

Question 6

(a): Candy Flavors Ratio Problem

Given:

Flavors ratio: Apple : Berry : Cherry :

Date = 3 : 6 : 2 : 5

Apple candies exceed Date candies by 35

Let the common ratio factor be x

$$\text{Apple} = 3x$$

$$\text{Date} = 5x$$

According to the question:

$$3x - 5x = 35$$

$$-2x = 35$$

$$x = -35/2$$

If "Apple candies exceed Date" means
Apple > Date:

$$3x - 5x = -2x = 35$$

$$x = 35/2 = 17.5$$

Calculate Berry candies:

$$\text{Berry} = bx = 6 \times 17.5 = 105$$

(B) Camera Price with Discount and Tax

Original price = 200\$

25% discount:

$$\text{Discount} = 0.25 \times 200 = 50$$

$$\text{Price after discount} = 200 - 50 = 150$$

6% tax on discounted price:

$$\text{Tax} = 0.06 \times 150 = 9$$

Total price paid:

$$150 + 9 = 159$$

(C) Bicycle Travel Time

Distance = 36 km

Speed = 18 km/hr

Time to cover

$$\text{Time} = \text{Distance} / \text{Speed}$$

$$= 36 / 18 = 2 \text{ hr}$$

$$\text{Starting time} = 1 \text{ PM}$$

$$\text{Arrival time} = 1 + 2 = 3 \text{ PM}$$

(D) Unscramble Math Terms

STSTAICITS = STATISTICS

LGEBMAR = ALGEBRA

Question 7

(A) Volume of Sphere

Given:

$$\text{Diameter} = 14 \text{ cm}$$

$$\text{So, radius } r = 7 \text{ cm}$$

$$\text{Using } \pi = 22/7$$

$$V = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} \times \frac{22}{7} \times 7^3$$

$$= \frac{4}{3} \times \frac{22}{7} \times 343$$

$$= \frac{4}{3} \times 22 \times 49$$

$$= 4312 \div 3 = 1437.33$$

(B) Friends Savings Share

Total savings = 25,000 Rs

Ratio = 1 : 2 : 3 : 4 : 5

Sum of ratio parts = $1+2+3+4+5 = 15$

Smallest share:

$$1/15 \times 25,000 = 1666.67$$

(C) Spot the Error and Complete Series

Series 1: 2, 6, 18, 54, 162, 486 (Multiplying by 3 each time)

All numbers fit the pattern

Series 2: 3, 5, 7, 11, 13, ?

Next prime number after 13 is 17.

(D) Triangle Angles

Sides: 5 cm, 12 cm, 13 cm

Check if right angled triangle:

$$5^2 + 12^2 = 25 + 144 = 169 = 13^2$$

Yes, right-angled triangle with angle opposite 13cm side = 90°

Here is the complete detailed answer for Question 2 (all parts a, b, c, d):

Question 2

(A)

Yes, data is often called "the new oil" because, Data has become extremely valuable in driving economies, technology, and decision making just like oil did in the industrial era. Data fuels innovation, insights, and business intelligence.

Examples:

i-Online shopping websites use data to recommend products.

ii-Social media platforms use data to target advertisements.

iii-Navigation apps use location data for real-time traffic updates.

(C)

A balanced diet contains all essential nutrients carbohydrates, proteins, fats, vitamins, minerals, and water in adequate amounts for maintaining health, growth, and energy

Vitamin A deficiency: Causes night blindness

Vitamin D deficiency: Leads to rickets in children and bone weakness and hair fall in adults

Vitamin E deficiency: Causes nerve and muscle damage resulting in coordination problems

(D)

GPS Working:

Global Positioning System uses a network of satellites transmitting time stamped signals. A GPS receiver calculates its position by computing the distance to at least four satellites through signal travel time

Fiber Optic:

Technology that transmits data as pulses of light through thin fibers of glass or plastic. It enables high speed communication with very low loss over long distances.

i- 2D location includes latitude and longitude coordinates on Earth's surface.

ii-3D location adds altitude or elevation for height measurement.

Question 5

(A)

Causes:

- i-High birth rate due to cultural preference for large families.
- ii-Lack of awareness and use of family planning methods.
- iii-Early marriages increasing childbearing years.
- iv-Low female education and empowerment levels.
- v-Limited access to healthcare and contraception in rural areas.

Control Measures:

- i-Promoting family planning education and awareness campaigns.
- ii-Improving healthcare access, especially reproductive health services.
- iii-Raising female literacy and empowering women.
- iv-Implementing government policies encouraging smaller families.

(C)

The atmosphere acts like a protective blanket around Earth, regulating temperature by trapping heat (greenhouse effect), protecting against harmful solar radiation (ultraviolet rays), and maintaining weather patterns and temperature essential for life.

(D)

ii-Epicenter: The point on Earth's surface directly above an earthquake's origin v-Light Year: The distance light travels in one year is light year and it is approximately 9.46 trillion kilometers.