomes to opposite poles of cell

vii) Mitochondria:
Double membraneous body involve in multiple procenes and also called Power house of cell
function:
→ Site for reaction of respiration like; Kreb cycle

viii) lysosomes:

Membrane bounded organelle which contain enzyme in it Mainly have hydrolytic enzymes.

Function:
→ engulfing & destruction of Antigens
→ Autophagy.

ix) Nucleus:

The command and control central of the cell. It contains chromosome and control whole function of cell. Consists of Neucleoplasm and nucleolus.

Function:
→ The site for chromosome
→ Control of cell.
→ ~~translation~~
→ Transcription. (DNA → RNA).

SECTION # II.

27:
a) Answer:

Given data:

A no. multiplied by ~~3/5~~ 3/5

But,

Real no was 5/3.

Required:

Percentage error?

Solution:

Let the no. be x.

So,

$$\% \text{ error} = \frac{\text{Actual no.} - \text{wrong no}}{\text{Actual no}} \times 100$$

$$= \frac{\frac{5x}{3} - \frac{3x}{5}}{\frac{5x}{3}} \times 100$$

$$= \frac{\frac{25x - 9x}{15}}{\frac{5x}{3}} \times 100$$

$$= \frac{16x}{15} \bigg/ \frac{5x}{3} \times 100$$

$$= \frac{16x}{15} \times \frac{3}{5x}$$

$$= \frac{16x}{15} \times \frac{3}{5x}$$

$$= \frac{48}{75x} \times 100$$

$$= 0.64 \times 100.$$

$$= 64\%.$$

Result:
The percentage error was
[64%].

b) Answers:
Given:
ratio chocolate to icecream =
5 : 8

no. of chocolates = 30

Req:
no. of ice-cream cones = ?

Solution:
The no. of ice-cream cones
can be find through
proportion formula.

$\therefore$ a : b :: c : d.

So, 5 : 8 :: 30 : x

x = no. of
ice-cream
cones.

Product of mean = product of
extreme

$$240 = 5x$$
$$x = \frac{240}{5}^{48}$$
$$\boxed{x = 48}$$

Result:

So, the no. of ice-creeam cones were $\boxed{48}$

c) Answer:

Given:

one tablet contain 30mg.

Req:

No. of tablet for 240mg

Solution:

Let the no. of tablets for 240mg be (x)

So

$$1 : x :: 30 : 240$$

$$30x = 240$$

$$x = \frac{240}{30}^{8}$$

$$\boxed{x = 8}$$

Result:
So, 8 tablets will contain 240mg of Medication

Given:

Average = 20

Total no. = 50

Reqs

Average when two no. 37, 43 are discarded

Solution:

We know that

$$Average = \frac{Sum\ of\ all\ no}{Total\ no.}$$

$$20 = \frac{Sum\ of\ all\ no.}{50}$$

$$20 \times 50 = Sum\ of\ all\ no.$$

$$1000 = Sum\ of\ all\ no.$$

Subtract the discarded no.

$$1000 - (37+43) = Sum\ of\ all\ no$$

$$1000 - 80 = Sum\ of\ all\ no.$$

Now, Sum of All no = 920.

Average = $\dfrac{920}{48}$

$$\boxed{\text{Average} = 19.1}$$

Q No 6

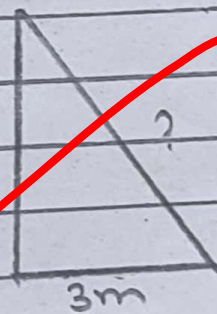d) Answer:

Given:

Height of wall = 10m.

Base of ladder = 3m

Req:

Length of ladder = ?

Solution:

As we known that

$$(Hyp)^2 = (Base)^2 + (Perp)^2$$

Put the value

$$(x)^2 = (3)^2 + (10)^2$$

$$(x)^2 = 9 + 100$$

$$(x)^2 = 109.$$

Taking root on both side

$$\sqrt{x^2} = \sqrt{109}$$

$$\boxed{x = 10.44}$$

) Answer:
Given data:

    length of Dal Lake = 4.6 mile
                width = 2.2 mile

Req:
    Surface Area = ?

Solution:
    First, Convert mile into Km.

So,
    length = 4.6 × 1.6 = 7.36 Km
    width = 2.2 × 1.6 = 3.52 Km

    As we know that

    Area = length a width

    Area = (7.36) (3.52)
    Area = 25.9 Km²
now   convert km into meter

$$\boxed{Area = 25900 \text{ metre}}$$

a) Given:

  radius = 8 cm = 0.08 m
  Height = 15 cm = 0.15 m

Required:

  Volume of cylinder = ?

Solution:

  As we known that

  Volume = $\pi r^2 h$.

    = (3.14) (0.08)^2 (0.15).
    = (3.14) (0.0064) (0.0225)
    Volume = 0.0004 5 m^3

Result:

  So, the Volume of
  Cylinder will be 0.00045 m^3.