

QUESTION #6 (Part A)

Average of all 11 numbers = 63

Average of first 6 numbers = 60

Average of last six numbers = 65

$$\text{Average} = \frac{\text{sum of numbers}}{\text{Total numbers}} \rightarrow \text{eq (1)}$$

using eq (1)

$$63 = \frac{\text{sum of 11 numbers}}{11}$$

$$\begin{array}{r} 63 \\ 11 \\ \hline \end{array}$$

$$63$$

$$\begin{array}{r} 63 \times \\ \hline 693 \end{array}$$

sum of 11 numbers = $63 \times 11 = 693$ → eq (2)

from eq (2)

$$\begin{aligned} \text{sum of 11 numbers} &= \text{sum of first 5 numbers} \\ &+ x + \text{sum of last 5} \\ &\text{numbers} \end{aligned} \rightarrow \text{eq (3)}$$

again using eq (1)

sum of 6 numbers (first) = 6×60

$$\begin{array}{r} 60 \\ 6 \\ \hline \end{array}$$

= 360 → eq (4)

$$\begin{array}{r} 360 \\ \hline \end{array}$$

sum of last six numbers = 65×6

$$\begin{array}{r} 65 \\ 6 \\ \hline \end{array}$$

= 390 → eq (5)

$$\begin{array}{r} 390 \\ \hline \end{array}$$

So sum of first 6 numbers can be written

as (let $x = 6^{\text{th}}$ number)

$$\begin{aligned} \text{sum of first 6 numbers} &= \text{first 5 numbers} \\ &+ (x) \end{aligned}$$

$$\textcircled{8} \leftarrow 360 - x = \text{sum of first 5 numbers}$$

Now similarly,

$$\text{sum of last six numbers is } = x + 1$$

sum of last 5 numbers

$$\textcircled{7} \leftarrow 390 - x = \text{sum of last 5 numbers}$$

Putting values from eq $\textcircled{8}$ & $\textcircled{7}$ into eq $\textcircled{3}$

$\textcircled{3}$

$$\text{sum of 11 numbers} = \text{sum of first 5}$$

$$+ \text{sum of last 5 numbers} + x$$

$$693 = 360 - x + x + 390 - x$$

$$693 = 360 + 390 - x$$

$$693 = 750 - x$$

$$-x = -750 + 693$$

$$-x = +693 - 750$$

$$\textcircled{9} \leftarrow x = 57 \rightarrow \textcircled{10}$$

The number 'x', which is the sixth number has the value of 57.

$$\begin{array}{r} \textcircled{1} \quad 360 \\ + 390 \\ \hline 750 \end{array}$$

$$\begin{array}{r} 750 \\ - 693 \\ \hline 057 \end{array}$$

- c. What are main causes of floods? How floods of 2022 were different from super floods of 2010? Explain role of NDMA in this regard.
- d. Differentiate star & planet. How a star becomes a black hole?

Q. No. 5

- a. Explain with examples the relationship between cells, tissues and organs.
- b. Explain the differences in structure & function between a cell wall and a cell membrane.
- c. What is meant by transpiration? Explain in detail the significance of leaf structure in the process of transpiration.
- d. What is meant by the term double circulation? Briefly describe how the heart is adapted to keep blood flowing in a double circulation.

SECTION-II

Q. No. 6

- a. Average of 11 numbers is 63, that of 1st 6 numbers is 60 & last 6 numbers is 65. Find the 6th number.
- b. Identify the series
- i. 4, 18, _____, 100, 180, 294
- ii. 48, 24, 72, 36, 108, _____
- c. Find the correct word from the given words:
- i. SRHEA
- ii. AIVIRGNE