4

Average

For SSC GD & MTS Exams

1. The average of 17 numbers is 29. The average of first 9 numbers is 31 and the average of the last 9 numbers is 27. If 9th number is excluded, then what is the average of the remaining numbers?

(a) 31   (b) 31.6   (c) 29.5   (d) 29

2. The average weight of all the students in a class was 45.5 kg. Later on 5 students weighing 44.6 kg, 43.4 kg, 44 kg, 45.5 kg and 43.5 kg leave the class. As a result, the average weight of the remaining students increases by 500 g. What was the number of students in the class, Initially?

SSC GD 15/02/2019 (Shift 3)

(a) 18   (b) 20   (c) 16   (d) 21

3. The average of 13 numbers is 65. The average of first three numbers is 63 and that of next 9 numbers is 64.5. The 11th number is 2 more than the 12th number but less than the 13th by 2.5. What is the average of 11th and 12th number?

(a) 73.5   (b) 72   (c) 75.5   (d) 75

4. The average monthly income of P and Q is ₹20000. The average monthly income of Q and R is ₹40000. Monthly Income of R is how much more than monthly Income of P?

SSC GD 18/02/2019 (Shift 2)

(a) ₹40000   (b) ₹80000   (c) ₹20000   (d) ₹25000

5. The average weight of a certain number of persons in a group was 75.5 kg. Later on, 4 persons weighing 72.6 kg. 74 kg, 73.4 kg and 70 kg joined the group. As a result, the average weight of all persons in the group reduced by 500g. The number of persons in the group, Initially, was:

(SSC GD 18/02/2019 (Shift 3)

(a) 20   (b) 16   (c) 18   (d) 24

6. The average of 41 numbers is 63. The average of first 21 number is 61.5 and that of last 21 numbers is 65.5. If 21st number is excluded then the average of remaining numbers is:

(a) 62.475   (b) 63.5
(c) 62.5   (d) 63.575

7. The average height of a certain number of persons in a group is 155.5 cm. Later on 4 persons of height 154.6 cm, 158.4 cm, 152.2 cm and 153.8 cm leave the group. As a result the average height of the remaining persons increases by 0.15 cm. What was the number of persons initially in the group?

(a) 18   (b) 20   (c) 22   (d) 24

8. The average salary of 12 employees in a company was recorded to be ₹20,000. If the salary of the manager is also included, then the average salary increases by ₹2,000. Find the salary of the manager.

SSC MTS 6/07/2022(Shift–1)

(a) ₹36,000   (b) ₹46,000
(c) ₹28,000   (d) ₹42,000

9. The average of a set of 20 numbers is P. If one of the numbers from the set is replaced with 58, then the average becomes (P–2). What is the value of the number that is replaced?

SSC MTS 6/07/2022(Shift–1)

(a) 98   (b) 94   (c) 60   (d) 104

10. The average weight of A, B and C is 52 kg. If the average weight of B and C is 44 kg and that of C and A is 46 kg. then what will be the weight of C?

SSC MTS 6/07/2022(Shift–1)

(a) 24 kg   (b) 38 kg   (c) 36 kg   (d) 68 kg

11. The average of 5 numbers, arranged in a row, is 309. The average of the first two of these numbers is 431 and the average of the last two of these numbers is 231.5. What is the value of the number at the centre of the row?

(a) 52   (b) 321   (c) 108   (d) 220

12. The average of five terms is 40. If the first four terms are given as 50, 52, 35 and 46, find the fifth term.

SSC MTS 5/07/2022(Shift–1)

(a) 18   (b) 17   (c) 16   (d) 15

13. The average of ten numbers is A. If c is subtracted from each number, except the tenth, and $(c - 1)$ is subtracted from the tenth number, then what will be the new average?

SSC MTS 2/11/2021(Shift–1)

(a) $A - c + 0.1$ (b) $A - c$
(c) $A - c + 1$ (d) $A - (0.1) c + 0.1$

14. The speed of light is very nearly equal to 3×10^{17} nanometre per second. How much time (in seconds), approximately, does it take light to travel from the moon to the earth, the average distance between them being 384000 km? (1 nanometre $= 10^{-9}$ metre)

SSC MTS 2/11/2021(Shift–1)

(a) 38.4   (b) 12.8   (c) 3.84   (d) 1.28

15. Consider ten consecutive odd numbers starting from 5. Multiply each of them, except the first and the second, with three. What will be the average of the ten numbers so formed?

SSC MTS 5/10/2021 (Shift-2)

(a) 39.6   (b) 39   (c) 42   (d) 38.4

16. A party was held for 50 people on their own expenses. Out of them, 48 people paid ₹950 each and the other two persons paid ₹1200 more than the average expenses of the group. The total amount spent was:

SSC MTS–14/08/2019 (Shift-2)

(a) ₹75,000   (b) ₹40,000

(c) ₹25,000   (d) ₹50,000

17. In a class of 92 students, the ratio of the number of boys to that of girls is 12 : 11. The average score of girls, in a test, is $33\frac{1}{3}\%$ more than that of boys. If the average score of all students is 80, then what is the average score of girls?

SSC MTS 5/10/2021 (Shift-3)

(a) 88   (b) 84   (c) 92   (d) 96

18. The average of x, y and z is 6 more than z. The average of x and y is 50. If u is 6 less than z, then what is the average of u and z?

SSC MTS 5/10/2021 (Shift-3)

(a) 43   (b) 38   (c) 40   (d) 39

19. Three numbers are in the ratio 2:3:4. The sum of their squares is 2349. Find the average of these three numbers:

SSC MTS 6/10/2021 (Shift-2)

(a) 27   (b) 29   (c) 24   (d) 25

20. The average of eight consecutive numbers is 10.5. The largest number is:

SSC MTS 6/10/ 2021 (Shift-2)

(a) 14   (b) 15   (c) 18   (d) 16

21. The average score of A, B, and C in a test is 78 and that of C, D and E is 52. The average score of E and F is 48 and that of E and C is 60. What is the average score of A, B, C, D, E and F?

SSC MTS 6/10/2021 (Shift-2)

(a) 62   (b) 67   (c) 63   (d) 61

22. Three years ago, the average age of A, B and C was 29 years. If the average age of B and C, 5 years ago, was 23 years, then what is the present age (in years) of A?

SSC MTS 6/10/2021 (Shift-2)

(a) 49   (b) 40   (c) 46   (d) 50

23. The average of the 2–digit numbers 49, 6x, x4 and 70 is 65. What is the average of $(x + 8)$ and $(x + 12)$?

SSC MTS 6/10/2021 (Shift-3)

(a) 16   (b) 17   (c) 19   (d) 18

24. The average of eleven numbers is 80. The average of the first four numbers is 74.5 and that of the next four numbers is 82.5. The ninth number is 6 more than the tenth number, and the tenth number is 6 less than the eleventh number. What is the average of the ninth and eleventh numbers?

SSC MTS 7/10/2021 (Shift-2)

(a) 87   (b) 80   (c) 86   (d) 85

25. The total number of students in class A and B is 92. The number of students in A is 30% more than that of B. The average weight (in kg) of students in B is 50% more than that of students in A. If the average weight of all the students in A and B is 56 kg, then what is the average weight (in kg) of students in B?

SSC MTS 7/10/2021 (Shift-2)

(a) 46   (b) 40   (c) 69   (d) 52

26. The total number of student in class A and B is 72. The number of students in class A is 40% more than that of in B. The average marks of student in B are 30% more than that of students in A. If the average marks of all the students in A and B are 58, then what are the average marks of students in A?

SSC MTS 7/10/2021 (Shift-3)

(a) 58   (b) 72   (c) 50   (d) 48

27. There are three positive numbers. If the average of any two of them is added to the third numbers, the resulting sums are 154, 148 and 132. The sum of the original three numbers is:

SSC MTS 7/10/2021 (Shift-3)

(a) 222   (b) 231   (c) 246   (d) 217

28. The ratio of boys and girls in school is 35 : 39. If the average of boys and girls in the school is 740, then the number of boys in the school is:

SSC MTS 7/10/2021 (Shift-3)

(a) 780   (b) 720   (c) 700   (d) 740

29. The average weight of all the students in a class is 55 kg. The ratio of the average weight of boys to that of girls is 5:4. If 40% of the students are boys and the rest are girls, then what is the average weight (in kg) of boys?

SSC MTS 08/10/2021 (Shift-2)

(a) 62.5   (b) 65   (c) 66   (d) 60.8

30. The average of the 3–digit numbers 524, 466, 3×4 and x52 is 529. What is the average of $(10x + 7)$ and $(14x − 9)$?

SSC MTS 08/10/2021 (Shift-2)

(a) 83   (b) 71   (c) 59   (d) 68

SOLUTIONS 4A

Sol. 1 : 9th number $= (9 \times 31 + 9 \times 27) – 17 \times 29$

$= (279 + 243) – 493$

$= 522 – 493$

$= 29$

Average of 16 numbers $= \dfrac{493 – 29}{16}$

$= \dfrac{464}{16} = 29$

Sol. 2 : Let initially no. of students $= x$

now, ATQ

$(x – 5) \times 46 = 45.5x – (44.6 + 43.4 + 44 + 45.5 + 43.5)$

$\Rightarrow 0.5x – 230 = – 221.0$

$\Rightarrow 0.5x = 9$

$\Rightarrow x = 18$

Sol. 3 : Let 13th number be x.

now, ATQ

$65 \times 13 = 63 \times 3 + 9 \times 64.5 + x$

$\Rightarrow 845 = 189 + 580.5 + x$

$\Rightarrow x = 845 - 769.5 = 75.5$

11th no. $= 75.5 - 2.5 = 73$

12th no. $= 73 - 2 = 71$

now, required average $= \dfrac{73 + 71}{2}$

$= \dfrac{144}{2} = 72$

Sol. 4 : $P + Q = 20000 \times 2 = 40000$

$Q + R = 40000 \times 2 = 80000$

$R - P = 80,000 - 40,000 = 40,000$

Sol. 5 : Let no. of Persons initially $= x$

now, ATQ

$(x + 4) \times 75 = 75.5x + (72.6 + 74 + 73.4 + 70)$

$\Rightarrow 75x + 300 = 75.5x + 290$

$\Rightarrow 0.5x = 10$

$\Rightarrow x = 20$

Sol. 6 : 21st number $= 21 \times (61.5 + 65.5) - 41 \times 63$

$= 21 \times 127 - 41 \times 63$

$= 2667 - 2583$

$= 84$

$\therefore$ Required average $= \dfrac{2583 - 84}{40}$

$= 62.475$

Sol. 7 : Let the no. of persons initially $= x$

now, ATQ

$(x - 4) \times 155.65 = 155.5x - (154.6 + 158.4 + 152.2 + 153.8)$

$\Rightarrow 155.65x - 622.60 = 155.5x - 619$

$\Rightarrow 0.15x = 3.6$

$\Rightarrow x = 24$

Sol. 8. (b) : Salary of manager $= 13 \times 22,000 - 12 \times 20,000$

$= 2,86,000 - 2,40,000$

$= ₹46,000$

Sol. 9. (a) : Let replaced number $= x$

Now, according to question

$20 \times P - x + 58 = 20(P - 2)$

$\Rightarrow 20P - x + 58 = 20P - 40$

$\Rightarrow x = 58 + 40$

$\Rightarrow x = 98$

Sol. 10. (a) : Weight of $(A + B + C)$

$= 52 \times 3 = 156$ kg. ...(i)

Weight of $(B + C)$

$= 44 \times 2 = 88$ kg. ...(ii)

Weight of $(A + C)$

$= 46 \times 2 = 92$ kg. ...(iii)

Now, weight of A

$= 156 - 88 = 68$ kg. ...(iv)

[From (i) and (ii)]

From (iii) and (iv),

Weight of C $= 92 - 68 = 24$ kg.

Sol. 11. (d) : The number at the centre of the row

$= 5 \times 309 - (431 \times 2 + 231.5 \times 2)$

$= 1545 - (862 + 463)$

$= 1545 - (1325)$

$= 220$

Sol. 12. (b) : Fifth term $= 5 \times 40 - (50 + 52 + 35 + 46)$

$= 200 - 183 = 17$

Sol. 13. (a) : New average

$= \dfrac{10A - 9c - (c - 1)}{10}$

$= \dfrac{10A - 10c + 1}{10} = A - c + 0.1$

Sol. 14. (d) : Speed of light $= 3 \times 10^{17} \times 10^{-9}$

$= 3 \times 10^8$ m/s

Now, time $= \dfrac{384000 \times 1000}{3 \times 10^8}$

$= 1.28$ seconds.

Sol. 15. (a) : Ten consecutive odd numbers starting from 5 are 5, 7, 9, 11, 13, 15, 17, 19, 21, 23

now, According to question,

Required average

$= \dfrac{5 + 7 + (9 + 11 + 13 + 15 + 17 + 19 + 21 + 23) \times 3}{10}$

$= \dfrac{12 + (128) \times 3}{10} = \dfrac{12 + 384}{10} = \dfrac{396}{10}$

$= 39.6$

Sol. 16. (d) : Let the average expanse $= x$

now, According to the question

$\dfrac{48 \times 950 + 2(x + 1200)}{50} = x$

$48000 = 48x$

$\Rightarrow x = 1000$

Total amount spend $= 50 \times 1000$

$= 50,000$

Sol. 17. (c) : Number of boys $= \dfrac{92}{23} \times 12 = 48$

and number of girls $= \dfrac{92}{23} \times 11 = 44$

Let the average score of boys $= 3a$ and the average score of girls $= 4a$

now, According to the question,

$80 = \dfrac{48(3a) + 44(4a)}{92}$

$\Rightarrow 7360 = 144a + 176a$

$\Rightarrow 7360 = 320a$

$\Rightarrow a = 23$

Required average = $4a = 4 \times 23 = 92$

Sol. 18. (b) : We have

$\dfrac{x + y}{2} = 50 \Rightarrow x + y = 100$

and $\dfrac{x + y + z}{3} = 6 + z$

$\Rightarrow x + y + z = 18 + 3z$

$\Rightarrow 100 + z = 18 + 3z$

$[\because x + y = 100]$

$\Rightarrow 2z = 100 - 18 = 82$

$\Rightarrow z = 41$

now, $u = z - 6 = 41 - 6 = 35$

Required average $z = \dfrac{u + z}{2} = \dfrac{35 + 41}{2}$

$\dfrac{76}{2} = 38$

Sol. 19. (a) : Let the numbers be $2x$, $3x$ and $4x$ respectively.

now, According to the question,

$(2x)^2 + (3x)^2 + (4x)^2 = 2349$

$4x^2 + 9x^2 + 16x^2 = 2349$

$29x^2 = 2349$

$x^2 = 2349$

$x^2 = \dfrac{2349}{29} = 81, \Rightarrow x = 9$

$\therefore$ Required average

$= \dfrac{2x + 3x + 4x}{3} = \dfrac{9x}{3}$.

$= 3x = 3 \times 9 = 27$.

Sol. 20. (a) : Let the first term is x the last term will be $x + 7$

$[\because$ we have 8 consecutive terms$]$

now, $\because$ Average $= \dfrac{1\text{st term} + \text{last term}}{2}$

$10.5 = \dfrac{x + x + 7}{2}$

$\Rightarrow 2x + 7 = 21$

$\Rightarrow 2x = 14$

$\Rightarrow x = 7$

Last term = $x + 7$

$= 7 + 7$

$= 14$

Sol. 21. (d) : C + D + E = $52 \times 3 = 156$ kg

E + C = $60 \times 2 = 120$ kg

now, weight of D = $156 - 120 = 36$ kg.

A + B + C = $78 \times 3 = 234$ kg

E + F = $48 \times 2 = 96$ kg.

(A + B + C) + D + (E + F)

= 234 + 36 + 96 = 366 kg.

Required average

$= \dfrac{366}{6} = 61$ kg.

Sol. 22. (b) : Present average age of A, B and C

= $29 \times 3 + 3 \times 3 = 96$

Present average age of B and C

= $23 \times 2 + 5 \times 2$

= 56

$\therefore$ Age of A = age of (A + B + C) – age of (B + C)

$\Rightarrow 96 - 56 = 40$ years.

Sol. 23. (b) : Total sum of all four numbers

= 65×4

= 260.

$\Rightarrow 49 + 6x + x4 + 70 = 260$

$\Rightarrow 49 + 6 \times 10 + x + 10x + 4 + 70$

$\Rightarrow 49 + 60 + x + 10x + 4 + 70 = 260$

$11x = 77, x = 7$.

$\therefore$ Required average

$= \dfrac{(7 + 8) + (7 + 12)}{2} = 17$

Sol. 24. (c) : Let 10th number = x,

so 9th number = $x + 6$ and 11th number = $x + 6$

sum of 9th, 10th and 11th numbers

= $880 - (298 + 330) = 880 - 628 = 252$

$\therefore (x) + (x + 6) + (x + 6) = 252$

$3x + 12 = 252$

$3x = 240$

$x = 80$

$\therefore$ Required average

$= \dfrac{(x + 6) + (x + 6)}{2} = \dfrac{2x + 12}{2}$

$= x \times 6 = 80 + 6 = 86$

Sol. 25 : We have,

A : B = 13 : 10

Number of students in class A

$= \dfrac{13}{23} \times 92 = 52$

Number of students in class B

$= \dfrac{10}{23} \times 92 = 40$

Let the average weight of students class A = $2x$

so average weight of students class B

$= \dfrac{150 \times 2x}{100} = 3x$

now, According to question,

$56 = \dfrac{52(2x) + 40(3x)}{92}$

$5152 = 104x + 120x$

$\Rightarrow 5152 = 224x$

$x = 23$

Required average $= 3x$

$= 3(23) = 69$ kg

Sol. 26. (d) : $A = \dfrac{140}{100}B \Rightarrow A : B = 7 : 5$

Number of students in class A

$= \dfrac{7}{12} \times 72 = 42$

Number of students in class B

$= \dfrac{5}{12} \times 72 = 30$

Let the average marks of students in class A $= 2a$
and average marks of students in class B $= 150\%$ of $2a = 3a$
now, According to question,

$58 = \dfrac{42(2a) + 30(3a)}{72}$

$4176 = 84a + 90a$

$\Rightarrow 4176 = 174a$

$a = 24$

Average marks of students in class A $= 2a = 2(24) = 48$ marks

Sol. 27. (d) : Let the three numbers be x, y and z
now According to question,

$\dfrac{x + y}{2} + z = 154$

$\Rightarrow x + y + 2z = 308 \qquad\qquad$ (i)

$\dfrac{y + z}{2} + x = 148$

$\Rightarrow y + z + 2x = 296 \qquad\qquad$ (ii)

$\dfrac{x + z}{2} + y = 132$

$\Rightarrow x + z + 2y = 264 \qquad\qquad$ (iii)

by adding eqn (i), (ii) and (iii) we get

$x + y + z = 308 + 296 + 264$

$x + y + z = 868$; So, $x + y + z = 217$

Sol. 28. (c) : Sum total of boys and girls in school
$= 740 \times 2 = 1480$

$\therefore$ number of boys $= 1480 \times \dfrac{35}{35 + 39}$

$= 1480 \times \dfrac{35}{74} = 700$

Sol. 29. (a) : Let the total number of students be $10a$
According to the question,
number of boys $= 4a$ and
number of girls $= 6a$
Let the Boys average weight $= 5b$ and
the girls average weight $= 4b$
According to the question,

$55 = \dfrac{5b \times 4a + 4b \times 6a}{4a + 6a}$

$55 = \dfrac{44ab}{10a}$

$\Rightarrow b = \dfrac{550}{44} = \dfrac{25}{2}$

Average weight of boys

$= 5b = 5 \times \dfrac{25}{2} = 62.5$ kg

Sol. 30. (a) : We have

$\dfrac{524 + 466 + 3x4 + x52}{4} = 529$

$990 + 3x4 + x52 = 2116$

$3x4 + x52 = 1126 \qquad\qquad$ (i)

Now for getting 2 at the tens place of 1126,
we need $x + 5 = 12$

$\Rightarrow x = 7$, and

Put $x = 7$ in eqn (i) the eqn is satisfied.

$\therefore$ Required average $= \dfrac{[10x + 7] + [14x - 9]}{2}$

$= \dfrac{[10(7) + 7] + [14(7) - 9]}{2}$

$= \dfrac{77 + 89}{2} = \dfrac{166}{2} = 83$

EXERCISE 4B

For SSC CHSL Exam

1. The average of 10 observations is 21. A new observation is included and the average of these 11 numbers is 1 less than the previous average. The 11th observation is _____.

(a) 21   (b) 11   (c) 10   (d) 12

2. A shopkeeper purchases 20000 units of a product at ₹1 each, 15000 units at ₹1.15 each and 5000 units at ₹2 each. What is the weighted average price of one unit? (Correct to two decimal places)

(a) ₹1.36   (b) ₹1.20   (c) ₹1.18   (d) ₹1.38

3. The average daily income of shyam Lal during the month of february 2020 was ₹560. The average Income for the first 16 days was ₹590 and for the last 16 days it was ₹500. What was his average income for 14th, 15th and 16th February?

(a) ₹545   (b) ₹400   (c) ₹590   (d) ₹587

4. The average of 19 numbers is 48. The average of the first 7 numbers is 50.6 and that of the last 13 numbers is 47.6. If the 7th number is excluded, then what is the average of the remaining numbers?

(a) 42.4   (b) 49.5   (c) 39.6   (d) 47.3

5. The average height of a certain number of students in a group is 155.6 cm. If 12 students having an average height

of 150.5 cm join the group and 7 students having an average height of 159 cm leave the group, the average height of the students in the group will decrease by 34 mm. What is the number of students, initially, in the group?

SSC CHSL 5/8/2021 (Shift-2)

(a) 30   (b) 25   (c) 40   (d) 20

6. The average of eighteen numbers is 42. The average of the last ten numbers is 40 and that of the first five numbers is 44. The seventh number is 6 less than the sixth and 7 less than the eighth number. The average of the sixth and the eighth number is:

SSC CHSL 5/8/2021 (Shift-2)

(a) 46.5   (b) 47.5   (c) 45   (d) 48

7. The average weight of three persons A, B and C is 60 kg. When D joins the group, the average weight becomes 65kg. When another person E whose weight is 3 kg less than that of D replaces A, the average weight of B,C,D and E becomes 67kg. What is the weight of A(in kg)?

(a) 60   (b) 69   (c) 72   (d) 65

SSC CHSL 6/8/2021 (Shift-2)

8. There are 90 students in a hostel. Due to new admission, 30 new students join the mess and the daily expenses of the mess increases by ₹560, while the average expenditure per head diminishes by ₹10. What was the original daily expenditure (in ₹) of the mess?

SSC CHSL 6/8/2021 (Shift-2)

(a) 4,280   (b) 5,280   (c) 3,680   (d) 4,980

9. The average of the squares of four consecutive odd natural numbers is 201. The average of 7 times of the largest number and 3 times of the smallest number is:

SSC CHSL 6/8/2021 (Shift-3)

(a) 72   (b) 78   (c) 76   (d) 66

10. The average of 42 numbers is 37. The average of the first 26 numbers is 32, and the average of the last 17 numbers is 44. The 26th number is:

SSC CHSL 9/8/2021 (Shift-2)

(a) 28   (b) 27   (c) 26   (d) 25

11. The average pass percentage of girls in class X examination in a school is 85% and that of boys is 83%. The average pass percentage of all boys and girls in class X of that school is 83.7%. Find the percentage of number of girls in class X of that school.

SSC CHSL 9/8/2021 (Shift-2)

(a) 35%   (b) 30%   (c) 45%   (d) 40%

12. The average of 29 numbers is 38. The average of the first 19 numbers is 34 and that of last 9 numbers is 48. The 20th number is:

SSC CHSL 9/8/2021 (Shift-3)

(a) 28   (b) 26   (c) 24   (d) 22

13. There are 3 groups of person- male, female, and children. There are 20 males and the number of females and children taken together is 4 more than that of the males. The average weight of the males is 54 kg, that of females is 49 kg and that of children is 30 kg. If the average weight of the whole group is 48.25 kg. then what is the difference between the number of females and the number of children?

SSC CHSL 10/8/2021 (Shift-2)

(a) 17   (b) 10   (c) 7   (d) 14

14. In a class of 80 students (boys and girls) there are 60% girls. The average weight of the boys is 58 kg and that of the girls is 52 kg. What is the average weight (in kg) of the whole class?

SSC CHSL 10/8/2021 (Shift-3)

(a) 56.2   (b) 54.4   (c) 53.6   (d) 55

15. A batsman in his 13th inning makes a score of 97 runs, thereby increasing his average score by 5. What is his average score after the 13th inning?

SSC CHSL 11/8/2021 (Shift-2)

(a) 37   (b) 77   (c) 67   (d) 57

16. A, B and C are three positive numbers such that the average of three–fifth of A and 30% of B is 13.5 and the average of $\frac{3}{8}$ times of B and 25% of C is 15. If A is equal to $\frac{5}{12}$ of C, then the sum of all three numbers A, B and C is:

SSC CHSL 11/8/2021 (Shift-2)

(a) 125   (b) 135   (c) 145   (d) 120

17. The average age of 35 persons is 40 years. 5 new persons with an average age of 35 years joined them. The average age of all the persons is:

SSC CHSL 11/8/2021 (Shift-3)

(a) $39\frac{3}{8}$ (b) $39\frac{1}{8}$ (c) $39\frac{7}{8}$ (d) $39\frac{5}{8}$

18. The average weight of 30 persons of group A is 3 kg more than the average weight of 25 persons of group B. The average weight of 25 persons of group B is 2.5 kg more than the average weight of 20 persons of group C. If the total weight of 30 persons of group A is 1725 kg, then what will be the average weight of the persons of group A and group C taken together?

SSC CHSL 12/04/2021 (Shift-2)

(a) 55.3   (b) 55.4   (c) 55.1   (d) 55

19. 30 people went to a restaurant for a dinner party. 20 of them paid ₹880 each of the rest of them paid ₹110 more than the average of the total expenses. What was the total expense (In ₹) for the dinner?

SSC CHSL 12/04/2021 (Shift-2)

(a) 27,840   (b) 29,360   (c) 24,580   (d) 28,050

20. The average monthly expenditure of a family was ₹18600 during the first three months, ₹21750 during the next four months and ₹22840 during the last five months of a year. If the total savings during the year was ₹143020, then the average monthly income (in ₹) of the family was:

SSC CHSL 12/04/2021 (Shift-3)

(a) 33335　　　　　　　　(b) 34115

(c) 35333　　　　　　　　(d)32225

21. The average of 40 numbers is 48.2. The average of the first 15 numbers is 45 and that of the next 22 numbers is 50.5. The 38th number is 1 more than the 39th number, and the 39th number is 3 less than the 40th number. What is the average of the 39th and 40th number?

SSC CHSL 12/8/2021 (Shift-2)

(a) 48　　　(b) 49　　　(c) 47.5　　　(d) 48.5

22. The average age of 7 members of a family is 35 years. If the youngest members are twins and they are 15 years old, then what was the average age (in years) of the family members at the time of the birth of the twins?

SSC CHSL 12/8/2021 (Shift-2)

(a) 28　　　(b) 27　　　(c) 30　　　(d) 25

23. A, B, C and D are four positive numbers such that A is $\frac{3}{4}$ times of B, B is $\frac{4}{5}$ times of C, and C is $\frac{3}{8}$ times of B. If the average of 4 times of A and 7 times of D is 316, then the average of all the four numbers A, B, C and D is:

SSC CHSL 12/8/2021 (Shift-3)

(a) 36　　　(b) 38　　　(c) 28　　　(d) 34

24. The average number of electronic Items sold by a trader in 2004, 2005, 2006 and 2007 is 18950 and that of sold in 2005, 2006, 2007 and 2008 is 21725. If the number of items sold in 2008 is 12750, then the number of items sold in 2004 is:

SSC CHSL 13/4/2021 (Shift-2)

(a) 1600　　　(b) 1700　　　(c) 1650　　　(d) 1550

25. The average age of 125 students in a group is 16.2 years, 40% of the students are boys and the rest are girls. The average age of the boys is 20% more than the average age of the girls. What is the average age of the boys ? (In years)

SSC CHSL 13/4/2021 (Shift-2)

(a) 17　　　(b) 18　　　(c) 18.5　　　(0) 17.5

26. The average monthly expenditure of a man is ₹2,400 during the first three months, ₹3,500 during the next five months and ₹4,800 for the remaining four months. If his total savings is ₹3,500 during the entire year then what is his average monthly income (in ₹)?

SSC CHSL 15/4/2021 (Shift-2)

(a) 4,550　　　(b) 4,100　　　(c) 3,700　　　(d) 3,950

27. The average of the squares of four consecutive even natural numbers is 126. The average of 8 times of the greatest number and 5 times of the smallest number is:

SSC CHSL 15/4/2021 (Shift-3)

(a) 66　　　(b) 76　　　(c) 68　　　(d) 74

28. The average weight of some students in a class was 69.5 kg. When 10 students of average weight 68 kg joined the class, and 6 students of average weight 60 kg left the class, It was noted that the average weight of the new group of students increased by 2 kg. How many students are there in the class now?

SSC CHSL 16/4/2021 (Shift-2)

(a) 19　　　(b) 21　　　(c) 23　　　(d) 17

29. The average score of 84 students (boys and girls) in a test is 95. The ratio of the number of boys to that of girls is 10:11. The average score of the boys is 20% less than that of the girls. What is the average score of the boys in the test?

SSC CHSL 16/4/2021 (Shift-3)

(a) 95　　　(b) 84　　　(c) 120　　　(d) 105

30. The average weight of some students in a group is 58 kg. If 8 students of average weight 54 kg leave the group, and 3 students weighing 53.6 kg, 54 kg and 57.4 kg join the group, then the average weight of the remaining students in the group will increase by 575 gm. The number of students, Initially, in the group is:

SSC CHSL 19/4/2021 (Shift-2)

(a) 40　　　(b) 45　　　(c) 35　　　(d) 50

31. The average marks obtained by 150 students in a certain examinations is 50. If the average marks of the passed students are 54 and that of the students who failed are 30, then what will be the number of students who failed?

SSC CHSL 19/4/2021 (Shift-2)

(a) 25　　　(b) 24　　　(c) 20　　　(d) 28

32. The average of 5 numbers is 26.4, The first number is one–fifth of the sum of the remaining 4 numbers. What is the first number?

SSC CHSL 19/4/2021 (Shift-3)

(a) 20　　　(b) 21　　　(c) 23　　　(d) 22

33. The average age of 25 men is 28 years. 5 new men of an average age of 25 years joined them. Find the average age of all the men together.

SSC CHSL 12/10/2020 (Shift-2)

(a) 26.5　　　(b) 27.5　　　(c) 28.5　　　(d) 29.5

34. The average of the runs of a cricket players in 20 matches is 35. If the average of the first 12 matches is 45, find the average of the last 8 matches.

SSC CHSL 12/10/2020 (Shift-2)

(a) 16　　　(b) 22　　　(c) 18　　　(d) 20

35. Three years ago, the average age of a husband, wife and child was 26 years, and that of the wife and the child, 5 years ago, was 20 years. The present age of the husband is:

SSC CHSL 12/10/2020 (Shift-3)

(a) 42　　　(b) 37　　　(c) 39　　　(d) 45

36. If the average of 35 numbers is 22, the average of the first 17 numbers is 19, and the average of the last 17 numbers is 20, then the 18th number is

SSC CHSL 13/10/2020 (Shift-3)

(a) 133   (b) 107   (c) 132   (d) 108

37. Six years ago, the average of the ages of Ravi, Mohan and Govind was 32 years. If Shyam joins them now, the average of the ages of all four of them is 36 years. The present age of Shyam is:

SSC CHSL 14/10/2020 (Shift-1)

(a) 35   (b) 32   (c) 40   (d) 30

38. The sum of 17 consecutive numbers is 289. The sum of another 10 consecutive numbers, whose first term is 5 more than the average of the first set of consecutive numbers, is:

SSC CHSL 14/10/2020 (Shift-2)

(a) 315   (b) 285   (c) 265   (d) 300

39. The average of 5 consecutive odd numbers is 75. By adding which number, will the average become 76?

SSC CHSL 14/10/2020 (Shift-3)

(a) 76   (b) 81   (c) 77   (d) 79

40. The average marks of Ravi in five subjects are 150, but in mathematics 43 was misread as 23 during the calculation. The correct average is:

SSC CHSL 15/10/2020 (Shift-1)

(a)150   (b)154   (c)148   (d)160

41. In a company with 600 employees, the average age of male employees is 42 years and that of female employees is 41 years. If the average age of all the employees in the company is 41 years and 9 months, then the number of female employees is:

SSC CHSL 16/10/2020 (Shift-1)

(a) 150   (b) 250   (c) 450   (d) 350

42. A player has a certain average for 15 innings. In the 16th Innings he scores 120, there by his average increases by 6 runs. What is the new average?

SSC CHSL 16/10/2020 (Shift-2)

(8) 20   (b) 8   (c) 30   (d) 24

43. In a set of three numbers, the average of the first two numbers is 7. the average of the last two numbers is 10, and the average of the first and the last numbers is 14. What is the average of the three numbers?

SSC CHSL 16/10/2020 (Shift-3)

(a) $\dfrac{25}{4}$ (b) $\dfrac{37}{3}$ (c) $\dfrac{29}{4}$ (d) $\dfrac{31}{3}$

44. The average score for a cricketer for 20 matches is 52 runs. His highest score is more than its lowest score by 120 runs. If these two innings are excluded, the average score of the remaining 18 matches is '50 runs. The highest score of the player is:

SSC CHSL 19/10/2020 (Shift-1)

(a) 140   (b) 130   (c) 125   (d) 120

45. The average of 24 numbers is 26. The average of the first 15 numbers is 23 and that of the last 8 numbers is 33. Find the 16th number.   **SSC CHSL 19/10/2020 (Shift-2)**

(a) 15   (b) 16   (c) 17   (d) 18

46. A library has an average of 265 visitors on Sundays and 130 visitors on other days. The average number of visitors per day in a month of 30 days beginning with a Monday is:

SSC CHSL 19/10/2020 (Shift-3)

(a) 148   (b) 135   (c) 165   (d) 129

47. The average age of a man and his son is 60 years. The ratio of their ages is 13:7, respectively. What is the son's age?

SSC CHSL 20/10/2020 (Shift-2)

(a) 40   (b) 41   (c) 42   (d) 43

48. If 40 is added to a list of natural numbers, the average is increased by 4. When 30 is added to the new list, the average of the numbers in the new list is increased by 1. How many numbers were in the original list?

SSC CHSL 26/10/2020 (Shift-1)

(a) 4   (b) 5   (c) 8   (d) 6

49. The average of the ages of Sonu, Hari and Govind is 30 years. If their ages are in the ratio of 4:5:6, respectively, then the difference between the ages of Sonu and Govind is:

SSC CHSL 26/10/2020 (Shift-2)

(a) 18   (b) 21   (c) 15   (d) 12

50. The average of P, Q and R is 62 kg. The weight of R is 12 kg more than P and 9 kg more than Q. What is the average weight (in kg) of P, Q, R and S if the weight of S is 15 kg less than R?

SSC CHSL 26/10/2020 (Shift-3)

(a) 58   (b) 62   (c) 64   (d) 60

51. The average age of 16 students in a college is 20. Out of them, the average age of 5 students is 20 and the average age of the other 10 students is 20.4. Find the age of the 16th college student.

SSC CHSL 17/03/2020 (Shift-3)

(a) 24   (b) 16   (c) 20   (d) 22

52. Several students have taken an exam. There was an error in the answer key which affected the marks of 48 students, and their average marks reduced from 78 to 66 The average of remaining students increased by 3.5 marks. This resulted in the reduction of the average of all students by 4.5 marks. The number of students that attended the exam is:

SSC CHSL 18/03/2020 (Shift-1)

(a) 96   (b) 84   (c) 93   (d) 100

53. The average of four consecutive even numbers is 27. By adding which number does the average become 28?

SSC CHSL 18/03/2020 (Shift-2)

(a) 32   (b) 30   (c) 33   (d) 29

54. The average of the ages of a group of 65 men in 32 years. If 5 men join the group, the average of the ages of 70 men is 34 years. Then the average of the ages of those 5 men joined later (in years) is:

SSC CHSL 19–03–2020 (Shift-1)

(a) 50   (b) 55   (c) 65   (d) 60

55. The average of 40 numbers is 36. The average of the first 25 numbers is 31 and the average of last 16 numbers is 43. Find the 25th number.

SSC CHSL 19–03–2020 (Shift-2)

(a) 23   (b) 24   (c) 21   (d) 22

56. In a class of 80 students, 60% participate in games and the rest do not. The average weight of the former group is 5% more than that of the latter. If the average weight of all the students is $51\frac{1}{2}$ kg, then what is the average weight (in kg) of the former group?

SSC CHSL–2/07/2019 (Shift-2)

(a) 57.6   (b) 54.5   (c) 60   (d) 52.5

57. The average weight of the students in a group was 75.4 kg. Later on, four students having weights, 72.9 kg, 73.8 kg. 79.5 kg and 87.4 kg joined the group. As a result, the average weight of all the students in the group increased by 0.24 kg. What was the number of students in the group, initially?

SSC CHSL–3/07/2019 (Shift-2)

(a) 46   (b) 36   (c) 50   (d) 48

58. The average of n number is 36. If each of 75% of the numbers is increased by 6 and each of the remaining numbers is decreased by 9, then the new average of the numbers is:

SSC CHSL–4/07/2019 (Shift-2)

(a) 37.125   (b) 33.75
(c) 38.25   (d) 36.25

59. 9 years ago, the average age of a family of five members was 33 years. Now, three new members join whose ages are in ascending order with consecutive gaps of 8 years. If the present average age of the family is the same as it was 9 years ago, what is the age (in years) of the youngest new member?

SSC CHSL–4/07/2019 (Shift-2)

(a) 15   (b) 17   (c) 10   (d) 9

60. 10 years ago, the average age of a family of five members was 38 years. Now, two new members join, whose age difference is 8 years. If the present average age of the family is the same as it was 10 years ago, what is the age (in years) of the new younger member?

SSC CHSL –4/07/2019 (Shift-2)

(a) 15   (b) 9   (c) 10   (0) 17

61. The average of a number and its reciprocal is 4. The average of its cube and its reciprocal is equal to:

SSC CHSL–9/07/2019 (Shift-3)

(a) 256   (b) 142   (c) 288   (d) 244

62. The average of the first 1234 _____ numbers is equal to 1234.

SSC CHSL–10/07/2019 (Shift–1)

(a) odd   (b) even
(c) prime   (d) natural

63. The average of the first 101 _____ numbers is equal to 102.

SSC CHSL–10/07/2019 (Shift–2)

(a) natural   (b) odd
(c) even   (d) perfect square

64. The difference between the average of first ten prime numbers and the first ten prime numbers of two digits is:

SSC CHSL – 10/07/2019 (Shift–3)

(a) 14.5   (b) 16.5   (c) 12.5   (d) 13.5

65. The average of 1088 real numbers is zero. At most how many of them can be negative?

SSC CHSL–11/07/2019 (Shift-2)

(a) 100   (b) 88   (c) 544   (d) 1087

66. The average age of four brothers is 15 years. If their father is included, the average is increased by 5 years. The age of the father (in years) is:

SSC CHSL–5/07/2019 (Shift–2)

(a) 35   (b) 40   (c) 38   (d) 36

67. The average of the numbers, a, b c and d is $2d + 4$. Also, the averages of the numbers a and b : b and c : c and d are 8, 5 and 4, respectively. If $a = a + d + 1$, then what is the average of the numbers d and e ?

SSC CHSL 13/04/2021(Shift–3)

(a) 8.5   (b) 7   (c) 8   (d) 3

68. The average weight of some persons in a group is 72 kg. When 5 persons with average weight 66.6 kg join and 13 persons with average weight 75 kg leave the group, the average weight of the persons in the group decreases by 1.65 kg. How many persons were there in the group initially ?

SSC CHSL 15/04/2021(Shift–1)

(a) 40   (b) 38   (c) 44   (d) 48

69. A library has an average of 265 visitors on Sundays and 130 visitors on other days. The average number of visitors per day in a month of 30 days beginning with a Monday is:

SSC CHSL 19/10/2022(Shift–3)

(a) 135   (b) 165   (c) 148   (d) 129

70. 15 boys and a certain number of girls appeared for a test. The average score of the boys was 26; the average score of the girls was 36, while the combined average score was 30. How many girls appeared for the test?

SSC CHSL 24/05/2022(Shift–1)

(a) 10   (b) 8   (c) 12   (d) 9

71. The average age of a group is increased by 4 years when a person of whose age is 32 years was replaced by a person whose age is 56. Find the number of people in the group

SSC CHSL 24/05/2022(Shift–1)

(a) 6   (b) 7   (c) 8   (d) 9

72. In a class, there are 29 boys and 21 girls. The average score of boys in Maths is 89, whereas the average score of girls in maths is 91. What is the average of the whole class in maths?

SSC CHSL 24/05/2022(Shift–1)

(a) 91

(b) 89

(c) 91.84

(d) 89.84

SOLUTIONS 4B

Sol. 1. (c) : Sum of 10 observations = $21 \times 10 = 210$

Sum of 11 observations = $(21 - 1) \times 11 = 220$

11th observation = $220 - 210 = 10$

Sol. 2. (c) : Required average

$$= \frac{20,000 \times 1 + 15,000 \times 1.15 + 5000 \times 2}{20,000 + 15,000 + 5000}$$

$= 1.18$

Sol. 3. (b) : Total income for the month of february = $560 \times 29 = 16240$

[∵ 2020 is a leap year]

Total income for the first 16 days = $590 \times 16 = 9440$

Total income for the last 16 days = $500 \times 16 = 8000$

Now, Total income for the 14th, 15th and 16th February = $(9440 + 8000) - 16240 = 1200$

Average income for 14th, 15th and 16th February $= \frac{1200}{3} = 400$

Sol. 4. (d) : Sum of total numbers = $19 \times 48 = 912$

Sum of first 7 numbers = $7 \times 50.6 = 354.2$

Sum of last 13 numbers = $13 \times 47.6 = 618.8$

7th number = $(618.8 + 354.2) - 912 = 61$

Sum of numbers excluding 7th number = $912 - 61 = 851$

∴ Required average $= \frac{851}{18} = 47.3$

Sol. 5. (d) : 34 mm = 3.4 cm

Now, ATQ Let the number of students = x

$12 \times 150.5 - 7 \times 159 = 693$

$\Rightarrow x \times 155.6 + 12 \times 150.5 - 7 \times 159$

$= (x + 5) \times 152.2$

$3.4x + 693 = 761$

$x = 20$

Sol. 6. (b) : Sum of eighteen numbers = $42 \times 18 = 756$

Sum of last ten numbers = $40 \times 10 = 400$

Sum of first 5 number = $44 \times 5 = 220$

Let 6th number = x

7th number = $x - 6$

8th number = $x + 1$

now, ATQ

$x + x - 6 + x + 1 = 756 - (400 + 220)$

$\Rightarrow 3x - 5 = 136$

$\Rightarrow 3x = 141$

∴ $x = 47$

now, required average $= \frac{x + x + 1}{2} = 47.5$

Sol. 7. (b) : $(A + B + C) = 3 \times 60 = 180$

$(A + B + C + D) = 4 \times 65 = 260$

∴ Weight of D = $260 - 180 = 80$ kg

∴ Weight of E = $80 - 3 = 77$ kg

$(B + C + D + E) = 4 \times 67 = 268$

$(B + C + D) = 268 - 77 = 191$

∴ Weight of A = $260 - 191 = 69$

Sol. 8. (b) : Let, average expenditure per day = ₹P

now, ATQ

$120(x - 10) = 90x + 560$

$\Rightarrow 30x = 1760$

∴ $90x = 5280$

$\Rightarrow$ Total expenditure = 5280

Sol. 9. (c) : Let four consecutive odd natural numbers are $(x - 4)$, $(x - 2)$, x, $(x + 2)$

$\Rightarrow (x - 4)^2 + (x - 2)^2 + x^2 + (x + 2)^2 = 201 \times 4$

$\Rightarrow 4x^2 - 8x + 24 = 804$

$\Rightarrow x^2 - 2x - 195 = 0$

$\Rightarrow x^2 - 15x + 13x - 195 = 0$

$\Rightarrow x = -13$ (Not possible)

∴ $x = 15$

Largest number = $15 + 2 = 17$

Smallest number = $15 - 4 = 11$

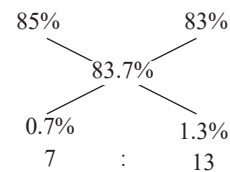Required average $= \frac{7 \times 17 + 3 \times 11}{2} = 76$

Sol. 10. (c) : Sum of all numbers = $42 \times 37 = 1554$

Sum of 26 numbers = $26 \times 32 = 832$

Sum of last 17 numbers = $17 \times 44 = 748$

∴ 26th number = $(832 + 748) - 1554 = 26$

Sol. 11. (a) :

Ratio of girls to boys = 7 : 13

Percentage $= \frac{7}{20} \times 100 = 35\%$

Sol. 12. (c) : Sum of total numbers = $29 \times 38 = 1102$

Sum of first 19 numbers = $19 \times 34 = 646$

Sum of last 9 numbers = $9 \times 48 = 432$

∴ 20th number = $1102 - (646 + 432) = 24$

Sol. 13. (b) : Let, No. of Male = $x = 20$

No, of females = y

No, of children = z

$y + z = 24$

Total weight of male = $54 \times 20 = 1080$

Total weight of group = $44 \times 48.25 = 2123$

Total weight of female and children = 2123 − 1080 = 1043

now, ATQ

$(y \times 49) + (z \times 30) = 1043$

$\Rightarrow (y \times 49) + [(24 - y) \times 30] = 1043$

$\Rightarrow y = 1043 - 720 = 323$

$y = 17$

$z = 7$

∴ Required difference = 17 − 7 = 10

Sol. 14. (b) : Ratio of boys to girls = 40% : 60%

= 2 : 3

Now, Average weight of class

$= \dfrac{2 \times 58 + 3 \times 52}{5}$

$= \dfrac{272}{5} = 54.4$

Sol. 15. (a) : Let the average score before 13th inning = a

Average score after 13th inning = $a + 5$

Now, ATQ

$12a + 97 = 13(x + 5)$

$\Rightarrow a = 32$

Average score after 13th inning = $a + 5 = 37$

Sol. 16. (a) : $\dfrac{3}{5}A + 30\%$ of B $= 13.5 \times 2$

$\dfrac{6A + 3B}{10} = 27$

6A + 3B = 270   (i)

$\dfrac{3}{8}B + 25\%$ of C $= 15 \times 2$

$\dfrac{3B + 2C}{8} = 30$

3B + 2C = 240   (ii)

Now, A $= \dfrac{5}{12}C$

12A = 5C   (iii)

By multiplying (i) by 2

And subtracting the result from (iii)

12A + 6B − 12A = 540 − 5C

6B + 5C = 540   (iv)

Multiplying (ii) by 2, and subtracting it from (iv)

Now, A $= \dfrac{5}{12} \times 60 = 25$

3B + 2C = 240

$\Rightarrow$ B = 40

∴ A + B + C = 60 + 25 + 40 = 125

Sol. 17. (a) : Sum of age of all persons = 35 × 40 = 1400

Sum of age of 5 persons = 5 × 35 = 175

∴ Required average $= \dfrac{1400 + 175}{40} = 39\dfrac{3}{8}$

Sol. 18. (a) : Total weight of 30 persons of group A = 1725

Now, Average weight $= \dfrac{1725}{30} = 57.5$ kg

Average weight of Group B = 57.5 − 3 = 54.5kg

Average weight of Group C = 54.5 − 2.5 = 52kg

Total weight of Group C = 52 × 20 = 1040

∴ Required average $= \dfrac{1725 + 1040}{30 + 20} = 55.3$

Sol. 19. (d) : Let the average expense = ₹a

According to question

$30a = 20 \times 880 + 10(a + 110)$

$\Rightarrow 30a = 17600 + 10a + 1100$

$\Rightarrow 20a = 18700$

∴ $a = 935$ and $30a = 935 \times 30 = 28,050$

Sol. 20. (a) : Total expenditure = 3 × 18600 + 4 × 21750 + 5 × 22840

= 55800 + 87000 + 114200 = 257000

Total saving = 143020

Total Income of one year = 257000 + 143020 = 400020

∴ Income of one month = 33335

Sol. 21. (c) : Sum of 40 numbers = 48.2 × 40 = 1928

Sum of first 15 numbers = 15 × 45 = 675

Sum Next 22 numbers = 22 × 50.5 = 1111

Sum of last 3 numbers = 1928 − 675 − 1111 = 142

Let 40th number = a

39th number = $a - 3$

38th number = $a - 2$

Now, ATQ

$a + a - 3 + a - 2 = 142$

$\Rightarrow 3a = 147$

$\Rightarrow a = 49$

Required average $= \dfrac{46 + 49}{2} = 47.5$

Sol. 22. (a) : Average age 15 years ago = 20

And total age = 20 × 7 = 140

Average $= \dfrac{140}{5} = 28$

Sol. 23. (b) : According to the question,

4A + 7D = 632

A : B = 3 : 4

B : C = 4 : 5

C : D = 3 : 8

A : B : C : D

36 : 48 : 60 : 160 or 9 : 12 : 15 : 40

∴ A = 9x, B = 12x, C = 15x, D = 40x

4(9x) + 7(40x) = 632

36x + 280x = 632

316x = 632

x = 2

A + B + C + D = 76x = 152

∴ Required Average $= \dfrac{152}{4} = 38$

Sol. 24. (c) : Average of 2004, 2005, 2006 and 2007 = 18950

Total No of items = 18950 × 4 = 75800

Average of 2005, 2006, 2007 and 2008 = 21725

Total no. of items = 21725 × 4 = 86900

So, sold in 2008 – sold in 2004 = 11100

number of items sold in 2008 = 12750

∴ number of Items sold in 2004 = 12750 – 11100 = 1650

Sol. 25. (b) : Total students = 125

Total boys = 40% of total students = 50

Girls = 75

Ratio of total Students : Boys : Girls = 5 : 2 : 3

Ratio of average age of boys and girls = 6 : 5

now, According to the question

$5 \times 16.2 = 2 \times 6a + 3 \times 5a$

$81 = 12a + 15a = 27a$

$\Rightarrow a = 3$ so, $6a = 18$

Sol. 26. (d) : Monthly income

$= \dfrac{2400 \times 3 + 3500 \times 5 + 4800 \times 4 + 3500}{12}$

$= \dfrac{7200 + 17500 + 19200 + 3500}{12} = 3950$

Sol. 27. (b) : Let, the numbers are $(x-3)$, $(x-1)$, $(x-1)$ and $(x+3)$

Now, ATQ,

$(x-3)^2 + (x-1)^2 + (x+1)^2 + (x+3)^2 = 4 \times 126$

$x^2 + 9 + x^2 + 1 + x^3 + 1 + x^3 + 9 = 504$

$\Rightarrow x^2 = 121$

$\Rightarrow x = 11$

Now, Required average

$= \dfrac{8(x+3) + 5(x-3)}{2} = \dfrac{112 + 40}{2} = 76$

Sol. 28. (b) : Let the number of students initially = a

Total Initial weight = $69.5a$

Now, ATQ, $69.5a + 10 \times 68 - 6 \times 60 = (a+4) \times 71.5$

$\Rightarrow 2a = 320 - 286$

$\Rightarrow 2a = 34$

$\Rightarrow a = 17$

Number of students in the class now = 17 + 10 – 6 = 21

Sol. 29. (b) : No. of boys $= 84 \times \dfrac{10}{21} = 40$

No of girls $= 84 \times \dfrac{11}{21} = 44$

Let the average score of boys and average score of girls be $4a$ and $5a$ respectively,

Now, ATQ, $4a \times 40 + 5a \times 44 = 95 \times 84$

$\Rightarrow a = 21$

$\Rightarrow 4a = 84$

Sol. 30. (b) : Let the number of students Initially = a

Total weight = $58a$

Now, ATQ, $58a - 8 \times 54 + 53.6 + 54 + 57.4 = (a - 8 + 3) \times 58.575$

$\Rightarrow 58a - 432 + 165 = 58.575a - 292.875$

$\Rightarrow 25.875 = 0.575a$

$\Rightarrow a = 45$

Sol. 31. (a) : 54   30

            50

        20   4

$\Rightarrow 5 : 1$

∴ Number of failed students

$= \dfrac{1}{6} \times 150 = 25$

Sol. 32. (d) : Sum of 5 numbers = 26.4 × 5 = 132

Let first number = x

Sum of remaining 4 numbers = $132 - x$

Now, ATQ $x = \dfrac{132 - x}{5}$

$\Rightarrow x = 22$

Sol. 33. (b) : Total ages of 25 men = 25 × 28 = 700

Total ages of 5 new men = 25 × 5 = 125

Total ages = 700 + 125 = 825

∴ Required average $= \dfrac{825}{30} = 27.5$

Sol. 34. (d) : Required average

$= \dfrac{20 \times 35 - 12 \times 45}{8}$

$= \dfrac{700 - 540}{8}$

$= \dfrac{160}{8} = 20$

Sol. 35. (b) : Present total age of husband, wife and child = 26 × 3 + 3 × 3 = 87 years

Present total age of wife and child

= 20 × 2 + 5 × 2 = 50 years

∴ present age of the husband = 87 – 50 = 37 years

Sol. 36. (b) : Total sum of money = 35 × 22 = 770

Sum of first 17 number = 17 × 19 = 323

Sum of last 17 number = 17 × 20 = 340

∴ 18th number = 770 – (323 + 340) = 107

Sol. 37. (d) : Present age of Ravi, Mohan and Govind = 3 × 32 + 3 × 6 = 114

Total ages after joining Shyam = 4 × 36 = 144

The present age of Shyam

= 144 – 114 = 30 years

Sol. 38. (c) : The average of 17

consecutive numbers $=\dfrac{289}{17}=17$

The first term of another series = 17 + 5 = 22

∴ number = 22, 23, 24, 25, 26, 27, 28, 29 30, 31

∴ Last term = 31

∴ The sum of another 10 consecutive numbers

$=\dfrac{10}{2}(22+31)$

$= 265$

Sol. 39. (b) : Sum of 5 consecutive odd numbers

= 5 × 75 = 375

Total average after adding = 6 × 76 = 456

∴ Required number = 456 – 375 = 81

Sol. 40. (b) : Total of marks in five subjects

= 5 × 150 = 750

After calculation = 750 – 43 + 23 = 770

Correct Average

$=\dfrac{5\times150-43+28}{5}=\dfrac{750-43+2}{5}$

$=\dfrac{770}{5}=154$

Sol. 41. (a) : 41 years 9 months

$=41\dfrac{3}{4}=\dfrac{167}{4}$

Now, by allegation,

Male   Female

  42   41

$\dfrac{167}{4}$

—————————

   3   :   1

4 unit = 600

1 unit = 150

∴ number of female employee = 150

Sol. 42. (c) : Let initial average = a

Now, ATQ

$\dfrac{15a+120}{16}=a+6$

$\Rightarrow 15a + 120 = 16a + 96$

$\Rightarrow a = 24$

∴ New average = 24 + 6 = 30

Sol. 43. (d) : Sum of first two numbers = 2 × 7 = 14

Sum of last two numbers = 2 × 10 = 20

Sum of first and last numbers = 2 × 14 = 28

sum of all numbers $=\dfrac{7\times2+10\times2+14\times2}{2}$

$=\dfrac{14+20+28}{2}=31$

∴ Required average $=\dfrac{31}{3}$

Sol. 44. (b) : Sum of runs in 20 matches = 20 × 52 = 1040

Sum of runs in 18 matches = 18 × 50 = 900

Runs in 2 innings = 1040 – 900 = 140

Let the lowest score = a and highest score

= a + 120

$\Rightarrow a + a + 120 = 20 \times 52 - 18 \times 50$

$\Rightarrow 2a + 120 = 1040 - 900$

$\Rightarrow 2a = 20$

$\Rightarrow a = 10$

∴ Highest score = a + 120 = 10 + 120 = 130

Sol. 45. (a) : 16th number = 26 × 24 – (15 × 23 + 8 × 33)

= 624 – (345 + 264) = 15

Sol. 46. (a) : No. of Sunday in a month = 4

Total visitors on Sunday = 4 × 265 = 1060

Total visitors on all day = 26 × 130 = 3380

Required average $=\dfrac{4440}{30}=148$

Sol. 47. (c) : Sum of ages of man to son = 2 × 60 = 120

Now, ATQ

13x + 7x = 120

x = 6

∴ Son's age = 7x = 7 × 6 = 42 years

Sol. 48. (a) : Let there be a numbers in the list and let their average be x.

Then, sum of a numbers = ax

$\dfrac{ax+40}{a+1}=x+4$

$\Rightarrow ax + 40 = (a + 1)(x + 4)$

$\Rightarrow 4a + x = 36$ (i)

$\dfrac{ax+70}{a+2}=x+5$

$\Rightarrow ax + 70 = (a + 2)(x + 5)$

$\Rightarrow 5a + 2x = 60$ (ii)

now, from (i) & (ii)

$a = 4$; $x = 20$

Sol. 49. (d) : Sum of ages of Sonu, Hari and Govind = 3 × 30 = 90 years

Ratio of ages of Sonu, Hari and Govind

= 4 : 5 : 6

Let, ages of sonu, hari and govind are 4x, 5x, 6x respectively

Now, ATQ

4x + 5x + 6x = 30 × 3

$\Rightarrow 15x = 90$

$\Rightarrow x = 6$

∴ Required Difference = $6x - 4x = 2x = 12$ years

Sol. 50. (d) : Total weight of (P + Q + R) = 62 × 3 = 186

R's weight = 12 + P's weight = 9 + Q's weight

now, ATQ

$\Rightarrow$ P + Q + R = 62 × 3 = 186

$\Rightarrow$ R – 12 + R – 9 + R = 186

$\Rightarrow$ 3R = 186 + 21 = 207

$\Rightarrow$ R = 69

∴ S's weight = R – 15 = 69 – 15 = 54 kg

∴ Required average

$= \dfrac{P+Q+R+S}{4} = \dfrac{186+54}{4}$

$= \dfrac{240}{4} = 60$ kg

Sol. 51. (b) : Age of 16th students = 16 × 20 – (5 × 20 + 10 × 20.4)

= 320 – (100 + 204) = 16

Sol. 52. (c) : Let no. of students take part in exam = N

∴ Average of all students = A

Average of (N – 48)	Average of (48)	Overall average of N
X	78	A
X + 3.5	66	A – 4.5

From the above table

(N – 48) × X + 48 × 78 = N × A   (i)

(N – 48) × (X + 3.5) + 48 × 66 = N × (A – 4.5)   (ii)

From equation (i) :– N × X – 48 × X + 48 × 78 = N × A   (iii)

From in equation (ii) :– N × X – 48 × X + 3.5 × N

168 + 48 × 66 = N × A – N × 4.5 (iv)

by Subtracting (iii) & (iv)

$\Rightarrow$ 48 × (78 – 66) + 168 = 8 × N

$\Rightarrow$ 48 × 12 + 168 = 8 × N

$\Rightarrow$ N = 6 × 12 + 21 = 72 + 21 = 93

Sol. 53. (a) : Let the four consecutive even numbers = $2x$, $2x + 2$, $2x + 4$, $2x + 6$

Sum of numbers = $2x + 2x + 2 + 2x + 4 + 2x + 6 = 8x + 12$

∴ Average $= \dfrac{2x+2x+6}{2} = 2x + 3 = 27$

$2s = 27 × 3 = 24$

$x = 12$

now, Sum of 4 numbers = 8x + 12

= 108

Let, us add a to 108 to make average = 28

108 + a = 28 × 5 = 140

a = 140 – 108 = 32

Sol. 54. (d) : Sum of 5 new men

= 70 × 34 – 65 × 32 = 2380 – 2080 = 300

∴ Required average

$= \dfrac{300}{5} = 60$ years

Sol. 55. (a) : 25th number = 31 × 25 + 43 × 16 – 40 × 36

= 775 + 688 – 1440 = 23

Sol. 56. (d) : Let Number of students who take part in games = $3x$

$\Rightarrow$ Number of students who do not take part in games = $2x$

∵ $5\% = \dfrac{1}{20}$

Average weight of students who take part in games = $20y$

$\Rightarrow$ Average weight of students who do not take part in games = $21y$

now, According to the question

$5x \times 51\dfrac{1}{2} = (3x \times 21y) + (2x \times 20y)$

$\Rightarrow 257.5 = 103y$

$\Rightarrow y = 2.5$

∴ Required average = 21 × 2.5 = 52.5

Sol. 57. (a) : Let the initial number of students = x

According to the question

75.4x + 72.9 + 73.8 + 79.5 + 87.4 = 75.64 (x + 4)

$\Rightarrow$ 75.4x + 313.6 = 75.64x + 302.56

$\Rightarrow x = 46$

Sol. 58. (c) : $75\% = \dfrac{3}{4}$

Let $n = 4$

Total increase / decrease in the sum of numbers = (3 × 6) – (1 × 9) = 9

∴ Increase in average $= \dfrac{9}{4} = 2.25$

∴ Required average = 36 + 2.25 = 38.25

Sol. 59. (c) : Present age of 5 Members of family

= 33 × 5 + 9 × 5

= 210

Present total age of the family (8 members)

= 33 × 8 = 264

Let the age of younger person = x

According to the question

x + x + 8 + x + 16 = (264 – 165 – 45)

$\Rightarrow$ 3x + 24 = 54

$\Rightarrow x = 10$

Sol. 60. (b) : Let the age of the younger member = x

now, According to the question

$\dfrac{(38 \times 5) + (10 \times 5) + (x + x + 8)}{7} = 38$

$\Rightarrow$ 2x + 8 = 38(7 – 5) – 50

$\Rightarrow x = 9$

Sol. 61. (d) : Let the number $= x$

$\Rightarrow$ Its reciprocal $= \dfrac{1}{x}$

now, According to the question

$\dfrac{x + \dfrac{1}{x}}{2} = 4$

$\Rightarrow = x + \dfrac{1}{x} = 8$

cubing both sides, we get

$\Rightarrow = x^3 + \dfrac{1}{x^3} = 8^3 - 3(8) = 488$

$$[\because (a^3 + b^3) = a^3 + b^3 + 3ab(a+b)]$$

Required average $= \dfrac{488}{2} = 244$

Sol. 62. (a) : Since, we know that
Average of n odd numbers is always n
$\therefore 1234 = $ odd

Sol. 63. (c) : Since, we know that
Average of n ever numbers $= (n + 1)$
$\therefore 102 = $ even

Sol. 64. (d) : First 10 prime numbers
$= 2, 3, 5, 7, 11, 13, 17, 19, 23, 29$
First 10 prime numbers of 2 digit
$11, 13, 17, 19, 23, 29, 31, 37, 41, 43$
$\therefore$ required average

$= \dfrac{(31 + 37 + 41 + 43) - (2 + 3 + 5 + 7)}{10} = 13.5$

Sol. 65. (d) : Sum of 1088 numbers $= 0$
$\therefore$ No. of negative real nos. $= 1087$

Sol. 66. (b) : Age of father $= 5 \times 20 - 15 \times 4$
$= 100 - 60 = 40$

Sol. 67. (c) : We have, $\dfrac{a+b+c+d}{4}$
$= 2d + 4$
$\Rightarrow a + b + c + d = 8d + 16$
$\Rightarrow a + b + c - 7d = 16$
Now, $a + b = 16$ (i)
$b + c = 10$ (ii)
$c + d = 8$ (iii)
$\Rightarrow c = 8 - d$ (iv)
From, (i), (ii) and (iii), we get
$16 + 8 - d - 7d = 16$
$\Rightarrow 24 - 8d = 16$
$\Rightarrow 8 = 8d$

$\Rightarrow d = 1$
$\therefore c = 7$ [from (iv)]
and $b = 3$ [from (iii)]
$a = 13$ [from (ii)]
$\therefore c = a + d + 1 = 13 + 1 + 1 = 15$
$\therefore$ Required average $= \dfrac{15 + 1}{2} = \dfrac{16}{2} = 8$.

Sol. 68. (d) : Let No. of persons initially in the group $= x$
now, ATQ
$x \times 72 + 5 \times 66.6 - 13 \times 75 = (x + 5 - 13) \times 70.35$
$\Rightarrow 72x + 333 - 975 = (x - 8) \times 70.35$
$\Rightarrow 72x - 642 = 70.35x - 562.8$
$\Rightarrow 72x - 70.35x = -562.8 + 642$
$\Rightarrow 1.65x = 79.2$
$\Rightarrow \dfrac{79.2}{1.65} = 48$.

Sol. 69. (c) : Required average

$= \dfrac{265 \times 4 + 130 \times 26}{30}$

$= \dfrac{1060 + 3380}{30}$

$= \dfrac{4440}{30} = 148$

Sol. 70. (a) : Let the no. of the girls appeared for the test $= x$
Now, ATQ
$15 \times 26 + x \times 36 = 30(15 + x)$
$\Rightarrow 390 + 36x = 450 + 30x$
$\Rightarrow 6x = 60$
$\Rightarrow x = 10$

Sol. 71. (a) : Let the total no. of people in the group $= n$
$\therefore$ Average $= a$
now, we have
$n(a + 4) = na - 32 + 56$
$\Rightarrow na + 4n = na + 24$
$\Rightarrow 4n = 24$
$\Rightarrow n = 6$

Sol. 72. (d) : Required average

$= \dfrac{29 \times 89 + 21 \times 91}{29 + 21}$

$= \dfrac{2581 + 1911}{50}$

$= \dfrac{4492}{50}$

$= 89.84$

EXERCISE 4C

For SSC CGL & CPO Exams

1. The average weight of a certain number of students in a class is 68.5 kg. If 4 new students having weights 72.2 kg, 70.8 kg, 70.3 kg and 66.7 kg join the class, then the average weight of all the students increases by 300 g. The number of students in the class, initially is: **[SSC CGL 04/06/2019 (Shift-2)]**
   - (a) 21
   - (b) 16
   - (c) 11
   - (d) 26

2. Three numbers are such that if the average of any two of them is added to the third number, the sums obtained are 168, 174 and 180 respectively. What is the average of the original three numbers? **[SSC CGL 04/06/2019 (Shift-3)]**
   - (a) 86
   - (b) 87
   - (c) 89
   - (d) 84

3. The total number of students in section A and B of a class is 110. The number of students in section A is 10 more than that of section B, in a test, is 20% more than that of in section A. If the average score of all the students in the class is 72, then what is the average score of the students in A? **[SSC CGL 07/06/2019 (Shift-2)]**
   - (a) 66
   - (b) 68
   - (c) 63
   - (d) 70

4. The average marks of 40 students was found to be 68. If the marks of two students were incorrectly entered as 48 and 64 instead of 84 and 46 respectively, then what is the correct average? **[SSC CGL 10/06/2019 (Shift-2)]**
   - (a) 68.25
   - (b) 68.15
   - (c) 68.45
   - (d) 68.35

5. The average of 27 number is zero.Out of them, how many may be greater than zero, at the most? **[SSC CGL 13/06/2019 (Shift-3)]**
   - (a) 0
   - (b) 15
   - (c) 26
   - (d) 20

6. In a class of 40 students, 45% are girls and the remaining are boys. If the average of the girls marks is 54 and that of the boys is 46, what is the average of the whole class? **[SSC CGL 11/06/2019 (Shift-2)]**
   - (a) 49.8
   - (b) 49.7
   - (c) 49.6
   - (d) 49.5

7. Four different positive numbers are written in ascending order. One third of the average of all the four numbers is 19 less than the greatest of these numbers. If the average of the first three numbers is 12, the greatest number among the given numbers is: **[SSC CGL 07/06/2019 (Shift-3)]**
   - (a) 25
   - (b) 22
   - (c) 24
   - (d) 21

8. The average of twelve numbers is 42. The average of the last five numbers is 40 and that of the first four numbers is 44. The 6th number is 6 less than the fifth and 5 less than the 7th number. The average of the 5th and 7th numbers is : **[SSC CGL 04/06/2019 (Shift-1)]**
   - (a) 44
   - (b) 44.5
   - (c) 43
   - (d) 43.5

9. The average of 33 numbers is 74. The average of the first 17 numbers is 72.8 and that of the last 17 numbers 77.2. If the 17th number is excluded, then what will be the average of the remaining numbers(correct to one decimal places)? **[SSC CGL Tier-II 12/09/2019]**
   - (a) 72.9
   - (b) 73.4
   - (c) 71.6
   - (d) 70.8

10. The average weight of a certain number of students in a group is 72 kg. If 10 students having an average weight of 78 kg leave and 4 students having an average weight of 80 kg join the group, the average weight of the students in a group decreases by 0.7 kg. The number of students initially in the group is : **[SSC CGL Tier-II 12/09/2019]**
    - (a) 56
    - (b) 46
    - (c) 44
    - (d) 54

11. The average of 18 numbers is 37.5. If six numbers of average x are added to them, then the average of the all the numbers increases by one. The value of x is : **[SSC CGL Tier-II 13/09/2019]**
    - (a) 40
    - (b) 41.5
    - (c) 42
    - (d) 38.5

12. The average age of 120 students in a group is 13.56 years, 35% of the number of students are girls and rest are boys. If the ratio of the average age of boys and girls is 6:5, then what is the average age (in years) of the girls? **[SSC CGL Tier-II 13/09/2019]**
    - (a) 12
    - (b) 11.6
    - (c) 10
    - (d) 14.4

13. The average of thirteen numbers is 47. The average of the first three numbers is 39 and that of the next seven numbers is 49. The 11th numbers is two times the 12th numbers and 12th number is 3 less than 13th numbers. What is the average of 11th and 13th numbers. **[SSC CGL Tier-II 11/09/2019]**
    - (a) 54.5
    - (b) 57
    - (c) 56
    - (d) 55.5

14. The number of students in a class is 75, out of which $33\frac{1}{3}\%$ are boys and the rest are girls. The average score in mathematics of the boys is $66\frac{2}{3}\%$ more than that of the girls. If the average score of all the students is 66, then the average score of the girls is:

[SSC CGL Tier-II 11/09/2019]

(a) 52   (b) 55

(c) 54   (d) 58

15. In a class of 50 students, 40% are girls. The average marks of the whole class are 64.4 and the average of the boys' marks is 62. What are the average marks of the girls ?   [SSC CGL 13/06/2019 (Shift-2)]

(a) 67   (b) 66.8

(c) 66.4   (d) 68

16. In a class of 50 students, 60% are boys. The average of marks of boys is 62, and that of the girl is 68. What is the average marks of the whole class?

[SSC CGL 13/06/2019 (Shift-1)]

(a) 64.8   (b) 64.4

(c) 65.2   (d) 64.6

17. In a class of 40 students, 60 % are girls. The average of the girls' marks is 72 and that of the boys is 54. What are the average marks of the whole class?

[SSC CGL 12/06/2019 (Shift-3)]

(a) 65.4   (b) 65

(c) 64.8   (d) 65.2

18. In a class of 60 students, 40 % are girls. The average weight of the whole class is 59.2 kg and the average weight of the girls is 55 kg. What is the average of the boys?

[SSC CGL 12/06/2019 (Shift-2)]

(a) 63 kg   (b) 60 kg

(c) 61 kg   (d) 62 kg

19. In a class of 60 students, 40 % are girls. The average weight of the boys is 62 kg and that of the girls is 55 kg. What is the average weight of the whole class?

[SSC CGL 12/06/2019 (Shift-1)]

(a) 59.2 kg   (b) 58.8 kg

(c) 59 kg   (d) 58.6 kg

20. In a class of 50 students, 46% are girls and the remaining are boys. The average of the boys marks is 58 and that of the girls is 62.What are the average marks of the whole class?

[SSC CGL 11/06/2019 (Shift-3)]

(a) 59.84   (b) 60.65

(c) 60.38   (d) 60.12

21. The average marks of the 45 students was found to be 66. If the marks of the two students were incorrectly entered as 28 and 64 instead of 82 and 46 respectively, then what is the correct average?

[SSC CGL 11/06/2019 (Shift-1)]

(a) 67.2   (b) 66.8

(c) 66.4   (d) 66.6

22. The average marks of 50 students in a class was found to be 64. If the marks of two students were incorrectly entered as 38 and 42 instead of 83 and 24 respectively, Then what is the correct average?

[SSC CGL 10/06/2019 (Shift-3)]

(a) 64.54   (b) 62.32

(c) 61.24   (d) 61.86

23. The average of twelve numbers is 55.5. The average of first four numbers is 53.4 and that of the next four numbers is 54.6. The 10th number is greater than the 9th number by 3 but lesser than the 11th and 12th numbers by 2 and 3 respectively, What is the average of the 10th and 12th numbers?

[SSC CGL 10/06/2019 (Shift-1)]

(a) 59.5   (b) 58

(c) 57.5   (d) 56

24. Three numbers are such that if the average of any two of them is added to the third number, the sums obtained are 164, 158 and 132 respectively. What is the average of the original three numbers?

[SSC CGL 07/06/2019 (Shift-1)]

(a) $75\frac{2}{3}$ (b) 74

(c) 76   (d) $75\frac{1}{3}$

25. The average of eleven numbers is 54. The average of the first four numbers is 48 and that of the next four numbers is 25% more than the average of the first four. The ninth number is 8 greater than the 11th number and the tenth number is 4 greater than the 11th. What is the average of the 9th and 10th numbers?   [SSC CGL 06/06/2019 (Shift-3)]

(a) 54   (b) 52.6

(c) 56   (d) 54.4

26. The average of the twelve numbers is 46. The average of the first four numbers is 43 and that of the last five numbers is 49.4. The 5th and the 6th numbers are respectively 4 and 6 more than the 7th number. What is the average of the 5th and 7th numbers?

[SSC CGL 06/06/2019 (Shift-2)]

(a) 43.5   (b) 43

(c) 44.5   (d) 44

27. The average of the thirteen number is 80. The average of the first five numbers is 74.5 and that of the next five numbers is 82.5. The 11th number is 6 more than the 12th number and the 12th number is 6 less than the 13th number. What is the average of the 11th and 13th numbers? **[SSC CGL 06/06/2019 (Shift-1)]**

(a) 87   (b) 86
(c) 86.5   (d) 87.5

28. The average weight of the six children is 32.8 kg. If two more children with 26.5 kg and 28.3 kg weight are added to the group, then what will be the average weight in kilograms? **[SSC CPO 15/03/2019 (Shift-3)]**

(a) 31.45   (b) 30.3
(c) 28.9   (d) 29.2

29. A bought 600 gm, 750 gm, 1.1 kg, 2.3 kg and 800 gm packs of dal from a shop. What is the average weight of the packs? **[SSC CPO 15/03/2019 (Shift-1)]**

(a) 11.1 kg   (b) 111 gm
(c) 1.11 gm   (d) 1.11 kg

30. A scored 73, 76, 20 and 7 runs in four out of five innings. What should be his score in the fifth innings, if he has to make an average of 55 runs in five innings? **[SSC CPO 15/03/2019 (Shift-1)]**

(a) 99   (b) 11
(c) 55   (d) 42

31. The average of 26 numbers is zero. Of them, how many may be greater than zero, at the most? **[SSC CPO 16/03/2019 (Shift-3)]**

(a) 25   (b) 20
(c) 0   (d) 15

32. The average weight of the 16 boys in a class is 60.25 kg and that of the remaining10 boys is 45.75 kg. The average weigh of the all boys in the class is: **[SSC CPO 16/03/2019 (Shift-3)]**

(a) 56.27   (b) 55.37
(c) 54.67   (d) 53.76

33. The average of all prime numbers between 10 and 25 is: **[SSC CPO 14/03/2019 (Shift-1)]**

(a) 18.67   (b) 16.6
(c) 15.3   (d) 14.7

34. The average age of cricket team of eleven players is 27 years. If two more players are included in the team the average become 26 years, then the average age (in years) of the two included players is : **[SSC CPO 14/03/2019 (Shift-1)]**

(a) 24.5   (b) 20.5
(c) 26   (d) 27

35. The average of 22 numbers is 52. The average of first 8 numbers is 48 and the average of next 11 numbers is 54. The 20th number is 7 less than the 21st number and 21st numbers is 4 more than 22nd number. What is the average of the 20th and 22nd numbers? **[SSC CPO 13/03/2019 (Shift-1)]**

(a) 52   (b) 52.5
(c) 53   (d) 53.5

36. In a class of 70 students, 40% are girls and remaining are boys. The average marks of the boys are 63 and that of the girls are 70. What is the average marks of the whole class? **[SSC CPO 13/03/2019 (Shift-1)]**

(a) 65.4   (b) 65.8
(c) 65.2   (d) 64.8

37. In a class of 50 students, 40% are girls. The average weight of the boys is 62 kg and that of the girls is 58 kg. What is the average weight (in kg) of the whole class? **[SSC CPO 12/03/2019 (Shift-1)]**

(a) 60.4   (b) 60.2
(c) 60.8   (d) 60.6

38. The average 16 numbers is 48. The average of the first 7 numbers is 45 and the average of the next 6 numbers is 52. If the 14th number is 11 less than the 15th number and is 5 more than the 16th number, Then the average of the 15th and 16th number is: **[SSC CPO 12/03/2019 (Shift-1)]**

(a) 47.5   (b) 48.5
(c) 49   (d) 48

39. The average of the 20 numbers is 65. The average of the first 9 numbers is 68 and the average of the next 8 numbers is 62. If the 18th number is 3 more than 19th numbers and 9 less than 20th number, then what is the average of 19th and 20th number? **[SSC CPO 13/03/2019 (Shift-3)]**

(a) 66   (b) 64.5
(c) 65   (d) 65.5

40. In a class of 45 students, 40 % are boys and rest are girls. The average weight of the girls is 55 kg and that of boys is 65 kg. What is the average weight (in kg) of the whole class? **[SSC CPO 13/03/2019 (Shift-3)]**

(a) 58 kg   (b) 60 kg
(c) 61 kg   (d) 59 kg

41. In a class of 45 students, 40% are girls and the remaining are boys. The average marks of the girls is

64 and that of boys is 60. What is the average marks of the whole class? **[SSC CPO 12/03/2019 (Shift-3)]**

(a) 62.4   (b) 61.8

(c) 61.6   (d) 62.9

42. The average of 18 numbers is 52. The average of first 8 numbers is 62 and the average of the next 7 numbers is 45. If the 16th number is 6 less than the 17th numbers and 17th number is one more than the 18th number then what is the average of 16th and 18th number?

[SSC CPO 12/03/2019 (Shift-3)]

(a) 39   (b) 39.5

(c) 40.5   (d) 40

43. The average height of 12 students of a class is 132.5 cm. If one more student joins, The average height become 131.2 cm, the height of the new student is :

[SSC CPO 16/03/2019 (Shift-1)]

(a) 122.3 cm   (b) 115.6 cm

(c) 128.5 cm   (d) 112.7

44. What is the average of all the prime numbers between 70 and 90 ? **[SSC CGL 12/04/2022 (Shift-2)]**

(a) 80   (b) 78.66

(c) 79   (d) 81.6

SOLUTIONS

1. (b) Let the total number of students in class be a.

Given: Average weight of all students = 60.5 kg

then, Total weight of all students = 68.5a kg

total weight of four new students

= 72.2 + 70.8 + 70.3 + 66.7

= 280 kg

According to the question,

68.8 $(a + 4) = 68.5a + 280$

$\Rightarrow 68.8a - 68.5a = 280 - 275.2$

$\Rightarrow 0.3a = 4.8$

$\Rightarrow a = 16$

∴ total number of students is 16.

2. (b) Let the three numbers be x, y and z

according to the question,

Ist condition

$\Rightarrow [(x + y)/2] + z = 168$

$\Rightarrow x + y + 2z = 336$ ...(I)

IInd condition

$[(y + z)/2] + x = 174$

$2x + y + z = 348$ ...(II)

IIIrd condition

$[(x + z)/2] + y = 180$

$x + 2y + z = 360$ ...(III)

Adding (I) + (II) + (III)

$\Rightarrow 4(x + y + z) = 1044$

∴ Average = $\dfrac{1044}{4 \times 3} = 87$

3. (a) Let the students in section B be x

and students in section A will be $x + 10$

Now, $x + x + 10 = 110$

$\Rightarrow 2x = 100$

$\Rightarrow x = 50$

Average score in section A be y

So, Average score in section B = $\dfrac{120}{100} \times y = 1.2y$

Sum of marks (all students) = $\dfrac{S}{110} = 72$

S = 72 × 110

according to the questions

$60y + 60y = 72 \times 110$

$\Rightarrow 120y = 72 \times 110$

$y = \dfrac{72 \times 110}{120} = 66$

∴ average score in section A is 66

4. (c) Average marks of 40 students = 68

Sum of incorrect marks of two students

= 48 + 64 = 112

Sum of correct marks = 84 + 46 = 130

Difference = 130 − 112 = 18

average of difference = $\dfrac{18}{40} = 0.45$

Correct average marks = 68 + 0.45 = 68.45
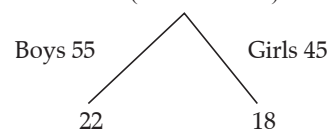
5. (c) According to the question

Average of 27 numbers = 0

So, here 26 minimum numbers can be greater than zero.

$a_1 + a_2 + a_3 + ... + a_{26} - a_{27} = 0$

∴ number of greater than zero = 26

6. (c) According to the question

40 (Total students)

Boys 55   Girls 45

22   18

∴ Average of whole class

$$= \frac{46 \times 22 + 54 \times 18}{40}$$

$$= \frac{1984}{40} = 49.6$$

7. (c) Let the greatest number be a.

Average of first three numbers = 12

Sum of first three numbers = 12 × 3 = 36

According to the question-

$$a - \frac{(36 + a)}{4} \times \frac{1}{3} = 19$$

$\Rightarrow 12a - 36 - a = 228$

$\Rightarrow 11a = 228 + 36 = 264$

$\Rightarrow a = \dfrac{264}{11} = 24$

8. (b) Sum of twelve number

= 42 × 12 = 504

Sum of last five numbers

= 40 × 5 = 200

and Sum of first four numbers

= 44 × 4 = 176

So, Sum of the 5th, 6th and 7th numbers

= 504 – 376 = 128

According to the question,

Let the 6th term is x

$x + 5 + x + x + 6 = 128$

$3x = 128 - 11 = 117$

$\Rightarrow x = 39$

5th term = $x + 6 = 39 + 6 = 45$

7th term = $39 + 5 = 44$

∴ Average of 5th and 7th term

$$= \frac{45 + 44}{2} = \frac{89}{2} = 44.5$$

9. (a) Sum of 33 numbers

= 74 × 33 = 2442

Sum of first 17 numbers

= 17 × 72.8 = 1237.6

Sum of last 17 numbers

= 17 × 77.2 = 1312.4

17th numbers = 1237.6 + 1312.4 = 2442

∴ Average of 32 numbers

$$= \frac{2442 - 108}{32}$$

$$= \frac{2334}{32} = 72.9$$

10. (b) Let the total number of students be x

Total weight of the students = $72x$

Sum of weight of 10 students = 78 × 10 = 780

Sum of weight of 4 students = 4 × 80 = 320

According to the question

$$\frac{72x - 780 + 320}{x - 10 + 4} = 72 - 0.7$$

$72x - 460 = 71.3 \times (x - 6)$

$72x - 71.3x = 4.60 - 427.8$

$x = 46$

∴ number of students = 46

11. (b) Sum of 18 numbers = 18 × 37.5 = 675

Sum of 6 numbers = 6 × x = 6x

According to the question,

$675 + 6x = (37.5 + 1)(18 + 6)$

$\Rightarrow 675 + 6x = 924$

$\Rightarrow 6x = 924 - 675 = 249$

$x = \dfrac{249}{6} = 41.5$

∴ The value of x is 41.5.

12. (a) Trick :

120 (Total)

(B)65 / \ 35(G)

```
  78        42
  ×6        ×5
 ────      ────
 468        210
```
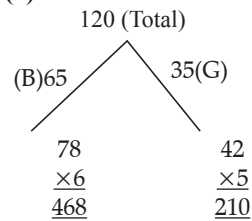
Average Age =

∴ 678 Unit = 120 × 13.56

1 unit = 2.4

5 unit = 5 × 2.4 = 12

13. (b) Sum of 13 numbers = 47 × 13 = 611

Sum of first three numbers = 3 × 39 = 117

Sum of next 7 numbers = 7 × 49 = 343

So, Sum of last three numbers

= 611 – 117 – 343 = 151

Let the 12th number be x

11th number be $2x$

13th number be $(x + 3)$

ATQ,　　$2x + x + x + 3 = 151$

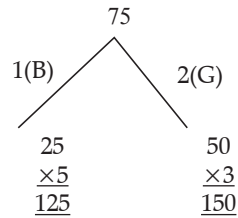$4x = 151 - 3 = 148$

$x = 37$

∴ Average of 11th and 13th numbers

$$= \frac{2 \times 37 + (37 + 3)}{2}$$

$= \dfrac{114}{2} = 57$

14. (c) Trick: Total students
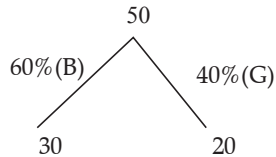
Average score (math)

Total score

$\begin{array}{ccc} 1(B) & 75 & 2(G) \\ & \diagup\diagdown & \\ 25 & & 50 \\ \times 5 & & \times 3 \\ \underline{125} & & \underline{150} \end{array}$

∵ 275 unit = 75 × 66

1 unit = 18

∴ 3 unit = 18 × 3 = 54

∴ Average score of girls = 54

15. (d) Trick :

$\begin{array}{ccc} & 50 & \\ 60\%(B) & \diagup\diagdown & 40\%(G) \\ 30 & & 20 \end{array}$

Average marks of the girl $= \dfrac{(50\times 64.4)-(30\times 62)}{20}$

$\dfrac{1360}{20} = 68$

16. (b) Trick:

$\begin{array}{ccc} & 50 & \\ (B)\,60\% & \diagup\diagdown & (G)\,40\% \\ 30 & & 20 \end{array}$
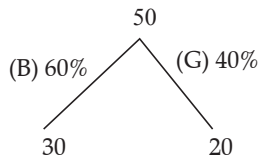
Average marks of whole class $= \dfrac{30\times 62 + 20\times 68}{50}$

17. (c) Trick :

$\begin{array}{ccc} & 40 & \\ (B)\,40\% & \diagup\diagdown & (G)\,60\% \\ 16 & & 24 \end{array}$
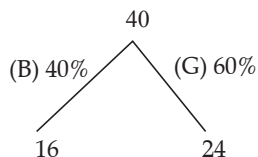
Average marks of whole class

$= \dfrac{24\times 72 + 16\times 54}{40}$

$= \dfrac{2592}{40} = 64.8$

18. (d) Trick :

$\begin{array}{ccc} & 60 & \\ (B)\,60\% & \diagup\diagdown & (G)\,40\% \\ 36 & & 24 \end{array}$
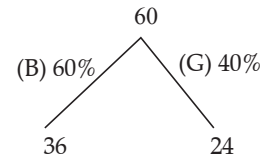
Average weight of the boys

$= \dfrac{60\times 59.2 - 24\times 55}{36}$

$= \dfrac{2232}{36} = 62\text{ kg}$

19. (a) Trick :

$\begin{array}{ccc} & 60 & \\ (B)\,60\% & \diagup\diagdown & (G)\,40\% \\ 36 & & 24 \end{array}$
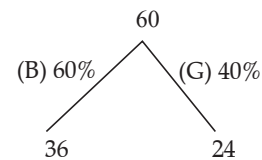
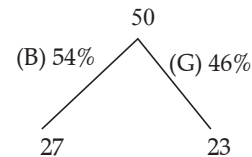Average weight of the whole class

$= \dfrac{36\times 62 + 24\times 55}{60}$

$= \dfrac{3552}{60} = 59.2\text{kg}$

20. (a) Trick :

$\begin{array}{ccc} & 50 & \\ (B)\,54\% & \diagup\diagdown & (G)\,46\% \\ 27 & & 23 \end{array}$

Average marks of whole class

$= \dfrac{27\times 58 + 23\times 62}{50}$

$= \dfrac{2992}{50} = 59.84$

21. (b) Average of 45 students = 66

Total incorrect marks = 28 + 64 = 92

Total correctly marks = 82 + 46 = 128

Difference = 128 – 92 = 36

Average (Difference) $= \dfrac{36}{45} = 0.8$

∴ Correct average = 64 + 0.8 = 66.8

22. (a) Average of 50 students = 64

Total incorrect marks = 38 + 42 = 80

Total correct marks = 83 + 24 = 107

Difference = 107 – 80 = 27

Average (diff.) = $\dfrac{27}{50}$ = 0.54

∴ Correct average = 64 + 0.54 = 64.54

23. (a) Sum of 12 numbers

= 55.5 × 12 = 666

Sum of next four numbers

= 54.6 × 4 = 218.4

Let 10th numbers be x

9th number = $x - 3$

11th number = $x + 2$

12th number = $x + 3$

Total number(sum) = 666

213.6 + 218.4 + x + x - 3 + x + 2 + x + 3

= 666

⇒ 4x = 232

⇒ x = 58

Average of 10th and 12th number

= $\dfrac{58 + 61}{2}$ = $\dfrac{119}{2}$ = 59.5

24 (a) Let the three number be x, y and z

According to the question,

⇒ $x + (y + z)/2 = 164$

⇒ $2x + y + z = 328$ ...(I)

⇒ $y + (x + z)/2 = 158$

⇒ $x + 2y + z = 316$ ...(II)

⇒ $z + (x + y)/2 = 132$

⇒ $x + y + 2z = 264$ ...(III)

Eq. (I) + (II) + (III)

$4(x + y + z) = 328 + 316 + 264 = 908$

⇒ $x + y + z = 908/4$

Average = $75\dfrac{2}{3}$

25. (c) Sum of 11 numbers = 54 × 11 = 594

Sum of first four numbers = 48 × 4 = 192

Sum of next four numbers = $48 \times \dfrac{5}{4} \times 4$ = 240

let the 11th numbers be p.

∴ 9th number = $p + 8$ and 10th number = $p + 4$

Sum of 9th, 10th and 11th number

= 594 - 192 - 240 = 162

ATQ, $a + 8 + a + 4 + a$ = 162

⇒ 3a = 150

⇒ a = 50

Average (9th and 10th) = $\dfrac{58 + 54}{2}$ = $\dfrac{112}{2}$ = 56

26. (b) Sum of twelve numbers = 12 × 46 = 552

Sum of first four numbers = 43 × 4 = 172

Sum of last 5 numbers = 49.4 × 5 = 247

Let the 7th number be x

∴ 5th number = $x + 4$

6th number = $x + 6$

Sum of twelve numbers = 552

172 + x + x + 4 + x + 6 + 247 = 552

⇒ 3x = 123

⇒ x = 41

Average (5th and 7th numbers)

= $\dfrac{45 + 41}{2}$ = $\dfrac{86}{2}$ = 43

27. (a) Sum of thirteen number = 13 × 80 = 1040

Sum of first five numbers = 5 × 74.5 = 372.5

Sum of next five numbers = 82.5 × 5 = 412.5

Now, Sum of last 3 numbers = 1040 – 372.5 – 412.5

= 255

Let 12th number be p.

ATQ, $p + 6 + p + p + 6 = 255$

⇒ 3p + 12 = 255

⇒ p = 81

Average of 11th and 13th number

= $\dfrac{81 + 6 + 81 + 6}{2}$

= $\dfrac{2 \times 87}{2}$ = 87

28. (a) Sum of weight (Six children)

= 32.8 × 6 = 196.8

Weight of two children

= 26.5 + 28.3 = 54.8

Total weight (8 children)

= 196.8 + 54.8 = 251.6

Average = $\dfrac{251.6}{8}$ = 31.45

29. (d) Average weight of packs

= $\dfrac{600 + 750 + 1100 + 2300 + 800}{5}$

= $\dfrac{5550}{5 \times 1000}$ = 1.11kg

30. (a) Let the score of fifth inning be x.

$73 + 76 + 20 + 7 + x = 5 \times 55 = 275$

$x + 176 = 275$

$x = 275 + 176 = 99$

31. (a) Let the 20 number be $P_1; P_2......P_{26}$

Average of 26 number = 0

Therefore $= \dfrac{P_1 + P_2 + P_3 + ...P_{26}}{26} = 0$

$P_1 + P_2 + P_3 + ... P_{25} = -P_{26}$

Hence, 25 number can be greater than 0

32. (c) Total weight of 16 boys

$= 16 \times 60.25 = 964$ kg

Total weight of remaining 10 boys

$= 10 \times 45.75 = 457.5$ kg

Average weight $= \dfrac{964 + 457.5}{26}$

$= \dfrac{1421.5}{26} = 54.67$

33. (b) Prime numbers between 10 and 25

= 11, 13, 17, 19, 23

Average $= \dfrac{11 + 13 + 17 + 19 + 23}{5}$

$= \dfrac{83}{5} = 16.6$

34. (b) Total age of 11 players $= 11 \times 27 = 297$

Total age of 13 players $= 13 \times 26 = 338$

Difference $= 338 - 297 = 41$

Average $= \dfrac{41}{2} = 20.5$

35. (d) Sum of 22 number $= 22 \times 52 = 1144$

Sum of first 8 numbers $= 8 \times 48 = 384$

Sum of next 11 numbers $= 54 \times 11 = 594$

Sum of last three numbers $= 1144 - 384 - 594 = 166$

let the 21st number be P

ATQ $\Rightarrow$, $P - 7 + P + P - 4 = 166$

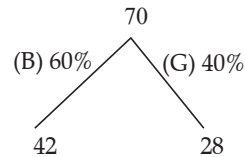$\Rightarrow 3P - 11 = 166$

$\Rightarrow 3P = 166 + 11 = 177$

$\Rightarrow P = 59$

Average of 20th term and 22nd term

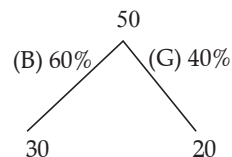$= \dfrac{52 + 55}{2} = \dfrac{107}{2} = 53.5$

36. (b) Trick:

Average marks of whole class

$= \dfrac{42 \times 63 + 28 \times 70}{70}$

$= \dfrac{4606}{70} = 65.8$

37. (a) Trick:

Average weight of class

$= \dfrac{30 \times 62 + 58 \times 20}{50}$

$= \dfrac{3020}{50} = 60.4$

38. (d) Average of 16 numbers = 48

Sum of 16 numbers $= 48 \times 16 = 768$

Sum of first seven numbers $= 45 \times 7 = 315$

Sum of next 6 numbers $= 52 \times 6 = 312$

Sum of last 3 numbers $= 768 - 315 - 312 = 141$

let the 16 numbers be P

$\therefore$ 14th number will be P + 5

and 15th number $= P + 16$

Then sum of last 3 numbers = 141

$P + P + 5 + P + 16 = 141$

$\Rightarrow 3P + 21 = 141$

$\Rightarrow 3P + 21 = 120$

$\Rightarrow P = 40$

The average of 15th and 16th numbers

$= \dfrac{40 + 56}{2} = 48$

39. (b) Sum of 20 numbers $= 20 \times 65 = 1300$

Sum of first 9 numbers $= 9 \times 68 = 612$

Sum of next 8 numbers $= 8 \times 62 = 496$

Sum of 18th, 19th and 20th numbers

$= 1300 - 612 - 496 = 192$

let the 19th number be P

$\therefore 18^{th}$ number $= P + 3$

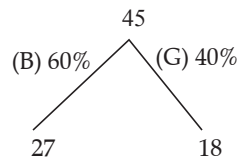and 20th numbers $= P + 9$

Sum $= P + P + 3 + P + 9 = 192$

$\Rightarrow 3P = 180$

$\Rightarrow P = 60$

Average of 19th and 20th number

$= \dfrac{60 + 69}{2} = \dfrac{129}{2} = 64.5$

40. (c) Trick :


```
                45
   (B) 60%  /       \  (G) 40%
          /           \
        27             18
```

Average weight of the whole class

$= \dfrac{27 \times 65 + 18 \times 55}{45}$

$= \dfrac{2745}{45} = 61$ kg

41. (c) Trick :

```
                45
   (B) 60%  /       \  (G) 40%
          /           \
        27             18
```

Average mark of the whole class

$= \dfrac{27 \times 60 + 18 \times 64}{45}$

$= \dfrac{2772}{45} = 61.6$

42. (c) Sum of all 18 numbers $= 18 \times 52 = 936$

Sum of first 8 numbers $= 8 \times 62 = 496$

Sum of next 7 numbers $= 7 \times 45 = 315$

let he 18th numbers be a

$\therefore 17^{th}$ numbers $= a + 1$

$\therefore 16^{th}$ number $= a + 1 - 6 = a - 5$

ATQ,

$a - 5 + a + 1 + a = 125$

$\Rightarrow 3a = 129$

$\Rightarrow a = 43$

Average of the 16th and 18th numbers

$= \dfrac{(43 - 5) + 43}{2} = 40.5$

43. (b) Sum of height of 12 students

$= 12 \times 132.5$

$= 1590$ cm

Sum of height of 13 students

$= 13 \times 131.2$ cm

$= 1705.6$ cm

Height of new students

$= 1705.6 - 1590$

$= 115.6$ cm

44. (c) Prime numbers between 70 and 90

$= 71, 73, 79, 83, 89$

Average $= \dfrac{71 + 73 + 79 + 83 + 89}{5}$

$= \dfrac{395}{5} = 79$