Data Sufficiency Questions for SBI Clerk Mains, IBPS Clerk Mains, SBI PO Pre and IBPS PO Pre Exams.

Data Sufficiency Quiz 16

Directions: Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read all the statements and give answer.

1. How many students from IIT Dhanbad got the placement?

   Statement I : Number of students studying in IIT Dhanbad and IIT Kanpur are in the ratio of 3 : 4 respectively and 80% of the students studying in IIT Kanpur got placement.

   Statement II : Number of students who got placement from IIT Kanpur is 120% of the number of students who got placement from IIT Dhanbad.

   A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
   B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question
   C. If the data either in statement I alone or in statement II alone is sufficient to answer the question
   D. If the data in both statements I and II together are necessary to answer the question
   E. If the data given in both statements I and II together are not sufficient to answer the question.

2. Virat's income is how much more than Rohit's income?

   Statement I : Virat's income is 30% less than his wife, whose provident fund deduction is Rs. 975 per month which is 5% of her monthly income.

   Statement II : Rohit spends 30% of his income on house rent, 15% of which is accessory bill and Virat's expenditure on house rent is Rs. 4500 more than that of Rohit's.

   A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
   B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question
   C. If the data either in statement I alone or in statement II alone is sufficient to answer the question
   D. If the data in both statements I and II together are necessary to answer the question
   E. If the data given in both statements I and II together are not sufficient to answer the question.

3. Two trains A and B are travelling towards each other on the same track. The initial distance between them is 91 km. Find the time, when the two trains will collide.

Statement I : The speed of train A is 65km/h and the speed of B is 104 km/h more than that of train A.

Statement II : The ratio of speeds of the two trains is 5 : 13.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question

B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question

C. If the data either in statement I alone or in statement II alone is sufficient to answer the question

D. If the data in both statements I and II together are necessary to answer the question

E. If the data given in both statements I and II together are not sufficient to answer the question.

4. Find the amount of money invested by Jamnalal in the scheme?

Statement I : An increase in simple interest from 44/3% to 58/3% per annum increases his yearly income by 2800.

Statement II : The sum invested get doubled, when invested at 20% per annum for 5 years.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question

B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question

C. If the data either in statement I alone or in statement II alone is sufficient to answer the question

D. If the data in both statements I and II together are necessary to answer the question

E. If the data given in both statements I and II together are not sufficient to answer the question.

5. Pipe A and B can fill a tank at the rate of 12 and 10 litre per minute respectively. There is a leakage also in the same tank. What is the capacity of the tank?

Statement I : If A and B are opened simultaneously, the tank is filled in 5 hours 45 minutes and a leakage hole drains the pipe at the rate of 6 litres/minute.

Statement II: Due to the leak the filled tank drains in 15 hours 20 minutes. If A and B are opened simultaneously, the tank is filled in 5 hours 45 minutes.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question

B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question

C. If the data either in statement I alone or in statement II alone is sufficient to answer the question

D. If the data in both statements I and II together are necessary to answer the question

E. If the data given in both statements I and II together are not sufficient to answer the question.

6. There are some pens in a box of blue and black colour and the number of ways of choosing x and (x + 2) pens out of the number of pens in the box is same. If two pens are chosen randomly, then find the probability that both the pens are black in colour.

Statement I : The number of black pens is 33.33% of the total number of pens.

Statement II : If 2 pens can be chosen from the same number of pens in 15 ways and the ratio of the number of blue pens to black pens is 2 : 1.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question

B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question

C. If the data either in statement I alone or in statement II alone is sufficient to answer the question

D. If the data in both statements I and II together are necessary to answer the question

E. If the data given in both statements I and II together are not sufficient to answer the question.

7. Mixture X and Mixture Y contain 40 litres and 60 litres respectively of a mixture of liquid A and liquid B. Quantity of liquid B in mixture X is 25 litres. 20% of mixture X is put into mixture Y. In the end, what was the quantity of liquid B in mixture Y?

    Statement I : Initially, the quantity of liquid B in mixture X was 5 litres more than the quantity of liquid B in mixture Y.

    Statement II : The total quantity of liquid B in both mixtures is 45 litres.

    A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question

    B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question

    C. If the data either in statement I alone or in statement II alone is sufficient to answer the question

    D. If the data in both statements I and II together are necessary to answer the question

    E. If the data given in both statements I and II together are not sufficient to answer the question.

8. A conical vessel of height 12 cm contains 50% of water in it. If this volume of water is transferred to the cuboidal vessel, then find the height of water in the cuboidal vessel. [Use π = 3]

    Statement I : The length and breadth of the cuboidal vessel is 10 cm and 6 cm.

    Statement II : The radius of the conical vessel is equal to the height of the water raised in the cuboidal vessel.

    A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question

    B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question

    C. If the data either in statement I alone or in statement II alone is sufficient to answer the question.

    D. If the data in both statements I and II together are necessary to answer the question.

    E. If the data given in both statements I and II together are not sufficient to answer the question.

9. There are three participants A, B and C in a race. How much time does C take to complete the race of 1000m?

    Statement I : A beats B by 200 m in 1000 m race, B beats C by 200 m in 1000 m race and A beats C by 18 seconds in a race of 800 m.

Statement II : A beats B and C in a race of 1000 m by 50 seconds and 450 m respectively, B beats C by 40 seconds in a race of 1000 m.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
C. If the data either in statement I alone or in statement II alone is sufficient to answer the question.
D. If the data in both statements I and II together are necessary to answer the question.
E. If the data given in both statements I and II together are not sufficient to answer the question.

10. The average of the weights of X and Y is 54 kg and the average of the weights of Z and W is 48 kg. What is the difference between the weights of X and Y?

Statement I : The average of the weights of Y, Z and W is 48 kg.
Statement II : The ratio of the weights of X and Z is 3 : 2.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
C. If the data either in statement I alone or in statement II alone is sufficient to answer the question.
D. If the data in both statements I and II together are necessary to answer the question.
E. If the data given in both statements I and II together are not sufficient to answer the question.

Correct Answers:

1	2	3	4	5	6	7	8	9	10
E	E	A	A	C	B	C	D	C	A

Explanations:

1. **From statement I :**

Let, no. of students studying in IIT Dhanbad and IIT Kanpur are 3x and 4x respectively.

No. of students studying in IIT Kanpur who got placement

$$= \frac{4x \times 80}{100} = \frac{16x}{5}$$

From statement II :

No. of students studying in IIT Kanpur who got placement = 120% of No. of students studying in IIT Dhanbad who got placement hence,

$$\Rightarrow \frac{16x}{5} = 120\% \text{ of } y$$

$$\Rightarrow y = \frac{8x}{3}$$

∴ Question cannot be answered even with the information in both the statements.

Hence, option E is correct.

2.   **From statement I:**

Let the income of Virat's wife is Rs. x per month.

∴ According to the statement

$\Rightarrow 0.05x = 975$

$\Rightarrow x = 19500/-$

∴ Virat's income is 70% of x = $19500 \times \frac{70}{100}$ = Rs. 13650

Nothing is given about Rohit so we cannot find his income.

Rohit's income can't be calculated also from statement II.

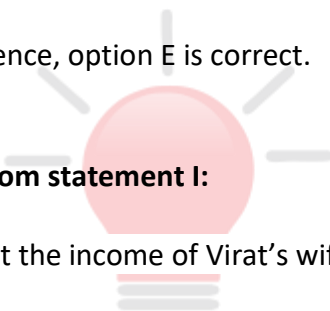Hence, option E is correct.

3.   Let distance travelled by slow train be x km. In time 't',

From statement I :

Speed, 65 = distance/time = x/t

$\Rightarrow$ t = _x_ ----(i)

65

for faster train, in same time 't',

Speed, 169 = $\dfrac{\text{distance}}{\text{time}} = \dfrac{x}{t}$

$\Rightarrow t = \dfrac{91 - x}{169}$ ----(ii)

Equating (i & (ii),

$\Rightarrow \dfrac{x}{65} = \dfrac{91 - x}{169}$

$\Rightarrow 169x = 5915 - 65x$

$\Rightarrow 234x = 5915$

$\Rightarrow x = (5915/234)$

Putting in (i),

$\Rightarrow t = \dfrac{x}{65} = \dfrac{5915/234}{65} = \dfrac{5915}{234 \times 65}$

= 23.33 minutes.

Nothing can be conclusive using statement II,

∴ only statement I is sufficient.

Hence, option A is correct.

4.   Let the invested amount be Rs. x

From statement I:
$\Rightarrow SI = \dfrac{P \times r \times n}{100}$

Increase in rate of interest = $\dfrac{58}{3} - \dfrac{44}{3} = \dfrac{14}{3}$ %

Increase in SI because of increased rate of interest:

$$\Rightarrow x \times \frac{14}{3} \times \frac{1}{100}$$

This increase = Increase in income = 2800

$$\Rightarrow x \times \frac{14}{3} \times \frac{1}{100} = 2800$$

$$\Rightarrow x = \frac{280000 \times 3}{14} = 60,000$$

From statement II :
$$\Rightarrow SI = x$$

$$\Rightarrow x = \frac{x \times 20 \times 5}{100}$$

From here x cannot be calculate
∴ Statement I alone is sufficient while statement II is not.

Hence, option A is correct.

5. **From statement I :**
    If both pipes and a leak operate simultaneously, then 12 + 10 − 6 = 16 litre per minute.

    $\Rightarrow$ Capacity of the tank = 16 × (5 × 60 + 45) = 5520 litres

    From statement II :
    Let the leak drain out at the rate of x litre per minute. Then if both pipes and a leak operate simultaneously, 12 + 10 − x = 22 − x litres per minute.

    $\Rightarrow$ Capacity of the tank = (22 − x) (5 × 60 + 45)
    And again capacity of the tank = x (15 × 60 + 20)
    Equal both above equations to obtain the value of x i.e. 6 litre per minute. Now put it any of the above equation to obtain the capacity of the tank.

    ∴ Either of two statements would be sufficient to obtain the solution.

    Hence, option C is correct.

6. **Statement I:** Let the total number of pens be n

    The number of ways of choosing x pens or x+2 pens out of those n pens is the same.

    Hence, n = x + x + 2 = 2x + 2 (Since $^nC_r = {}^nC_{n-r}$)

    We only know the percentage of black pens but we don't know the total number of pens

Therefore, statement I alone is not sufficient to answer the question

Statement II: Let the total number of pens be n

The number of ways of choosing x pens or x+2 pens out of those n pens is the same.

Hence, n = x + x + 2 = 2x + 2 (Since $^n C_r = {}^n C_{n-r}$)

Now, $^{2x+2} C_2 = 15$

$\dfrac{(2x + 2)(2x + 1)}{2} = 15$

$(x + 1)(2x + 1) = 15$
$2x^2 + x + 2x + 1 = 15$
$2x^2 + 3x - 14 = 0$

So, x = 2 or x = −3.5, but x is positive

So, total number of pens = 2x + 2 = 6

Number of black pens = 2

Required probability $= \dfrac{{}^2 C_2}{{}^6 C_2} = \dfrac{1}{15}$

Therefore, statement II alone is sufficient to answer the question

So, the data in Statement II alone are sufficient to answer the question, while the data in Statement I alone are not sufficient to answer the question

Hence, option (B) is the correct answer.

7. **Statement I:** Quantity of mixture X = 40 litres

Quantity of liquid B in mixture X = 25 litres

Quantity of liquid A in mixture X = 40 − 25 = 15 litres

Quantity of mixture Y = 60 litres

Since, 20% of the mixture is taken out from the mixture X

So, quantity of liquid taken out = 20% of 40 = 8 litres

New quantity of mixture X = (40 − 8) = 32 litres

Quantity of liquid B in mixture Y initially = (25 − 5) = 20 litres

Quantity of liquid A in mixture Y initially = (60 − 20) = 40

Ratio of liquid A to liquid B in mixture X = 15 : 25 = 3 : 5

So, new quantity of liquid B in mixture Y = (20+ 8 × 5/8) = 25 litres

Therefore, statement I alone is sufficient to answer the question

Statement II: Quantity of mixture X = 40 litres

Quantity of liquid B in mixture X = 25 litres

Quantity of liquid A in mixture X = (40 − 25) = 15 litres

Quantity of mixture Y = 60 litres

Since, 20% of the mixture is taken out from the mixture X

So, quantity of liquid taken out = 20% of 40 = 8 litres

New quantity of mixture X = (40 − 8) = 32 litres

Quantity of liquid B in mixture Y initially = (45 − 25) = 20 litres

Quantity of liquid A in mixture Y initially = (60 − 20) = 40

Ratio of liquid A to liquid B in mixture X = 15 : 25 = 3: 5

So, new quantity to liquid B in mixture Y = (20 + 8 × 5/8) = 25 litres

Therefore, statement II alone is sufficient to answer the question

So, the data either in Statement I or in Statement II alone are sufficient to answer the question.

So Option (C) is the correct answer.

8.   **Statement I :**

Since, we don't know the volume of water in the conical vessel, height of water in vessel cannot be calculated

Therefore, statement I alone is not sufficient to answer the question

Statement II:

Since, the radius of the conical vessel is equal to the height of the water raised in the cuboidal vessel; it is not possible to calculate the height of water in the vessel.

Therefore, statement II alone is not sufficient to answer the question

Combining statement I and statement II:

Let the radius of the conical vessel be x cm

Then the height of the water in the cuboidal vessel = x cm

According to the question,

50% of $\left(\dfrac{1}{3} \times \pi \times x^2 \times 12\right)$ = 10 × 6 × x

$0.5 \times \dfrac{1}{3} \times 3 \times x^2 \times 12 = 10 \times 6 \times x$

x = 10 cm

So, the height of water in the cuboidal vessel = 10 cm

So, the data in both statements I and II together are necessary to answer the question

So option (D) is the correct answer.

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9.   **Statement I:**   Let, the speed of A, B and C be A, B and C respectively

So, according to the question,

$\dfrac{1000}{A} = \dfrac{(1000 - 200)}{B}$

A : B = 1000 : 800 = 5 : 4

Also,

$$\frac{1000}{B} = \frac{(1000 - 200)}{C}$$

B : C = 1000 : 800 = 5 : 4

A : B : C = 25 : 20 : 16

Also, $\dfrac{800}{A} = \dfrac{800}{C} - 18$

$$\frac{800}{\frac{25}{16} \times C} = \frac{800}{C} - 18$$

$$\frac{800}{C} - \frac{512}{C} = 18$$

$$C = \frac{288}{18} = 16 \text{ m/s}$$

So, Required time = $\dfrac{1000}{16}$ = 62.5 seconds

Therefore, statement I alone is sufficient to answer the question

Statement II: According to the question,

$$\frac{1000}{A} = \frac{1000}{B} - 50$$

Also, $\dfrac{1000}{A} = \dfrac{1000 - 450}{C}$

A : C = 20 : 11

$$\frac{1000}{B} = \frac{1000}{C} - 40$$

Using both the equations,

$$\frac{1000}{A} + 50 = \frac{1000}{C} - 40$$

$$\frac{1000 \times 11}{20C} + 50 = \frac{1000}{C} - 40$$

$$\frac{1000}{C} - \frac{550}{C} = 50 + 40$$

$$\frac{450}{C} = 90$$

$$C = \frac{450}{90} = 5 \text{ m/s}$$

Therefore, the required time = 1000/5 = 200 seconds

Therefore, statement II alone is sufficient to answer the question

So, the data either in Statement I or in Statement II alone are sufficient to answer the question.

Hence, option (C) is the correct answer.

10. Let the weights of X, Y, Z and W be 'x', 'y', 'z' and 'w' kg respectively

So, $\frac{x + y}{2} = 54$; x + y = 108

Also, $\frac{z + w}{2} = 48$; z + w = 96

Statement I:

$$\frac{(y + z + w)}{3} = 48$$

$$\frac{y + 96}{3} = 48$$

So, y = 48 kg

So, x = 108 – 48 = 60 kg

Required difference = 60 – 48 = 12 kg

Therefore, statement I alone is sufficient to answer the question

Statement II:

The ratio of the weights of X and Z is 3 : 2

From this ratio again we get two equations and 3 unknowns. So, we cannot find the required difference.

Therefore, statement II alone is not sufficient to answer the question

So, the data in Statement I alone are sufficient to answer the question, while the data in Statement II alone are not sufficient to answer the question.

Hence, option (A) is the correct answer.