

# SOLUTIONS

## > ANSWER KEY

1. (a)	2. (e)	3. (c)	4. (e)	5. (a)	6. (a)	7. (c)	8. (a)	9. (d)	10. (e)
11. (a)	12. (c)	13. (a)	14. (b)	15. (d)	16. (a)	17. (c)	18. (d)	19. (c)	20. (d)
21. (a)	22. (d)	23. (b)	24. (e)	25. (c)	26. (d)	27. (e)	28. (c)	29. (a)	30. (e)
31. (a)	32. (a)	33. (a)	34. (a)	35. (b)	36. (c)	37. (d)	38. (d)	39. (e)	40. (d)
41. (b)	42. (c)	43. (d)	44. (a)	45. (b)	46. (c)	47. (a)	48. (d)	49. (e)	50. (d)
51. (c)	52. (b)	53. (a)	54. (c)	55. (a)	56. (e)	57. (d)	58. (a)	59. (b)	60. (c)
61. (d)	62. (b)	63. (e)	64. (c)	65. (a)	66. (b)	67. (d)	68. (a)	69. (a)	70. (c)
71. (c)	72. (e)	73. (c)	74. (a)	75. (d)	76. (a)	77. (c)	78. (b)	79. (c)	80. (a)
81. (a)	82. (d)	83. (b)	84. (b)	85. (b)	86. (d)	87. (a)	88. (a)	89. (e)	90. (b)
91. (b)	92. (c)	93. (e)	94. (b)	95. (b)	96. (c)	97. (e)	98. (d)	99. (e)	100. (b)

# SOLUTIONS

31.  $\frac{5}{3}$  of 1200 = ? + 1100

$\Rightarrow$   $2000 = ? + 1100 = 900$

32. Here,  $\frac{1}{2}$  of 3842 + 15% of ? = 2449

$\Rightarrow \frac{1}{2} \times 3842 + \frac{15}{100} \times ? = \frac{15}{100} \times ? = 2449$

$\Rightarrow 1921 + \frac{15}{100} \times ? = 2449$

[Put  $x = ?$ ]

$\Rightarrow 1921 + \frac{15}{100} \times x = 2449$

$\Rightarrow \frac{15}{100} = 2449 - 1921$

$\Rightarrow \frac{15x}{100} = 528$

$\Rightarrow x = 528 \times \frac{100}{15}$   
 $= 35.2 \times 100 = 3520$

33.  $7072 \left( \frac{884 \times 16}{10} \right)$

$= 30 \times \frac{13}{12} \times \frac{?}{39}$

$\Rightarrow 7072 \div 141.44 = \frac{5 \times ?}{6}$

$\Rightarrow 50 \times 6 = 5 \times ?$

$\Rightarrow ? = \frac{50 \times 6}{5} = 60$

34.  $(3375)^6 \div (15)^{10} \div (225)^7 = (15)^{?-6}$

$((15^3)^6 \div (15)^{10} \div (15^2)^7 = (15)^{?-6}$

$\Rightarrow 15^{18-10-14} = (15)^{?-6}$

$\Rightarrow -6 = ? - 6 \Rightarrow ? = 0$

35.  $\frac{1478.4}{56} + 66.8 \times 57$

$= ? \times 3 + 34 \times 34.5$

$\Rightarrow 26.4 + 3807.6 = ? \times 3 + 1173$

$\Rightarrow 3834 - 1173 = ? \times 3$

$\Rightarrow ? \times 3 = 2661$

$\Rightarrow ? = 887$

36.  $(13 + 2\sqrt{5})^2 = ? \times \sqrt{5} + 189$

$\Rightarrow 169 + 20 + 2 \times 13 \times 2\sqrt{5} = ? \times \sqrt{5} + 189$

$\Rightarrow 189 + 52 \times \sqrt{5} = ? \times \sqrt{5} + 189$

$\Rightarrow ? = 52$

37.  $?^2 = \frac{(10 \times 208 \times \sqrt{25})}{\sqrt[3]{17576}}$

$= \frac{10 \times 208 \times 5}{26} = 400 = 20^2$

$\Rightarrow ? = 20$

38.  $0.22 + 0.0054 = ? - 313.06$

$\Rightarrow 0.2254 + 313.06 = ?$

$\Rightarrow ? = 313.2854$

39.  $\frac{512}{?} \times \frac{39}{16} \times 328 = 128$

$\Rightarrow \frac{32}{?} \times 39 \times 328 = 128$

$\Rightarrow ? = \frac{32 \times 39 \times 328}{128}$

$\Rightarrow ? = 3198$

40.  $(?)^2 + (164)^2 = (307)^2 - 272$

$\Rightarrow (?)^2 = (307)^2 - (164)^2 - 272$

$\Rightarrow (?)^2 = 471 \times 143 - 272$

$\Rightarrow (?)^2 = 67353 - 272$

$\Rightarrow ? = \sqrt{67081} = 259$

41. Given, perimeter of the square = 72 cm

$\therefore$  Perimeter of the rectangle =  $\frac{72}{2} = 36$  cm

$\therefore$  Perimeter of the rectangle = 2 (length + breadth)

$\Rightarrow 36 = 2(12 + \text{breadth})$

$\Rightarrow 36 = 24 + 2 \times \text{breadth}$

$\Rightarrow 2 \times \text{breadth} = 12$  cm

$\Rightarrow \text{breadth} = 6$  cm

$$\therefore \text{Side of the square} = \frac{72}{4} = 18 \text{ cm}$$

Hence, required difference  
 $= 18 - 6 = 12 \text{ cm}$

**42. Money received by Nitin = Rs. 300**

$$\Rightarrow 10\% = 300$$

$$\Rightarrow 100\% = 300 \times 10 = \text{Rs. } 3000$$

So, Nikhil received Rs. 3000 from Nirmal.

**43. Let the Sita's, Riya's and Kunal's monthly income be Rs.  $84x$ , Rs.  $76x$  and Rs.  $89x$ , respectively.**

Then,  $76x \times 12 = \text{Rs. } 456000$

$$\Rightarrow x = \frac{456000}{76 \times 12}$$

$$x = \text{Rs. } 500$$

$$\therefore \text{Sita's annual income} = 84x \times 12$$

$$= 84 \times 500 \times 12$$

$$= \text{Rs. } 504000$$

$$\therefore \text{Kunal's annual income} = 89x \times 12$$

$$= 89 \times 500 \times 12$$

$$= \text{Rs. } 534000$$

Hence, required sum  
 $= 504000 + 534000$   
 $= 1038000$

**44. Maximum marks in five subjects =  $105 \times 5$**

$$= 525$$

Nandita's marks scored =  $525 \times \frac{80}{100} = 420$

Nandita's four subjects

(Hindi + Sanskrit + Maths + English)

$$\text{Marks} = 89 + 92 + 98 + 81 = 360$$

Hence, Nandita's marks in science  
 $= 420 - 360 = 60$

**45. Suppose, present age of Purvi =  $x$  yr and present age of Anil =  $1.5x$  yr**

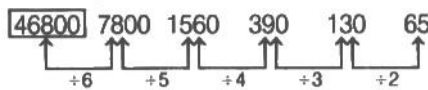
Then,  $\frac{1.5x + 8}{x + 8} = \frac{25}{18}$

$$27x + 144 = 25x + 200$$

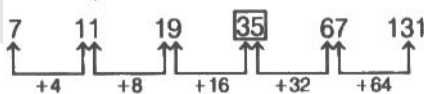
$$2x = 56$$

$$\Rightarrow x = 28 \text{ yr}$$

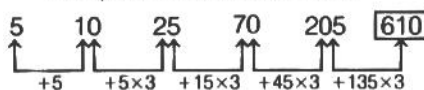
**46. The pattern of the series is**



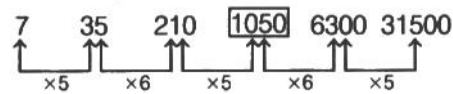
**47. The pattern of the series is**



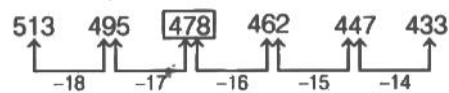
**48. The pattern of the series is**



**49. The pattern of the series is**



**50. The pattern of the series is**



**51. Case I Discount = 40%**

$$\text{Selling price} = 60\% \text{ of } 1000$$

$$= \frac{60}{100} \times 1000 = \text{Rs. } 600$$

**Case II : Two successive discount are of 35% and 5%**

$$\text{Selling price} = 1000 \times \left(1 - \frac{35}{100}\right) \left(1 - \frac{5}{100}\right)$$

$$= \frac{65}{100} \times \frac{95}{100} \times 1000$$

$$= \text{Rs. } 617.5$$

$$\therefore \text{Difference} = (617.50 - 600)$$

$$= \text{Rs. } 17.50$$

$$\text{52. } P = \frac{l \times 100}{R \times T} = \frac{864 \times 100}{8 \times 3} = \text{Rs. } 3600$$

**53. Required number**

$$= 5000 \left(1 + \frac{24}{100}\right)^2$$

$$= 5000 \times \frac{124}{100} \times \frac{124}{100} = 7688$$

**54. Total quantity of milk in the mixture of P and Q**

$$\frac{2}{2+3}(5) + \frac{1}{1+2}(15) = 2 + 5 = 7$$

Total quantity of water

$$= (5 + 15) - 7 = 13$$

Ratio of milk to water in the final mixture

$$= \frac{7}{13} = 7 : 13$$

**55. Let R, S and P be the share of Rahim, Sonu and Praveen respectively**

Now,  $\frac{R}{S} = \frac{3}{4}, \frac{S}{P} = \frac{4}{5}$

Also,  $R + S = 400 + P$

$$\therefore S = 400 + \frac{5S}{4} - \frac{3S}{4}$$

$$\frac{1600 + 5S - 3S}{4} = S$$

$$1600 + 2S = 4S$$

$$2S = 1600$$

$$S = 800$$

**56. Total number of exclusives recruited by all the organisation together in the year.**

$$2013 = 480 + 495 + 464 + 508$$

$$+ 488 + 518$$

$$= 2953$$

**57. Required ratio**

$$= (534 + 510) : (506 + 492)$$

$$= 1044 : 998 = 522 : 499$$

**58. Average number of Executives**

$$= \frac{502 + 500 + 508 + 44 + 512 + 499}{6}$$

$$= \frac{2965}{6} = 499.16 = 494$$

**59. Required percentage increase**

$$= \frac{472 - 418}{418} \times 100$$

$$= \frac{54}{418} \times 100$$

$$= 12.918 = 12.92$$

**60. Required percentage**

$$= \frac{510}{2854} \times 100 = 17.87$$

$$= 18\% \text{ (approx.)}$$

**61. Let the capacity of the tank be CL.**

Rate at which the tank is effectively filled =  $\frac{C}{45}$  L/min

Rate at which P and Q filled it are  $\frac{C}{36}$  L/min and  $\frac{C}{90}$  L/min

respectively.

$$\frac{C}{45} = \frac{C}{36} + \frac{C}{90} - 3$$

$$C = 180L$$

**62.  $\frac{M_1 D_1}{W_1} = \frac{M_2 D_2}{W_2}$** 

$$\frac{24 \times 16}{1} = \frac{12 \times D_2}{1/2}$$

$$D_2 = 24 \times 16 \times \frac{1}{2} \times \frac{1}{12}$$

$$D_2 = 16 \text{ Days}$$

**63. Present age of Rahul**

$$= 15 \times \frac{7}{5} = 21 \text{ yr}$$

$\therefore$  Present age of Dinesh

$$= 21 \times \frac{5}{3} = 35 \text{ yr}$$

$\therefore$  Age of Dinesh after 4yr

$$= 35 + 4 = 39 \text{ yr}$$

**64. Here, distance is constant**

(Up) (Down)

Ratio of time 2 : 1

Speed 1 : 2

$$M : S = (1 + 2) : (2 - 1) = 3 : 1$$

$$1 \text{ unit} = 1.5 \text{ km/hr}$$

Speed of stream in still water =  $\frac{4.5}{3}$  km/hr = 1.5 km/hr

**Alternatively**

Here, distance is constant

	(Up)	(Down)
Time	2	: 1
Speed	1	: 2
Now,	$\frac{B+S}{B-S} = \frac{2}{1}$	$\Rightarrow \frac{M}{S} = \frac{3}{1}$
$\Rightarrow$	$S = \frac{M}{3} = \frac{4.5}{3}$	$= 1.5 \text{ km/hr.}$

**65. When four dice are rolled together  $n(S)$** 

$$= 6 \times 6 \times 6 \times 6 = 1296$$

Let  $E$  be the event that the sum is greater than or equal to 22.

Then, the outcomes favourable to  $E$  are

$$(4, 6, 6, 6) \Rightarrow 4$$

$$(5, 5, 6, 6) \Rightarrow 4$$

$$(5, 6, 6, 6) \Rightarrow 4$$

$$(6, 6, 6, 6) \Rightarrow 4$$

$$i. e., n(E) = 10$$

$$\text{So, } P(E) = \frac{n(E)}{n(S)} = \frac{13}{1296}$$

$\therefore$  The probability that the sum is less than

$$22 = 1 - P(E)$$

$$= 1 - \frac{13}{1296} = \frac{1283}{1296}$$

66. where (are) you  $\rightarrow$  pit (ka) ta ... (i)

(are) (they) there  $\rightarrow$  sa (da) (ka) ... (ii)

(they) may come  $\rightarrow$  (da) na ja ... (iii)

From Eqs. (ii) and (iii), they  $\rightarrow$  da

From Eqs. (i) and (ii), are  $\rightarrow$  ka

$\therefore$  there  $\rightarrow$  sa

67. (4) Given number

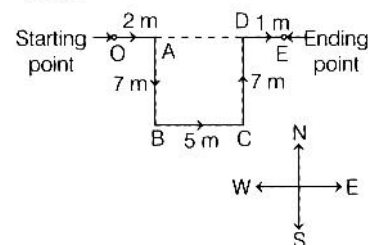
$$\begin{array}{cccc} 6 & 3 & 1 & 5 \\ & & \boxed{1} & \\ & & & \boxed{4} \end{array} \quad \begin{array}{ccc} & \boxed{7} & \boxed{8} & 4 \end{array}$$

After arranging in descending

order, new number  $\rightarrow 8765431$

Hence, such pairs of digits are 31, 53, 87.

68. Ajay's walking directions are as follows



$$OA = 2 \text{ m, } AB = 7 \text{ m, } BC = 5 \text{ m,}$$

$$CD = 7 \text{ m, } DE = 1 \text{ m}$$

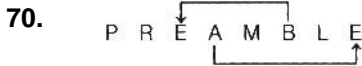
$\therefore$  Required distance (OE)

$$= OA + AD + DE$$

$$= (2 + 5 + 1) \text{ m}$$

$$= 8 \text{ m}$$

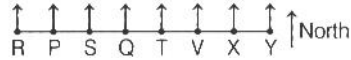
69. C's grandfather's only daughter is mother of B. Hence, C is the cousin of B. Therefore, C's father is maternal uncle of B.



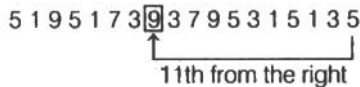
So, such pairs of letters are AE, BE.

**Sol. (Nos 71-75)**

Sitting arrangement of eight persons is as follows.



71. Q is second to right to P.  
 72. R and Y are seated at the two extreme ends of line.  
 73. There are three person (P, S and Q) between R and T.  
 74. V is related to as second person seated second to the right of the first person (Y).  
 75. P is seated second to the left of Q.  
 76. In the given arrangement, If all the even digits are deleted then,



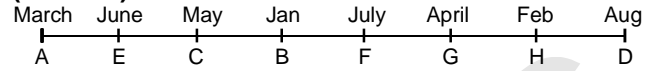
∴ 11th digit from the right end is 9.

77. There are two such 4S (9 4 5, 4 5)  
 78. Arranging the alphabets as per English alphabetical order, within the word?  
 AMN ACR ARW ACN NOT  
 Four words begin with vowel.  
 79. Second from the right = C A N  
 Third from the left = W A R  
 Alphabets between A and R = 146  
 80. Changing the consonants to previous letter and vowels to the next letter as per English, alphabetical order.  
 LBM BBQ VBQ BBM GPS  
 All the words formed have no vowels.  
 81. Statement :  $W \geq D < M < P < A = F$   
 Conclusions : I.  $F > D$  (E)  
 II.  $P < W$  (X)  
 82. Statements :  $H \geq M > F < A = B > S$   
 Conclusions : I.  $H > B$  (X)  
 II.  $F < S$  (X)  
 83. Statements :  $B > T > Q > R = F$   
 Conclusions : I.  $Q \geq F$  (X)  
 II.  $T > F$  (E)  
 84. Statements :  $S = R \geq Q, P < Q, S = R \geq Q > P$   
 Conclusions : I.  $S \geq P$  (X)

II.  $R > P$  (E)

85. Statement :  $S \geq M < T = Z > F > T$   
 Conclusions : I.  $S > F$  (X)  
 II.  $Y > T$  (E)

**Sol. (86 to 90)**



86. (d)      87. (a)      88. (a)      89. (e)      90. (b)

**Sol. (Q. 91-95)**

91.  $612 \Rightarrow 812; 589 \Rightarrow 789;$

$743 \Rightarrow 943; 468 \Rightarrow 668;$

$297 \Rightarrow 497$

Now,

$$\frac{812}{3} = 270.66; \frac{789}{3} = 263;$$

$$\frac{943}{3} = 314.33; \frac{668}{3} = 222.66;$$

$$\frac{497}{3} = 165.66$$

∴ Only one number will be completely divisible by 3.

92.  $612 \Rightarrow 621; 589 \Rightarrow 598;$

$743 \Rightarrow 734; 468 \Rightarrow 486;$

$297 \Rightarrow 279$

$621; 734 : 279$

∴ In three numbers, last digit is a perfect square.

93. Second lower number  $\Rightarrow 468$

Highest number  $\Rightarrow 743$

$$\Rightarrow \frac{8}{4} = 2$$

Hence, resultant number is 2

94.  $612 \Rightarrow 621; 589 \Rightarrow 985;$

$743 \Rightarrow 743; 468 \Rightarrow 864;$

$297 \Rightarrow 972$

Highest number  $\Rightarrow 985 \Rightarrow 589$

95.  $297 < 468 < 589 < 612 < 743$

Required sum =  $6 + 1 + 2 = 9$

**Sol. (96 to 100)**

Shushil Sumit Sapna Sonia Seema

Row I

Row II

Sujeet Suraj Sujata Sanjeet Sunita

96. Two persons are seated between Sunit and Seema.  
 97. Sanjeet faces Sonia.  
 98. Suraj sits on immediate left of Sujata is true.  
 99. Sapna and Sujata are sitting exactly in the middle of the rows.  
 100. Except Sonia, all other sit at extreme ends of the rows.