(c)

Ans: Number of tablets = $\dfrac{\text{Total medication needed}}{\text{Dosage per tablet}}$

$$= \dfrac{240 \text{ mg}}{30 \text{ mg}}$$

$$= \dfrac{240}{30}$$

$$= 8$$

Ms. Smith will need 8 tablets to get 240 mg of medication.

(b)

Ans: Find no of ice cream cones, set up a proportion using the ration given

$$\frac{Number \ of \ chocolates}{Number \ of \ cones} = \frac{5}{8}$$

$$= \frac{30}{No \ of \ cones} = \frac{5}{8}$$

$$= \ 5 \times No \ of \ cones = 30 \times 8$$

$$= \ 5 \times No \ of \ cones \ = 240$$

$$= \ No \ of \ cones = \frac{240}{5}$$

$$= \ No \ of \ cones = 48$$

So, there are 48 ice cream cones in the box.

$$'' \quad ''' \quad '' \quad = \frac{16 \times 3}{15 \times 5} \times 100$$

$$'' \quad '' \quad '' \quad = \frac{48}{75} \times 100$$

$$'' \quad '' \quad ' \quad = \frac{\overset{64}{4800}}{\underset{1}{75}} = 64\%$$

Correct calculation is 64%.

Q7:

(a)   let the number be x

      Correct calculation : $\frac{5}{3}x$

      Wrong calculation : $\frac{3}{5}x$

Error is the absolute difference between the two results

$$Error = \left[\frac{5}{3}x - \frac{3}{5}x\right]$$

$$Error = \left[\left(\frac{5}{3} - \frac{3}{5}\right)x\right]$$

$$Error = \left[\left(\frac{25}{15} - \frac{9}{15}\right)x\right]$$

$$Error = \left[\frac{16}{15}x\right]$$

Now find the percentage

$$Percentage\ Error = \frac{Error}{Correct\ calculation} \times 100$$

$$'' \quad '' \quad '' = \frac{\left[\frac{16}{15}x\right] \times 100}{\frac{5}{3}}$$

$$'' \quad '' \quad '' = \frac{16}{15} \times \frac{3}{5} \times 100$$

(d) Distribute Rs. 4320 among Zain, Aslam and Ashraf in such a way that if Zain gets 2 parts then Aslam gets 3 parts, whereas Ashraf gets 7 parts.

Ans: Total parts = 2+3+7 = 12 parts.

Total amount to distribute is = Rs 4320

$$\frac{4320}{12} = 360 \, Rs$$

Distribution of money: Zain gets 2-part

$$\begin{array}{r} 360 \\ \times \quad 2 \\ \hline 720 \end{array} \qquad = Rs. 720$$
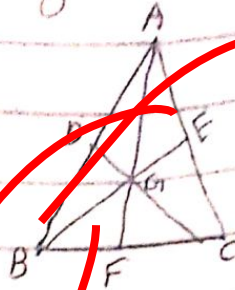
Aslam gets 3 parts.

$$\begin{array}{r} 360 \\ \times \quad 3 \\ \hline 1080 \end{array} \qquad = Rs. 1080$$

Ashraf gets 7 parts

$$\begin{array}{r} 360 \\ \times \quad 7 \\ \hline 2520 \end{array} \qquad . Rs 2520$$

b. Find the numbers of triangles in the below equilateral triangle:

Ans: AGE, EGC, GFC, BFG, DGB, ADG
= 6

ABG, BGC, AGC = 3

AFC, BFC, BDC, ABF, ABE, DAC = 6

ABC = 1

= 6+3+6+1 = 16 Triangle.

© A letter is chosen at random from the word "Superintendent". What is that probability that word is vowel?

Ans: SUPERINTENDENT

Total no of letters: 14

No of vowels : 5

Probability that word is vowel = $\frac{5}{14}$ $P(E) = \frac{5}{14}$

Age:

I.Q level can be influenced by age, During childhood I.Q increase as cognitive abilities develope. In older age I.Q may decline.

Health and physical development:

It can have significant impact on I.Q levels. Proper meal, exercise affect brain function, which can enhance cognitive abilities like memory, problem-solving, reasoning etc. Sleep quality, stress management also plays role.

Social and Economic condition:

It may have profound impact on IQ levels, growing up with basic necessities helps higher IQ score. But living poverty and limited opportunities can affect negatively on cognitive development.

5) Health and physical development

6) Social and Economic Condition.

- Heredity: It has significant role in shaping IQ, as cognitive abilities can be influenced which passed down from parents to child through genes.

- Environment: The environment can significantly impact IQ through factors like food, education, social environ, Economic status, health and early childhood experiences.

These factors can either play positive or negative effect on cognitive development.

- Culture: No doubt culture influence IQ scores, each culture has different values skills and knowledge. Factors like language education, society, access to resources can play role in shaping cognitive development.

...form lighting - They are found in T.Vs, smartphones, laptops and other electronic devices for backlighting, decorative purpose and indicator lights. Also used in medical devices, traffic signals as they are reliable and have specific wavelength options.

SECTION II

Qa Write the formula of I.Q. What are the factors which can affect I.Q?

Ans: (IQ) stands for Intelligence Quotient. IQ is calculated by taking a person's mental age them divide by chronological age and then multiply with 100.

$$IQ = m/c \times 100$$

Factors affecting I.Q

1) Heredity

2) Environment

3) Culture

Q. What are the tides? Write a note on L.E.D.

Ans. Tides are the rise and fall of sea levels caused by the gravitational forces exercised by the moon, to some extent the sun on the Earth's oceans. The gravitational pull of the moon causes the ocean on the side of the Earth facing the Moon to bump outward, creating a high tide. At the same time, high tide on the opposite side of the earth due to centrifugal force created by the Earth-Moon system's rotation. Between these two high tides are areas where the water go back, creating low tides.

L.E.D

Light Emitting Diodes, are semiconductor devices that emit light when an electric current passes through them. They are efficient, durable and versatile, used in various applications.

They're used in residential, commercial and industrial lighting because of their efficient energy and long lifespan. LEDs are used in digital displays and electronic screen for their color options, brightness and clarity. They are also used in brake lights and

(C) Uses of Gamma Rays, x rays and Radio waves.

Gamma Rays

- Used to identify the cracks in Building, Bridges, Aeroplanes etc.
- Used in medical to remove cancer cells, Kidney Stones, tumor etc.
- Used in nuclear Industry.

X - rays

- Used to visualize the informal structure of body.
- Used to study the arrangements of atom in different materials

Radio waves

- Radio waves are used by radio mobile
- Radio detection

Q3.

(a) ___ ___ ___ ___? Discuss

An. Cyclones are coastal tropical storms ___ as stay wind, heavy rainfall and low ___ ___. They ___ over warm ocean water near the equator can cause damage to coastal area where they make landfall.

- Cyclones form over warm ocean water. The energy needed for the storm to develop is provided by warm ocean waters. The warm water evaporates creating moist air and instability in the atmosphere.

- The moisture-air rises rapidly, form clouds and thunderstorm. The release of heat during condensation further causes storm, air rise even faster.

- Environmental factors like high humidity, warm sea surface temperature and the change in wind speed and direction with altitude form cyclones.

These sensors capture electromagnetic radiation in various wavelength, creates image or data. Used for vegetation monitoring and environment analysis.

USES of GIS and Active Sensors

own radiation and the response from object in the environment. They send a pulses of energy and measure the time it takes for the energy to return along with its intensity. They emit their

Example = Radar, it emits radio waves and measure the strength and time delay of the waves that are reflected back from objects.

Used in monitoring coastal areas, detecting changes in land use

Q what are active and Passive sensors?
How they are used in GIS?

Ans: Passive Sensors
that uses the reflected electromagnetic make use of sensors
energy from natural source eg sunlight
emitted from sun it cannot be done
without the sun.

Active Sensor
this are sensor which
have its own source of energy or artificially
generated energy source.

The sensors emits radiation which is directed
towards the target to be investigated. The
radiation reflected from the target is
detected and measured by the sensors.

USES OF GIS and Passive Sensors
In GIS passive sensors are used to
detect and measure the natural reflected by object
Rely on external source of Radiation for
example Sunlight or thermal radiation from
earth and measure the intensity of radiation
that is reflected by objects.

Examples= Cameras, multispectral.

- For climate finance includes 250 Billion for mitigation, 100 Billion for adaption and 50 Billion for loss and damage.

- The world Bank will expertise the loss and damage fund in begining.

- To triple global nuclear energy capacity by 2050.

- Plantation in waste lands to revive natural ecosystems.

- For Industry sector, development of low-carbon technology to emerging economies.

- Vitamin E - for hair and skin, prevent clots forming in heart arteries,
- Enhance immune function

Q Compare goal of COP-27 and COP-28 on climate change.

Ans   COP-27 Goals

- To provide fund on damage and loss for those countries affected by flood, climate disasters

- Need to emit global greenhouse gas before 2025. limit global temperature rise to 1.5°C above pre-industrial levels.

→   COP-28 Goals

- Steps to be taken for global temperature rise within extend of 1.5°C.

- Reducing non-CO_2 emission, methane emissions globally by 2030.

- To work on water security, health and ecosystem rebuilding

Vitamin B5 It breakdown the fats & carbohydrates for energy.

Vitamin B6 helps to fight viruses infections, and other diseases good for nerve function

Vitamin B7

Good for metabolism.

Vitamin B9

adolescent , infants because helps in cells, tissues growing rapidly It's good for pregnant women,

Vitamin B12

forms red blood cells and DNA also good for brain and nerve cells.

Vitamin C

tissues, good for skin healing process. help repairing & for growth of

Vitamin D

phosphorus — Reduce cancer cells , for bones and teeth , certain infections for absorption of calcium and

Vitamin A

Vitamin A is essential for good vission, for growth of mussle tissues, for the improvement of immune system, for healthy skin, healthy reproductive system and for nerves.

Vitamin B (Complex)

There are many Vitamin B called Vitamin B Complex. Each vitamin has their own role.

Vitamin B1

Also called Thiamine. It helps body cells to change carbohydrates into energy. For the healthy function of brain and nervous system.

Vitamin B 2

Known as Riboflavin is good for body growth, produce the red blood cells, helps to release of energy from proteins.

Vitamin B3

It is known as Niacin. It keeps your nervous system healthy, good for digestive system, healthy skin.

Q Write a note on Vitamins & their role in Human Body.

Ans: Vitamins

Vitamins are organic compounds that we need in small amounts to develop and function normally. There are two types of vitamins.

① Fat-Soluble   ② Water-Soluble

Fat-Soluble

Vitamin A, D, E, K are fat-Soluble, stored in fatty tissues. It is stored for long period, consumed up later.

Water-Soluble

Vitamin B, C are water soluble, they excreted out in the urine, it needs to be taken daily.

Role of Vitamins

There are 6 types of vitamins and each have special role in body.

(7) Weapons/warfare :- Pakistan's defense industry has emerged as notable exporter of military equipment in recent decades. In production, testing and warfare usage of weapons emits CO_2, Heat, Ions in air.

(8) Electric Appliances :- Due to electric appliances CFCs adds in the environment. In Pakistan over the time period demand for appliances are increasing.

(9) Wild fire Eruption in Pakistan :- In Pakistan due to human activity, forest fires causes, also heatwaves becomes the reason of wild fire. It emits Heat/Ash/CO_2

(10) Volcanic Eruption :- Pakistan doesn't rely have volcanic eruption but very less Eruption occured in Balochistan area, Heat, Ash, HCl, SO_2 emits.

④ Rapid Urbanization :-
It is the increasing number of people within cities expansion and Infrastructural development. Pakistan is one of South Asia's most rapidly urbanising countries countries it also effecting emissions.

⑤ Generation of Solid Waste -:
- CH4, CO2, N2O. It is generating in Organic waste Minority of Institution, Municipal, Domestic, Industries. In Pakistan 15 million tons of plastic as a waste production causes air pollution.

⑥ Rapid Industrialization :-
Pakistan's industry sector is emerging rapidly among developing countries, which is good for increased economic growth but also causing air pollution. Pakistan has Textile Industry emission of CO2, CO2, SO2 & Fertilizer Industry emitting CO2, CO2, CH4 & Cement Industry emitting CO2, NOx, Sox

Causes of air Pollution in Pakistan

① Burning of fossil fuels:-

Burning of fossil fuels causes air pollution, it includes coal, oil and natural gas which are used in many sectors like Energy Sector, Agricultural Sector, Industrial Sector, Transport Sector. Consumption results into carbondioxide, carbonmonoxide, Sulphur dioxide.

② Population - Explosion:-

Growth of population leads to pollution of air. It has caused a massive deforestation, increased transportation increased industries, production, generation of Solid waste.

③ Massive Deforestation:-

Pakistan faces great problem of deforestation, less than 5 percent of its total area is under forests. As plants/forests considered as carbon sinks, due to deforestation carbon sinks declines and CO_2 increased. Imbalance of carbon becomes the reason of air pollution.

Part II

Section - I

Qno 2

(a) Differentiate Climate and Environment. What are the causes of air pollution in Pakistan?

Ans :- Climate

It indicates to the long-term patterns of temperature, wind, humidity and other atmospheric conditions, different region. It changes in decades or centuries.

Natural factors that effect the climate are solar radiations on Earth, Earth' rotation and structure of earth in terms of water and land is distributed.

Environment

The surrounding or conditio n which a person animal or plant lives to function is called environment. Natural ar rtificial work are included. So it's the surronding which includes natural and art world around us.