

Day: Wednesday

Date: 30 July 2025

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Batch No. : 149

General Science & Ability (Mock-2)

Section-II

Q.No.5 (a) Solution :-

Given : 20% of students = below 8 yrs of age

$$\frac{2}{3} (8 \text{ yrs}) = \text{above 8 yrs "}$$

$$48^{\text{students}} = 8 \text{ yrs age}$$

Let the total no. of students be x , then

$$20\% \times x = \text{below 8 yrs}$$

$$\frac{2}{3} (48) = \text{above 8 yrs}$$

$$48 = 8 \text{ yrs}$$

Hence, total no. of students will be the sum of these :

$$x = \frac{20}{100} \times x + \frac{2}{3} (48) + 48$$

$$300x = 60x + 9600 + 14400$$

$$300x - 60x = 24000$$

$$\frac{240x}{240} = \frac{24000}{240}$$

$$\Rightarrow \boxed{x = 100}$$

Thus, the total no. of students is 100.

(b) Solution :-

Let Rashid's age be x

then his father's age is $3x$.

After 8 years :

$$\text{Rashid's age} = x + 8$$

$$\text{Father's age} = 3x + 8$$

According to given condition :

$$3x + 8 = \left(2 + \frac{1}{2}\right)(x + 8)$$

$$3x + 8 = \frac{5}{2}(x + 8)$$

$$6x + 16 = 5x + 40$$

$$6x - 5x = 40 - 16$$

$$\Rightarrow \boxed{x = 24}$$

Thus, Rashid's age was 24, and father's age was $3(24) = 72$

$$\text{After 8 years : Rashid's age} = 24 + 8 = 32$$

$$\text{Father's age} = 72 + 8 = 80$$

Now, after further 8 years :

$$\text{Rashid's age} = 32 + 8 = 40$$

$$\text{Father's age} = 80 + 8 = 88.$$

⇒ Ratio between these two ages :

$$F : R = 88 : 40$$

$$F = 88 \quad \begin{smallmatrix} 44 & 22 & 11 \end{smallmatrix}$$

$$R = 40 \quad \begin{smallmatrix} 20 & 16 & 5 \end{smallmatrix}$$

$$F = \left(\frac{11}{5} \right) R$$

Thus, Father's age ^{will be} is $\frac{11}{5}$ times Rashid's age.

(C) Solution :-

Two dice are tossed.

$$\begin{aligned} \text{Sample space} = \{ & (1,1), (1,2), (1,3), (1,4), (1,5), (1,6) \\ & (2,1), (2,2), (2,3), (2,4), (2,5), (2,6) \\ & (3,1), (3,2), (3,3), (3,4), (3,5), (3,6) \\ & (4,1), (4,2), (4,3), (4,4), (4,5), (4,6) \\ & (5,1), (5,2), (5,3), (5,4), (5,5), (5,6) \\ & (6,1), (6,2), (6,3), (6,4), (6,5), (6,6) \} \end{aligned}$$

Event = Total score is a prime number

$$\begin{aligned} \Rightarrow \text{Event} = \{ & (1,2), (1,4), (1,6), (2,1), (2,3), (2,5), \\ & (3,2), (3,4), (4,1), (4,3), (5,2), (5,6) \\ & (6,1), (6,5) \} \end{aligned}$$

Now, Probability that total score is prime no. is

$$= \frac{\text{No. of elements in event}}{\text{No. of elements in sample space}}$$

$$\text{No. of elements in sample space}$$

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$$\Rightarrow P = \frac{14}{36} = \frac{7}{18}$$

$$\text{Thus, } \boxed{\text{Prob (Event)} = \frac{7}{18}}$$

(d)

Captain's age = 26 yrs

wicket keeper's age = $26 + 3 = 29$ yrs

Average of these 2 :

$$A_1 = \frac{S_1}{n_1} = \frac{26 + 29}{2}$$

$$A_1 = \frac{55}{2}$$

Total members of team = 11.

Q No 6 (b) Solution :-

According to given conditions :

$$X + Y = \text{Rs } 550$$

and $X = 120\% \text{ of } Y$

$$Y's \text{ pay} = ?$$

Now, $X + Y = 550$ — (1)

$$X = \frac{120}{100} \times Y \text{ — (2)}$$

$$X = \frac{6}{5} \times Y \Rightarrow 5X = 6Y \text{ or } X = \frac{6}{5}Y$$

Putting this value in (1)

$$\frac{6}{5}Y + Y = 550$$

$$6Y + 5Y = 2750$$

$$\frac{11Y}{11} = \frac{2750}{11}$$

$$\boxed{Y = 250}$$

Thus, Y's pay is Rs. 250 per week.

(c) Solution :-

Given : Perimeter : breadth of rectangle is

$$5 : 1$$

i.e., $2(l+b) : b = 5 : 1$

Simplifying ; $\frac{2l+2b}{b} = \frac{5}{1} \Rightarrow 2l+2b = 5b$

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$$2l = 3b \quad \text{or} \quad b = \frac{2}{3}l \quad \text{--- (1)}$$

Also, Area = 216 sq. cm

$$\text{i.e. } l \times b = 216 \quad \text{--- (2)}$$

Putting the value from (1) in (2),

$$l \left(\frac{2}{3}l \right) = 216$$

$$\frac{2}{3}l^2 = 216$$

$$l^2 = \frac{3}{2} \times 216$$

$$\sqrt{l^2} = \sqrt{324}$$

$$\Rightarrow \boxed{l = 18}$$

Thus, the length of rectangle is 18 cm.

(d) Solution :-

Tickets Numbered = $\{1, 2, 3, \dots, 20\}$

No. of tickets = 20

Event = ticket is a multiple of 3 or 5

Event = $\{3, 5, 6, 9, 10, 12, 15, 18, 20\}$

No. of elements in event = 9

Thus, Probability = $\frac{\text{No. of elements in event}}{\text{Total number}}$

$$P = \frac{9}{20} = 0.45.$$

Thus, the probability that the ticket drawn has a number which is multiple of 3 or 5 is 0.45.

(a) Solution :-

We know that Profit = S.P - C.P — (1)

According to given condition:

$$\text{If } S.P = 2 S.P$$

$$\text{then Profit} = 3 \text{ Profit}$$

$$\text{Thus, (1)} \Rightarrow 3P = 2 S.P - C.P$$

$$\Rightarrow C.P = 2 S.P - 3P$$

$$\text{Now, Profit \%} = \frac{\text{Profit}}{C.P} \times 100$$

Section - I

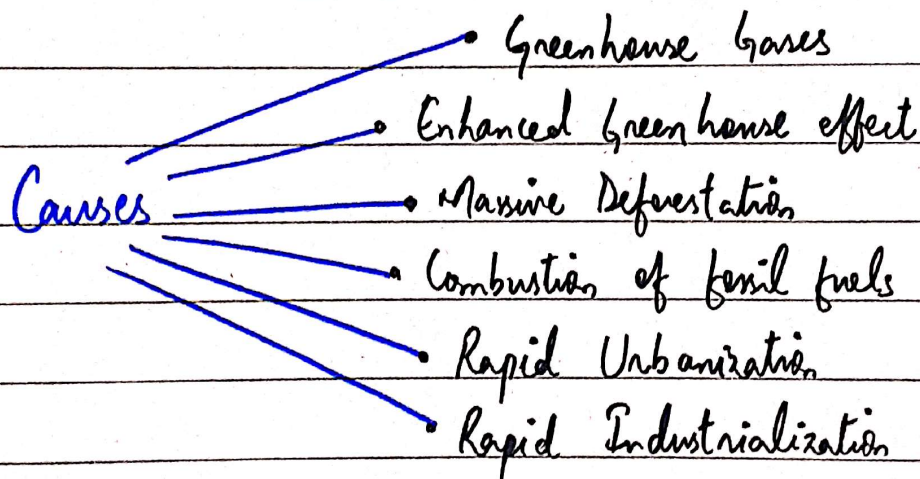
Q.No 2

(1)

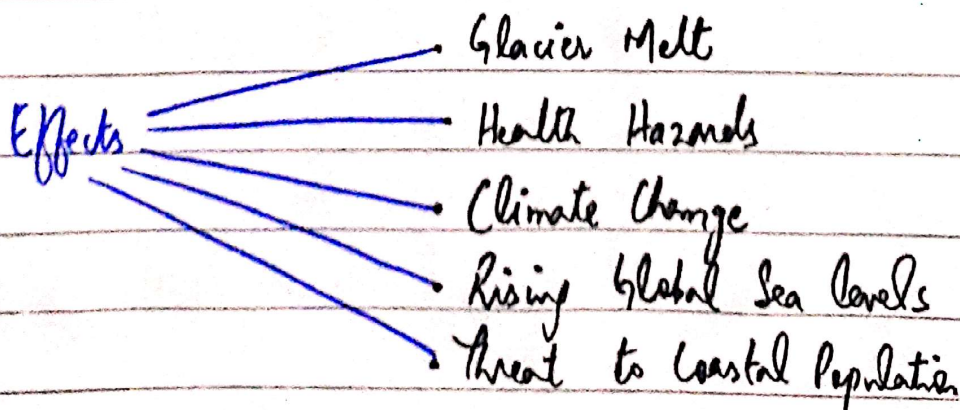
Global Warming

Definition: "The average and gradual rise in temperature of the Earth" ~ WHO

Causes of Global Warming



Effects of Global Warming



Role of Human Activities

- ↳ Population Explosion
 - ↳ Increased consumption
 - ↳ Increased production
 - ↳ Rapid Urbanization
 - ↳ Rapid Industrialization
 - ↳ Massive Deforestation
 - ↳ Generation of Solid Waste
 - ↳ Weapons of Mass Destruction

Mitigation Measures

1. Reducing levels of greenhouse gases
2. Increasing Global Forest Cover.
3. Promotion of Sustainable Urbanization
4. Promotion of Sustainable Transport
5. Promotion of Sustainable Industrialization.
6. Implementation of Environmental Commitments.
7. Environmental Education Awareness
8. Strengthening Disaster Management
9. Improving International Cooperation

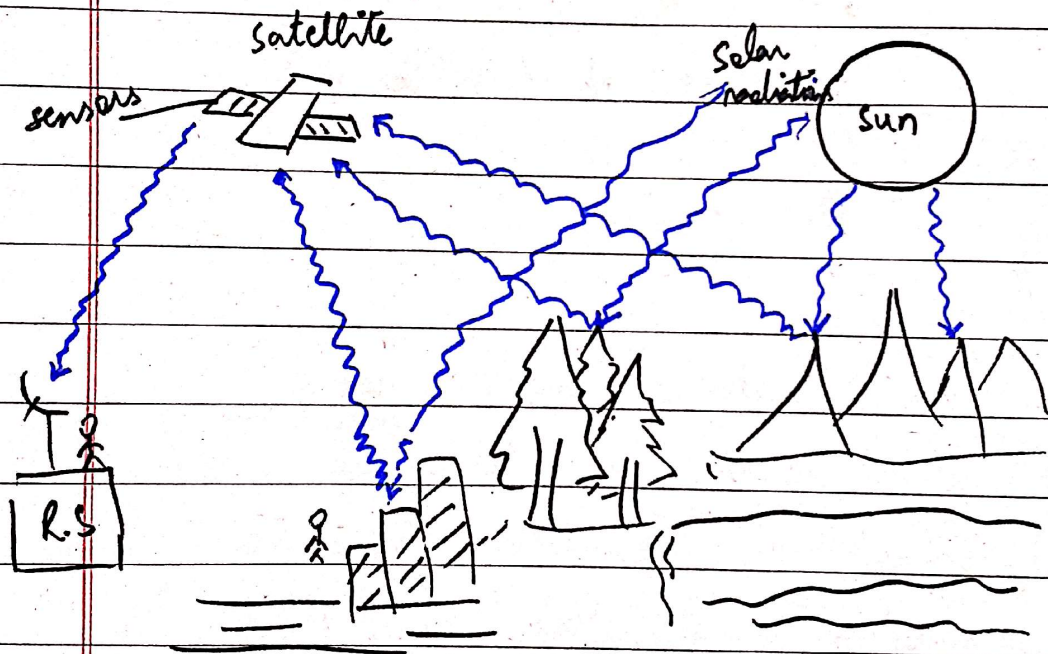
Q.No. 4

(b)

Remote Sensing

Definition: "It is a science to gather information related to any geographic area / location by using the sensors."

Usage in Environmental Monitoring



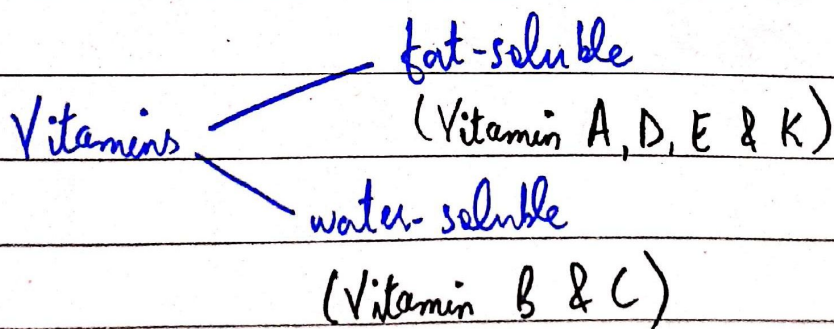
Advantages of Remote Sensing

- (1) Environmental Monitoring Systems - forest monitoring, agriculture monitoring etc.
- (2) Environmental policing / helps in environmental conservation process

(C)

Vitamins

Vitamins	Sources	Deficiency Symptoms
Vitamin A	Carrots, liver, sweet potatoes	Night blindness, dry skin
Vitamin B complex	Milk, eggs, nuts, leafy green vegetables	Beriberi, Anemia
Vitamin C	Citrus fruits, strawberries	Scurvy
Vitamin D	Sunlight, fish	Rickets
Vitamin E	Nuts, seeds, vegetable oil	Poor immune function, muscle weakness
Vitamin K	Leafy green vegetables	Excessive bleeding, poor blood clotting



Contribution to Human health: Essential for various bodily functions, including energy production, immune function, and cell maintenance. Good for maintaining healthy hair, skin, and eyes.

(d)

Polio

Polio, short for poliomyelitis, is a highly contagious viral disease caused by the poliovirus. It primarily affects children under the age of 5, but it can also affect older children and adults. It is transmitted through fecal-oral route, typically entering the body through contaminated food, water, or surfaces.

Cause : Poliovirus

Global Efforts to Eradicate Polio

- ① Vaccination
 - Inactivated Polio Vaccine (IPV)
 - Oral Polio Vaccine (OPV)
- ② Vaccination Campaigns
- ③ Awareness of improving Sanitation & Hygiene
- ④ Surveillance and Outbreak Response
- ⑤ Travel Precautions

Importance of Vaccination : The most effective way to prevent polio is vaccination.

It is typically given as a part of routine immunization schedule for infants and children. It provides immunity against all three serotypes of polio.