

General Science & Ability

Part-II

Section-I

Q No 2

a)

COP-29 will be held in November 2024 in Baku, Azerbaijan & the following measures could be considered to counter the global warming threat:

* Developed countries should increase financial assistance which include funding for infrastructure improvements, renewable energy projects & disaster preparedness.

* Encourage the active participation of local communities & civil society organizations in climate action initiatives.

* Incorporate climate justice principles into international climate negotiations, addressing historical emissions, loss and damage compensation and equitable access to resources for adaptation & mitigation.

* Facilitate the transfer of climate friendly technologies from developed to developing countries.

b) Functions of Arteries:-

- * These strong, muscular blood vessels carry oxygen-rich blood from our heart to our body. They handle a large number of force and pressure from our blood flow but don't carry a large volume of blood. At any time only about 10% to 15% of our body's blood is in our arteries.

* Function of veins:-

Unlike, arteries, veins do not have to carry high pressurized blood, but they do have to carry large volumes of de-oxygenated blood back to our heart. Thin, less elastic walls help them handle high volume & low pressure. Most veins have valves that open & close which keep our blood flowing in one direction. About 75% of our blood is in our veins.

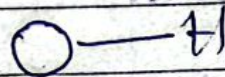
* function of capillaries:-

These tiny blood vessels have thin walls. Oxygen & nutrients from the blood can

move through the walls and get into organs & tissue. The capillaries also take waste products away from our tissues. Capillaries are where oxygen & nutrients are exchanged for carbon dioxide & waste.

C) Structure of water:-

Water is simple molecule consisting of one oxygen atom bonded to two different hydrogen atoms. Because of the higher electronegativity of the oxygen atom, the bonds are polar covalent. The oxygen atom attracts the shared electron of the covalent bonds to a significantly greater extent than the hydrogen atoms. As a result, the oxygen atom acquires a partial negative charge (-) while a hydrogen atom acquires a partial positive charge (+). The molecule adopts a bent structure because of the two lone pairs of electrons on the oxygen atom.



d) i) Conductor:-

Conductor have a high density of free electrons that can move easily in response to an electric field. Metal and Copper are the most common types of conductor which allow the flow of electric current with minimal resistance.

ii) Semiconductor:-

Materials that have electrical conductivity between that of conductor & insulator. Semiconductor are essential components in electronic and computing devices. Example are Silicon (Si).

iii) Metal:-

Metal have a crystalline structure with freely moving electrons, allowing them to conduct electricity and heat efficiently. Example is Iron (Fe).

iv) Plastic:-

Plastic are synthetic or semi-synthetic materials made from polymers, which are

Large molecules composed of repeating unit called monomers. Plastic are known for their low electrical conductivity, lightweight, flexibility and resistance to corrosion. Example are polyethylene.

✓) Ceramics:-

Ceramics are inorganic, non-metallic materials typically composed of metallic and non-metallic elements bonded together through ionic or covalent bond.

Properties are high hardness, high melting points and excellent thermal & electrical insulation. Example is Alumina (Al_2O_3).



Q No 3

- 2) Technology advancements specially in Agriculture have indeed led to increased food production through high-yield crop varieties, mechanization, irrigation systems and the use of fertilizers & pesticides. Through this way farmers produce more food.

However the quality of food decrease due to these technology advancement.

1) Due to heavy use of chemical fertilizers crops contain lower level of vitamins, mineral and other nutrients as compare to organically grown crop.

2) Intensive Agricultural practices can have significant environmental consequences i.e. water pollution, loss of biodiversity, green house gas emission & soil erosion.

b) problem faced by Solid Waste Management

The problem faced by the solid waste management is rapid population growth, Urbanization, and industrialization which led to a significant increase in the generation of solid waste. Some other challenges are lack of infrastructure for solid waste, irregular waste collection system, illegal waste trade & dumping and Recycling and Compositing are also essential components of sustainable

Wast management.

c) Dengue Fever:-

Dengue (break-bone fever) is a viral infection that spreads from mosquitoes to people. It is more common in tropical & sub-tropical climates.

Dengue is treated with pain medicine as there is no specific treatment. Most people who get dengue will not have symptoms. But for those who do, the most common symptoms are as under.

- 1) High fever. ($40^{\circ}\text{C} / 104^{\circ}\text{F}$)
- 2) Severe Headache
- 3) Pain behind the eyes
- 4) Muscle and joint pain
- 5) Nausea
- 6) Vomiting
- 7) Swollen glands
- 8) Feeling weak
- 9) Rapid breathing
- 10) Restlessness etc

d) plate tectonic in the Tsunami:-

Tsunami generating earthquakes originating mainly in subduction zone where tectonic plates collide and one is forced under the other.

If big enough and close enough to the ocean floor, the energy from such an earthquake can cause the ocean floor to suddenly rise (uplift) or fall. This sudden vertical displacement of the ocean floor is what typically sets a tsunami in motion.

Distinguish Richter Magnitude Scale & Volcanic Explosivity Index (VEI):-

-> Richter Magnitude Scale measures the ^{intensity} earthquakes specifically the energy released by an earthquake. However the (VEI) is used to measure the explosiveness and intensity of volcanic eruption. The Richter Scale Range from 0-10 & VEI Range from 0-8. The Richter Scale is logarithmic scale & VEI is also logarithmic but it measures different parameters.

Section - II

Q2

a) IQ:-

Intelligence Quotient is a measure of a person's Cognitive ability relative to others.

Some factor which can affect IQ is genetic predisposition, Environmental factors such as Upbringing, education, nutrition, Socio economic status and access to resource and opportunities for Cognitive Stimulation. Furthermore, factor like motivation, Perseverance and emotional Intelligence can also play a role in shaping one's Cognitive abilities and Overall Intelligence Quotient.

b) Circumference of a circle:-

Sol

$$\text{Radius} = 4 \text{ cm}$$

$$\text{Circumference } C = 2\pi r$$

$$\text{Put the Value } C = 2\pi \times 4 \text{ cm}$$

$$C = 2 \times \pi \times 4 \text{ cm}$$

$$C = 8\pi \text{ cm An}$$

c) Age of 05 student is
20, 22, 21, 21, 23

1) Mean:-

$$M = \frac{\text{Add all the ages}}{\text{total No's of students}}$$

$$\text{Mean} = \frac{20 + 22 + 21 + 21 + 23}{5}$$

$$\text{Means} = \frac{107}{5} = 21.4$$

Median:-

20, 21, 21, 22, 23

$$\text{Median} = 21$$

Mode:-

21 appears twice so

$$\text{Mode} = 21$$

Range:-

Highest = 23
lowest = 20

$$23 - 20 = 3$$

$$\text{so Range} = 3$$

QNB
a)

if BROTHER = Q D G N Q A
 SISTER = Q D S R H R A M
 one Step Backward. & reverse.

b) Missing Terms:-

$$N = 1$$

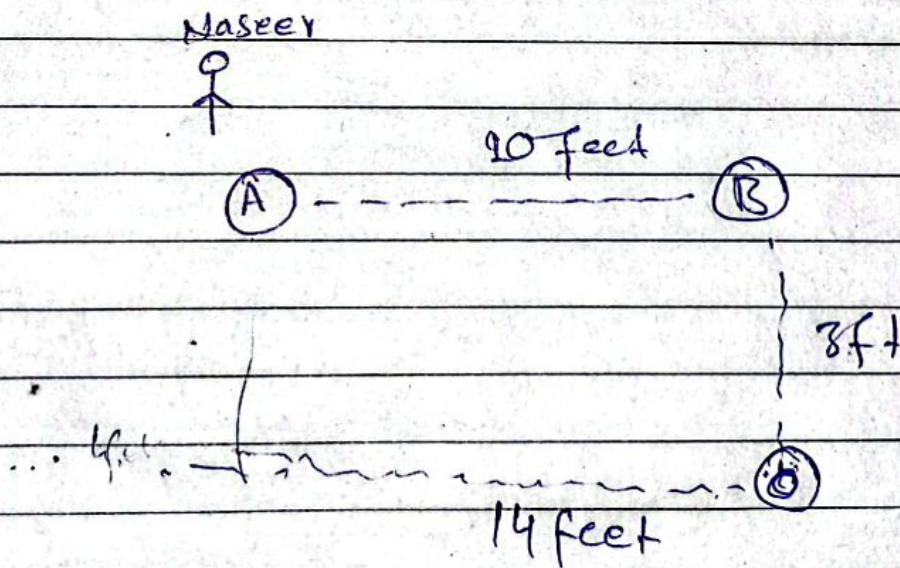
$$(1 \times 1) + 1 = 2$$

$$(2 \times 2) + 2 = 6$$

$$(6 \times 3) + 3 = 21$$

$$(21 \times 4) + 4 = 88 \quad \text{Am}$$

c)



D)

Entire Week temperature = 33°C

first 03 day = 30°C

last 03 day = 35°C

4th day = $x^{\circ}\text{C}$

Average temp \times No of days = Total Temp

$$33^{\circ}\text{C} \times 7 = 231^{\circ}\text{C}$$

First three days

$$231^{\circ}\text{C} = (30^{\circ}\text{C} \times 3) + x^{\circ}\text{C} + (35^{\circ}\text{C} \times 3)$$

$$231^{\circ}\text{C} = 90^{\circ}\text{C} + x^{\circ}\text{C} + 105^{\circ}\text{C}$$

$x = ?$

$$231^{\circ}\text{C} = 195^{\circ}\text{C} + x^{\circ}\text{C}$$

$$x^{\circ}\text{C} = 231^{\circ}\text{C} - 195^{\circ}\text{C}$$

$$x^{\circ}\text{C} = 36^{\circ}\text{C}$$

So the temperature of the 4th day is 36°C .