

USA.

Section - II.

Q.6

a. In January 2022 = 850 pupils

b. In January 2023 = 1120 pupils.

$$1120 - 850 = 270$$

$$\begin{array}{r} 10 \\ 1120 \\ - 850 \\ \hline 270 \end{array}$$

$$\frac{270}{850} \times 100 = \frac{27000}{850} = 31.76\%$$

enrollment increased 31.76%
from Jan 22 to Jan 23.

Q.6b.

a.

~~$12 \times 12 = 144$ two years ago.~~

~~14 years old. now age of his~~

~~$14 \times 5 = 70$ (5 is as old as his son)
= 70~~

$12 \times 12 = 144 =$ two years ago
14 years old

70 35

c. No of heads = 48

no of feet = 140

$$H + C = 48$$

$$2H + 4C = 140$$

$$H + C = 48$$

$$C = 48 - H$$

$$2H + 4(48 - H) = 140 \text{ (s)}$$

$$2H + 192 - 4H = 140$$

$$-2H + 192 = 140$$

$$-2H = 140 - 192$$

$$-2H = -52$$

$$H = 26$$

$$C = 48 - 26 = 22$$

Cows have 4 legs.

hens have 2 legs.

$$2H + 4C = 2(26) + 4(22) = 140$$

$$52 + 88 = 140$$

$$H = 26$$

Number of Hens = 26

d. 1st half journey = 40 km/h.

2nd half journey = 60 km/h.

$$\frac{40 + 60}{2} = \frac{100}{2}$$

$$= 50 \text{ km/h.}$$

Q. 8

(a) for triangular shape formula

$$A = \frac{1}{2} \times b \times h$$

woolshop balls are like triangular shape

(b) 60 liters mixture
ratio milk and water 2:1

If this ratio is to be 1:2, what quantity of water to be further added?

1:2

M:W

=> ~~When instead of 20L water for 40L milk~~
~~60L will be added.~~

$$\begin{array}{l} \text{Same Milk} \quad \frac{40L}{w} = \frac{1}{2} \\ \text{New} \end{array}$$

$$w = 2 \times 40L$$

$$w = 80L$$

20L was current quantity

80L is required quantity

$$80 - 20L = 60$$

60L will be added further.

- (c) A is the brother of B.
 B is sister of C.
 C is father of D.

D is child of C who sibling of B and A
 So D would be A's nephew as he is male

(d)

A	B	C	D	E	F	G	H
1	2	3	4	5	6	7	8
I	J	K	L	M	N	O	P
9	10	11	12	13	14	15	16
Q	R	S	T	U	V	W	X
17	18	19	20	21	22	23	24
Y	Z						
25	26						

18 15 1 18
 R O A R
 -3 -14 -17

21 18 4 21
 U R O U
 -3 -14 -17

R +3 U +3 X
 O +3 R +3 U
 A +3 D +3 G
 R +3 W +3 X

(XUGX)
 Code.

Section I

Q.3

(a) double circulation means circulation of blood through heart two times in one complete cycle. Pulmonary Circulation when blood is pumped from right side of heart to lungs where it gives out CO_2 and takes O_2 return back to left side of heart. Second Circuit Systemic Circulation: O_2 rich blood is pumped from left side to the body and deoxygenated blood again return to right side of heart. again cycle repeats.

Heart is adapted to keep blood flowing in a ~~blood~~ double circulation. because of 4 chambers, valves and strong muscle walls.

4 chambers: Heart has 4 chambers, 2 atria and 2 ventricles. which hold separate oxygenated and deoxygenated blood. Right side ~~with~~ hold deoxygenated blood and left side oxygenated blood. This prevents mixing of blood.

Valves: Heart has bicuspid, tricuspid, pulmonary and aortic valves which prevent the backflow of blood and help blood to move in one direction. They make sure blood properly flows through 2 circuits.

Stronger muscle walls: The left side have thicker stronger walls because they have to withstand pressure of blood flow. Specially the left ventricle is thicker because it pumps blood to all around the body.

These ensure efficient and effective circulation of blood throughout the body.

(b) Liver is a chief chemist, because of its vital role in managing and processing a wide range of biochemical substances in the body.

1. Metabolism: Centre of metabolism, conversion of food into energy, synthesis of ~~energy~~ proteins and regulation of blood glucose levels.

- Synthesis of Biochemicals: liver produces ~~extra~~ essential biochemical such as bile which helps in digestion and absorption of fat. It also synthesizes lipids and cholesterol.

2. Detoxification: Breaks down drugs and alcohol into less harmful substances so they could be excreted. Basically it detoxifies harmful substances.

- Storage: It store and regulates the release of important nutrients, including vitamins and minerals and glycogen.

- Immune function: filters and removes pathogens from the blood.

Liver manages many chemical processes and reaction ~~into~~ essential for maintaining homeostasis,

C The green house effect is natural and essential process that ~~not~~ warms the earth's surface and maintains temperature suitable for life.

=> Natural warming: Green surrounding earth's surface helps trap heat leaving earth's surface which in turn helps to keep earth temperature normal which ~~essential~~ essential for sustaining life.

=> Support life: If there wouldn't be greenhouse effect earth would be too cold to live and ~~of~~ carry out daily life activities. It helps to maintain a stable climate and agricultural productivity.

Greenhouse effect is beneficial but human activities have intensified this process.

Due to increase in GHGs because of human activities like burning of fossil fuels, deforestation, industrial process. This leads to Global warming, which

means more heat trapped in the atmosphere causing temperatures to rise. which results in several environmental issues.

- Rising Temperatures: which leads like several times increased, frequent and severe heat wave.
- Melting ice: Due to high temperature ice caps, and glaciers are melting, rising sea levels.
- Ecosystem disruptions: changed temp and weather patterns can disrupt ecosystems. affect biodiversity and impact food and water supplies.

This intensified Greenhouse effect is causing several environmental problems.

- d. Working of mobile Phone.
Use following 3
1. Electromagnetic waves.
 2. Networking
 3. Universal law of energy.

Mobile phone is telecommunication device which connects the subscribers using

Radiowave. It also use Electromagnetic waves for communication. Then comes Networking. Caller 1 signal move to M_1 , then B_1 and then again to M_1 from where it moves to Caller 2: M_2 , from where it moves to Base 2 from there to M_2 and again to listener who is caller 2. Now come Universal law of energy. Energy in form of EM from microphone travel speaker. then changes in form of sound but total energy is conserved.

Q.5(a)

Radioactivity is the process by which an unstable atomic nuclei lose energy by emitting radiation. This emission can be in form of Electromagnetic waves or particles, and it is fundamental phenomenon in nuclear physics.

There are two types of Radioactivity's.

1. Natural Radioactivity
2. Artificial Radioactivity

Natural Radioactivity: Natural radioactive decay involve the emission of alpha, beta ~~partic~~ particles or gamma rays from unstable ~~isotopes~~ isotopes found in nature, can be naturally occurring certain materials or elements, eg Uranium-238 or Radium-222.

Artificial Radioactivity: It involves bombarding stable nuclei with particles (eg neutron, protons) to induce radioactivity or generate radioactive isotopes. eg ~~as~~ Cobalt-60 and Carbon-14.

	Naturally	Artificial
1.	Naturally occurring	1. Artificially induced.
2.	found in environment and even in body. eg: radon and uranium	2. found in specific contexts related to its production. eg. Cobalt-60 and Carbon-14.

b. Polio is an infectious disease caused by polio virus. It mainly affects the nervous system and can lead to paralysis.

Symptoms: Fever, headache, nausea, vomiting, and muscle pain, these are mild symptoms. Non-paralytic Polio symptoms are stiff neck and back pain. Paralytic symptoms are muscle weakness, loss of reflexes, and paralysis.

Cause of spreading.

It ~~spread~~ spreads through fecal material mainly. Routes of spreading are fecal-Oral Route, Oral-Oral Route or through Contaminated surface.

(C)

1.

Prevention:

Could be prevented through vaccination which is primary method. Then come hygiene which is most important and are key Public Health measures could be also held to stop spreading.

2.

Vaccine:

two main types of vaccine.

Inactivated Polio Vaccine (IPV),

Given in injection provides effective prevention. protection.

Oral polio vaccine (OPV).

Commonly used, given in the form of drops. used in Pakistan.

Polio is a serious infection disease and Pakistan is a major country suffering from it in following years cases had decrease but in recent few months cases were reported again in Pakistan.

(C) Steps involved in solid waste Management.

1. Collection stage / Phase.

Waste is collected, it is the most crucial part. Effective collection system can reduce environmental and health costs.

2. Recovery Process:

Transfer Station: Waste separated.

recyclable waste = ~~site~~ kept and other ready to be disposed.

3. Waste disposal:

Final stage: to dispose the solid waste through open dumping, Composting (controlled biological decomposition of waste), Incineration, Land filling (Underground burying).

Main issues:

- we do not have proper collection methods
- we do not have enough funds
- we do not have enough manpower or staff.
- we do not have proper equipment.
- we do not segregate the waste.
- we do not know how to dispose the waste we use open dumping or burying method to dispose waste.

(d) Population planning: it refers to strategies and policies implemented by governments, organizations and communities to manage population growth and distribution effectively. It has many benefits like:

1. Economic stability.
2. Improved Quality of life
3. Environmental sustainability

4. Enhanced Social service.

5. Mitigation Overpopulation Issues.