Quantitative Aptitude

Directions (1-5): Find the approximate value of (?) in given questions:

1. 119.79% of 119.89 + 70.12% of 79.73 = ?% of 999.89
(a) 2.5 (b) 20 (c) 15
(d) 35 (e) 40

2. 1.823 + 5.126 × 7.01 – 432.001 = ? – 531.99
(a) 155 (b) 126 (c) 137
(d) 120 (e) 145

3. $43 \times \frac{22}{7}$ + 20% of 529.7 – 43 =?
(a) 177 (b) 185 (c) 212
(d) 205 (e) 195

4. (23.12 × 22.98) + 11.89 × 7.79 = $?^2$
(a) 20 (b) 25 (c) 31
(d) 22 (e) 30

5. 25% of 2001 + 2001% of 25 – $33\frac{1}{3}$% 100 = ? + 50
(a) 917 (b) 906 (c) 910
(d) 920 (e) 927

Direction (6-10): Find the value of question mark (?) in following number series:

6. 3, 4, 8, 17, 33, ?
(a) 47 (b) 45 (c) 58
(d) 54 (e) None of these

7. 5, 7, 13, 25, 45, ?
(a) 45 (b) 75 (c) 65
(d) 86 (e) None of these

8. 7, 7, 10, 18, 33, ?
(a)34 (b)54 (c)57
(d)65 (e) None of these

9. 2, 7, 25, 105, 531, ?
(a)2341 (b)3241 (c)3567
(d)3193 (e) None of these

10. 10, 13, 18, 26, 38, ?
(a)43 (b)55 (c)65
(d)45 (e) None of these

Directions (11-15): In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer
(a) if x>y
(b) if x≥y
(c) if x<y
(d) if x ≤y
(e) if x = y or no relation can be established between x and y.

11. **I.** $x^2 + 13x + 42 = 0$ **II.** $y^2 + 11y + 30 = 0$

12. **I.** $x^2 - 9x - 90 = 0$ **II.** $y^2 + 14y + 48 = 0$

13. **I.** $4x^2 + 16x + 15 = 0$ **II.** $3y^2 + 4y + 1 = 0$

14. **I.** $x^2 + 2x - 35 = 0$ **II.** $y^2 + 3y - 10 = 0$

15. **I.** 4x + 8y = 16 **II.** $x + y = \frac{11}{4}$

16. Amar invested a sum of Rs 2000 in a business with Akbar who invested Rs 'X'. After 4 months, Anthony joined them with Rs '2X'. After another 4 months, Amar withdrew half of his investment while Anthony invested Rs 'X+1000' more. At the end of the year, Akbar got Rs 18000 out of total profit of Rs 60000. If Amar & Akbar re-entered into another partnership with Rs 'X+2000' & Rs 'X-1000' respectively then find profit ratio at end of year.
(a) 3 : 2 (b) 5 : 2 (c) 5 : 4
(d) 4 : 1 (e) None of these

Directions (17-18): Read the passage carefully & answer the questions.

The average age of A, B, C, D & E 4 years ago was 34 years while average age of B, C, E after 2 years will be $38\frac{2}{3}$ years. Present age of B is more than average age of A & D while less than that of present age of A. Present age of D is 5 years more than that of E who is youngest in the group. Ratio of age of C after 2 years & A's age before 5 years is 1 : 1.

17. If age of C after 7 years would be equal to D's age after 10 years. What is difference in present age of A and E's age after 5 years?
(a) 12 (b) 15 (c) 10
(d) 13 (e) 14

18. If ratio of A's present age to C's age 8 years ago is 3 : 2. C is at least 2 years older to D. Which of the following will definitely hold?
(a) a > b > c > d > e
(b) b < a > c > d > e
(c) a > b > e > d
(d) a > b > c > d
(e) b < a > c < d

19. A tank can be filled by 3 taps A, B, C in 2, x, y hours respectively. efficiency of filling pipes is same as that of emptying. Time taken by A (inlet) & C (outlet) to fill the tank is $66\frac{2}{3}$% less than time taken by B (inlet) & C (outlet). If A, B act as outlet then the tank gets emptied in 72 minutes. Find time taken by B & C both as inlet to fill the tank.
(a) $3\frac{1}{3}$ hours (b) $1\frac{3}{7}$ hours (c) $1\frac{1}{5}$ hours
(d) $2\frac{5}{7}$ hours (e) $1\frac{5}{7}$ hours

20. A person sets to cover a distance of 12 km in 45 min. If he covers $\frac{3}{4}$ of the distance in $\frac{2}{3}$ rd time. What should be his speed to cover the remaining distance in the remaining time?
(a) 16 km/hr (b) 18 km/h (c) 12 km/h
(d) 14 km/h (e) 15 km/h

21. A shopkeeper manufacture 12 models of cups while 10 models of saucer. In how many ways can a set of 6 pieces each of cup & saucer be completed?
(a) 194040 (b) 190440 (c) 19404
(d) 19040 (e) 646646

22. Interest earned by Ramesh on Rs 10000 for 2 years at R% p.a. simple interest is how much more/less than interest earned by him on Rs 8000 for 2 years at (R+10)% p.a. compounding annually. If Rs 2000 is invested at 2R% p.a. simple interest for a year, then it would fetch an interest of Rs 400.
(a) Rs 1220 (b) Rs 1000 (c) Rs 1520
(d) Rs 930 (e) Rs 1140

23. Ram & Mohan entered into a partnership with capitals in ratio 5 : 7 respectively. After 6 months, Gita joined them with Rs 5000. After another 3 months, Ram withdrew 40% of what he had invested earlier. At the end of year, Mohan get Rs 2800 out of total profit of Rs 5600. Find difference in amount invested by Ram & Mohan in the starting.
(a) Rs 1800 (b) Rs 2000 (c) Rs 5000
(d) Rs 1000 (e) Rs 800

24. Total age of a family of eight people is 231 years. Three years later, one member died at the age of 60 years and a child was born during the same year. After another three years, one more member died, again at 60, and a child was born during the same year. Find the average age of all the members of the family, after another 4 years later?
(a) 23.275 years (b) 22.475 years (c) 21.675 years
(d) 22.275 years (e) 23.875 years

25. A shopkeeper while purchasing sugar from the wholesaler, manages to receive 25% more sugar than the quantity for which he pays. While selling sugar to the customers he sold $16\frac{2}{3}$% less than the quantity for which the customers pay. If he claims to sell sugar at the cost price, then find his net profit percentage?
(a) 150% (b) None of these (c) 60%
(d) 37.5% (e) 47.5%

26. Amrit spends 30% of his monthly salary on food. From the remaining salary, he spends $\frac{1}{7}th$ on house rent and $\frac{3}{14}th$ for child education. Now he deposits $55\frac{5}{9}$% of the remaining salary in R.D account and rest of his salary in savings account. If his monthly deposit in saving account is Rs 13600. Find his monthly salary.
(a) Rs 64000 (b) Rs 94500 (c) Rs 50000
(d) Rs 68000 (e) Rs 78000

27. Ruchi and Ritu started a business by investing Rs 40000 and 55000 respectively. After Six months Riya joined the business with a capital of Rs 75000. At the end of 9 months from starting the business Ruchi increased her investment by Rs 25%. If at the end of year, Ruchi got Rs 3280 less than Ritu as profit share. Than find the total profit of the business
(a) Rs 50675 (b) Rs 32000 (c) Rs 48060
(d) Rs 35424 (e) Rs 38528

28. A is 25% more efficient than B. B takes 6 days more time to complete the work alone than A takes to complete the work alone. If both works together then, in how many days work will be completed.
(a) 16 days (b) $8\frac{2}{3}$ days (c) $13\frac{1}{3}$ days
(d) 21 days (e) $16\frac{2}{3}$ days

29. Train A leaves Pune for Mumbai at 17:30 hrs and reaches Mumbai at 21 : 30 hrs. While Train B leaves Mumbai at 17 : 00 hrs reaches Pune at 20 : 30 hrs. At what time do they cross each then?
(a) 19 : 06 hrs (b) 19 : 00 hrs (c) 19 : 30 hrs
(d) 20 : 10 hrs (e) 20 : 16 hrs

30. The length of a rectangle is four fifth of the side of a square. The radius of a circle is equal to side of the square. The circumference of the circle is 264 cm. What is the area of the rectangle if the breadth of the rectangle is 15 cm?
(a) 724 sq.cm (b) 504 sq.cm (c) 456 sq.cm
(d) 625 sq.cm (e) 750 sq.cm

Directions (31-35): Given table shows the ratio of passed students, failed students and absent students in final exams of six different schools in 2017.

Schools	Passed student : failed student : Absent student
P	4 : 3 : 1
Q	3 : 5 : 2
R	6 : 5 : 2
S	5 : 4 : 1
T	7 : 4 : 1
U	6 : 2 : 1

Note- Total students in any school= passed students +failed students+ absent students

31. If total students in school 'P' is equal to the total students in school 'T' and absent students of school 'T' is 32 then, find the difference between passed students of school 'P' and passed students of school 'T'?
(a) 64 (b) 48 (c) 36
(d) 28 (e) 32

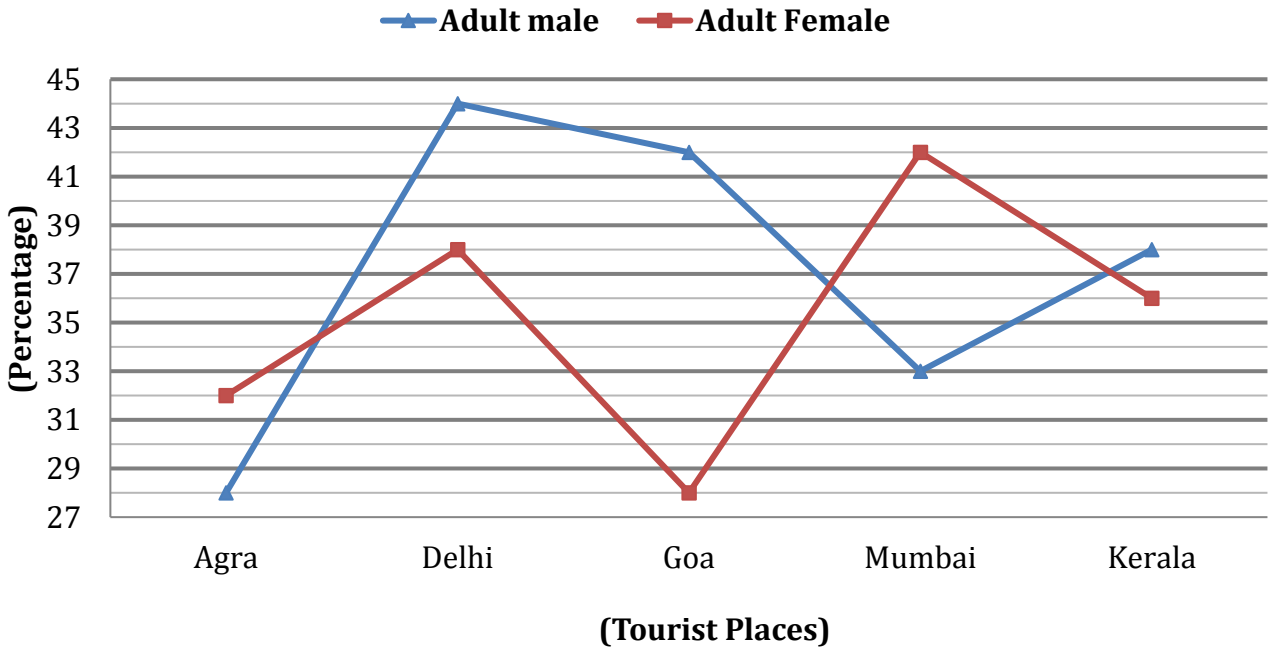
32. Failed students from school 'U' is what percent of the failed students from school 'R' if absent students from both schools are equal?
(a) 60% (b) $66\frac{2}{3}\%$ (c) 48%
(d) 80% (e) 90%

33. If ratio of total students from school Q, R and S is 3 : 2 : 4 and absent students of school Q are 312 then find the average of total number of students in school Q, R and S together.
(a) 1560 (b) 1340 (c) 1440
(d) 2080 (e) 1040

34. If passed student from school 'P' is equal to the failed student of school 'U', then absent student of school 'P' is what percent of the absent student of school 'U'?
(a) 40% (b) 80% (c) 50%
(d) 30% (e) 60%

35. Percentage of passed students of school 'R' is what percent of percentage of passed students of school 'S'.
(a) $80\frac{1}{13}\%$ (b) $95\frac{5}{13}\%$ (c) $90\frac{1}{13}\%$
(d) $87\frac{2}{13}\%$ (e) $92\frac{4}{13}\%$

Directions (36-40): The given line graph shows percentage distribution of Adult male tourist and Adult female tourist out of total tourist visiting any of the five different tourist places in 2017 in India. Read data carefully and answer the following questions:



Note: Total number of tourist at each place =Adult male tourists + Adult female tourists + Child Tourists.

36. If total Adult females tourists who visited Goa is 840 and total child tourists who visited Agra is 680 then, find difference between total child tourists who visited Goa and total Adult female tourists who visited Agra ?

(a) 346 (b) 354 (c) 356
(d) 358 (e) 360

37. Total number of tourists visiting Mumbai is $66\frac{2}{3}\%$ more than total number of tourists visiting Delhi. Find ratio between total Adult male tourists visiting Delhi to Total Adult female tourists visiting Mumbai ?

(a) 21 : 37 (b) 22 : 35 (c) 35 : 22
(d) 22 : 37 (e) 11 : 25

38. If ratio between total number of tourists visiting Delhi and Kerala is 11 : 15, and difference between total Adult male tourists visiting Delhi and total adult male tourists visiting Kerala is 430, then find total number of tourists visiting Kerala?

(a) 6000 (b) 7600 (c) 7800
(d) 7500 (e) 9000

39. If ratio between total number of tourists visiting Agra to total number of tourists visiting Goa is 7 : 11 then find total Adult female tourists visiting Goa are what percent more or less than total Adult female tourists visiting Agra ?

(a) 32.5% (b) 35.5% (c) 38.5%
(d) 39.5% (e) 37.5%

40. Total number of tourists visiting Kerala is 20% less than total number of tourists visiting Agra. Number of child tourists visiting Agra are what percent of total number of child tourists visiting Kerala ?

(a) $152\frac{11}{13}\%$ (b) $149\frac{11}{13}\%$ (c) $155\frac{11}{13}\%$
(d) $192\frac{4}{13}\%$ (e) $157\frac{11}{13}\%$

Directions (41-45): Read the given information carefully and answer the following questions.

Arun & Veer invested Rs. 60,000 and Rs. 90,000 respectively. Arun invested for 15 months while Veer invested for 8 months and the difference between profit share of Arun and Veer is Rs.10000. Arun invested his profit share at 20% p.a on CI for 1.5 years and he bought a bike from the amount he received. Veer bought two laptops L_1 & L_2 (both laptops have equal price) from the amount which he received after investing his profit share at 15% p.a on SI for 2 years. Veer sold L_1 & L_2 at 10% and 15% profit respectively while Arun sold his bike at 5% loss.

41. Veer invested money (which he gets from the profit of that two laptops) in a scheme at the rate of 10% p.a on simple interest for 4 years. What is the interest he received?

(a) Rs. 2800 (b) Rs. 2600 (c) Rs. 2500
(d) Rs. 2750 (e) Rs. 3000

42. If the price of Bike depreciates 15% every year, then what will be the price of bike after 2 years?

(a) Rs. 47,685 (b) Rs. 49,675 (c) Rs. 48,025
(d) Rs. 47,515 (e) Rs. 48,195

43. If the marked price of laptop L_1 is 40% more than its cost price and the selling price of L_1 is Rs. 2600 more than its earlier selling price, then what is the discount percentage given on L_1?

(a) $8\frac{4}{7}\%$ (b) $11\frac{3}{7}\%$ (c) 10%
(d) $14\frac{2}{7}\%$ (e) $7\frac{9}{13}\%$

44. The total amount received by Arun on selling that bike and the total amount received by veer on selling both the laptops together is how much more or less than the 108% of total cost price of all the three items together?

(a) Rs. 6040 (b) Rs. 6180 (c) Rs. 6240
(d) Rs. 6340 (e) Rs. 6380

45. In the above passage, if the difference between profit share of Arun and Veer is Rs. 11000 instead of Rs. 10000, then what will be the change in the net profit earned on all the three items together? (Rest all information remains same)

(a) Rs. 120 (b) Rs. 320 (c) Rs. 220
(d) Rs. 520 (e) Rs. 420

Directions (46-50): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and give answer

(a) if the data in statement **I alone** are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.

(b) if the data in statement **II alone** are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.

(c) if the data **either** in statement I alone or in statement II alone are sufficient to answer the question.

(d) if the data in **both** statement I and II together are not sufficient to answer the question.

(e) if the data in **both** statement I and II together are necessary to answer the question.

46. What is the speed of a boat in still water ?

I. The boat covers a distance of 160 km in 8 hours while running upstream.

II. It covers the same distance in 4 hours while running downstream.

47. How many boys are there in the class ?

I. The number of girls is 25% of the number of boys.

II. The ratio of the number of boys to that of girls is 5 : 7.

48. What is the value of a two-digit number ?

I. The sum of the digits of the number is 13.

II. The digit at the tens place is 160% of the digit at the units place.

49. What is the area of a square ?

I. The diagonal of the square is $8\sqrt{2}$ m.

II. The perimeter of the square is 32 m.

50. What is the speed of a train ?

I. The train crosses a pole in 16 seconds.

II. The train crosses a platform of equal length in 54 seconds.

SOLUTIONS

1. (b): $\frac{120}{100} \times 120 + \frac{70}{100} \times 80 \approx ? \times \frac{1000}{100}$

$144 + 56 \approx ? \times 10$

$? \approx 20$

2. (c): $2 + 5 \times 7 - 432 + 532 \approx ?$

$137 \approx ?$

3. (e): $\frac{42\times22}{7} + \frac{20}{100} \times 530 - 43 \approx ?$

$132 + 106 - 43 \approx ?$

$? \approx 195$

4. (b): $23 \times 23 + 12 \times 8 \approx ?^2$

$? \approx 25$

5. (a): $\frac{25\times2001}{100} + \frac{25\times2001}{100} - \frac{1}{3} \times 100 \approx ? + 50$

$1000.5 - 33 - 50 \approx ?$

$? \approx 917$

6. (c):

3	4	8	17	33	58
1	4	9	16	25	
1^2	2^2	3^2	4^2	5^2	

7. (b):

5	7	13	25	45	75
2	6	12	20	30	
1×2	2×3	3×4	4×5	5×6	

8. (c):

7	7	10	18	33	57
0	3	8	15	24	
1^2-1	2^2-1	3^2-1	4^2-1	5^2-1	

9. (d):

2	7	25	105	531	3193
×2+3	×3+4	×4+5	×5+7	×6+7	

10. (b):

10	13	18	26	38	55
3	5	8	12	17	
2	3	4	5		

11. (d): **I.** $x^2 + 13x + 42 = 0$

$\Rightarrow x^2 + 7x + 6x + 42 = 0$

$\Rightarrow x = -7 \text{ or } -6$

II. $y^2 + 11y + 30 = 0$

$\Rightarrow y^2 + 6y + 5y + 30 = 0$

$\Rightarrow y = -5 \text{ or } -6$

$\Rightarrow y \geq x$

12. (b): **I.** $x^2 - 9x - 90 = 0$

$\Rightarrow x^2 - 15x + 6x - 90 = 0$

$\Rightarrow x = +15, -6$

II. $y^2 + 14y + 48 = 0$

$\Rightarrow y^2 + 8y + 6y + 48 = 0$

$\Rightarrow y = -8, -6$

$x \geq y$

13. (c): **I.** $4x^2 + 16x + 15 = 0$
$\Rightarrow 4x^2 + 10x + 6x + 15 = 0$
$\Rightarrow (2x + 5)(2x + 3) = 0$
$\Rightarrow x = -\frac{5}{2}, -\frac{3}{2}$
II. $3y^2 + 4y + 1 = 0$
$\Rightarrow 3y^2 + 3y + y + 1 = 0$
$\Rightarrow (y + 1)(3y + 1) = 0$
$\Rightarrow y = -1, -\frac{1}{3}$
$\Rightarrow y > x$

14. (e): **I.** $x^2 + 2x - 35 = 0$
$\Rightarrow x^2 + 7x - 5x - 35 = 0$
$\Rightarrow x(x + 7) - 5(x + 7) = 0$
$\Rightarrow x = 5, -7$
II. $y^2 + 3y - 10 = 0$
$\Rightarrow y^2 + 5y - 2y - 10 = 0$
$\Rightarrow (y + 5)(y - 2) = 0$
$\Rightarrow y = -5, 2$
$\Rightarrow$ no relation can be established between x and y

15. (a): **(i)** $4x + 8y = 16$
(ii) $x + y = \frac{11}{4}$
Solving (i) and (ii)
$\Rightarrow x = 3/2, y = 5/4$
$\Rightarrow x > y$

16. (b): Profit ratio of Amar, Akbar & Anthony
$= (2000 \times 8) + (1000 \times 4) : (X \times 12) : (2X \times 4) + (3X + 1000) \times 4$
$= 20000 : 12X : 20X + 4000$
ATQ, $\frac{12X}{32X+24000} \times 60000 = 18000$
On solving, X = Rs 3000
Required profit ratio
Amar : Akbar $= (X + 2000) \times 12 : (X - 1000) \times 12$
$= 5000 : 2000$
$= 5 : 2$

Solutions (17-18): Let present age of A, B, C, D, E be a, b, c, d & e years respectively
$a + b + c + d + e = 190$ .....(i)
$b + c + e = 110$ .....(ii)
$a > b > (a + d)/2$
$2a > 2b > a + d$ .....(iii)
$d = 5 + e$ .....(iv)
$\frac{c+2}{a-5} = \frac{1}{1}$
$a = c + 7$ .....(v)
(iv) + (v)
$a + d = c + e + 12 = 122 - b$ (using (ii))
using (i)
$122 - b + b + 110 - b = 190$
$b = 42$ years
$c + e = 68$ .....(vi)
$a + d = 80$ .....(vii)

17. (c): ATQ, $c + 7 = d + 10$
$c = d + 3$
(vii) – (vi)
$(a - e) + (d - c) = 12$
$a - e = 15$
required difference $= a - (e + 5)$
$= a - e - 5 = 10$ years

18. (b): ATQ, $\frac{a}{c-8} = \frac{3}{2}$
$2a = 3c - 24$
$\therefore a > c$
$c \geq d + 2$ (given)
$\therefore c > d$
Using (iii) $a > b$
Using (iv) $d > e$
$\therefore b < a > c > d > e$

19. (e): 1 hour work of A & B when both act as outlet
$\frac{60}{72} = \frac{1}{2} + \frac{1}{x}$
$x = 3$ hours
1 hour work of A(inlet) & C as outlet $= \frac{1}{2} - \frac{1}{y} = \frac{y-2}{2y}$ units
Time taken by A & C to fill the tank $= \frac{2y}{y-2}$ hours
1 hour work of B (inlet) & C as outlet $= \frac{1}{3} - \frac{1}{y} = \frac{y-3}{3y}$ units
Time taken by B & C to fill the tank $= \frac{3y}{y-3}$ hours
ATQ, $\frac{2y}{y-2} = \frac{1}{3} \times \frac{3y}{y-3}$
$y = 0, 4$ (y can never be zero)
$y = 4$ hours
1 hour work of B & C as inlets $= \frac{1}{3} + \frac{1}{4} = \frac{7}{12}$ units
Required time $= \frac{1}{\frac{7}{12}} = \frac{12}{7} = 1\frac{5}{7}$ hours

20. (c): Remaining distance $= 12 - \frac{3}{4} \times 12 = 3km$
Remaining time $= 45 - \frac{2}{3} \times 45 = 15min$
Speed $= \frac{3}{15} \times 60 = 12km/hr$

21. (a): Required ways = $12_{C_6} \times 10_{C_6} = 194040$

22. (c): ATQ, $400 = \frac{2000 \times 2R \times 1}{100}$
R = 10%
Required difference
$= \frac{10000 \times 10 \times 2}{100} \sim 8000\left[\left(1+\frac{20}{100}\right)^2 - 1\right]$
= 2000 ~ 3520 = Rs 1520 (compound interest is more)

23. (b): let amount invested by Ram & Mohan be Rs 5x & Rs 7x respectively
Profit ratio Ram : Mohan : Gita
$= (5x \times 9 + 3x \times 3) : (7x \times 12) : (5000 \times 6)$
= 9x : 14x : 5000
ATQ, $\frac{14x}{23x+5000} \times 5600 = 2800$
28x = 23x + 5000
x = 1000
required difference = 7x – 5x = Rs 2000

24. (e): After 3 years, the total age of 8 members
= 231 + 24 – 60 = 195
After another 3 years, the total age of 8 members =195+24-60=159
Total age of family after another 4 years
= 159 + 32 = 191 years
Required average=$\frac{191}{8} = 23.875\ years$

25. (b): Let the amount spent by shopkeeper for purchasing sugar be Rs 100x
Actual cost of the quantity of sugar received by the shopkeeper= Rs 125x
Amount received by selling to the customer $= \frac{125x}{100-16\frac{2}{3}} \times 100$ =Rs 150x
Net profit %=$\frac{150x-100x}{100x} \times 100 = 50\%$

26. (d): Let total monthly salary of Amrit = 100x
Investment on food = 30x
Now, remaining salary = 70x
Remaining salary after house rent and child education
$= 70x - \left(70x \times \frac{1}{7} + 70x \times \frac{3}{14}\right)$
= 70x – (10x + 15x) = 45x
Now, $55\frac{5}{9}\%$ of remaining is deposited in R.D. account and rest on saving account
Deposit on R.D. account $= \frac{5}{9} \times 45x = 25x$
So, deposit on saving account. = 45x – 25x = 20x
20x = Rs 13600
$so, 100x = \frac{13600}{20x} \times 100x$
= 68000 Rs
Monthly salary = Rs 68000

27. (d):

Ruchi	Ritu	Riya
$(40000 \times 9 + 50000 \times 3)$	55000×12	75000×6
510000	660000	450000

Ratio of profit sharing = 17 : 22 : 15
Now, According to question
22x – 17x = 3280
5x = 3280
So, Total profit of Business $= \frac{3280}{5} \times (17 + 22 + 15)$
= Rs 35424

28. (c): We know work efficiency ratio of A to B = 5 : 4
Let time taken by A alone to complete the work = 4x
And by B to complete the work alone = 5x
Atq,
5x – 4x = 6
⇒ x = 6
So, A alone can complete the work in 24 day
And, B alone can complete the work in 30 day
A and B working together can complete the work in
$= \frac{1}{\frac{1}{30}+\frac{1}{24}} = \frac{120}{9} = 13\frac{1}{3}$ days

29. (a): Let distance between Mumbai and Pune = d km
Train A speed = $\left(\frac{d}{4}\right)$ kmph
Train B speed = $\frac{d}{3.5}$ kmph
Distance travelled by train B $= \frac{d}{3.5} \times \frac{1}{2} = \frac{d}{7}$ (from 17:00 hr to 17:30 hr)
Remaining distance between Pune and Mumbai is $d - \frac{d}{7} = \frac{6d}{7}$
Time after which they will meet when B had travelled for half hour
$= \frac{\text{remaining distance}}{\text{relative speed}}$
$\frac{\frac{6d}{7}}{\frac{2d}{7}+\frac{d}{4}} = \frac{\frac{6d}{7}}{\frac{8d+7d}{28}}$
$= \frac{8}{5}$ hours = 1 hour 36 min.
So, they will meet after= 17: 30 hr + 1 $hour$ 36 min = 19 $hour$ 6 min

30. (b): Let the side of square be a
$\therefore$ length of the rectangle $(L) = \frac{4}{5}a$
Radius of circle = a
Circumference of circle = 2πa = 264 cm
a = 42 cm
now, area of rectangle = L × B(breadth)
$= \frac{4}{5} \times 42 \times 15$
= 504 sq.cm

31. (e): Absent student of school T = 32
⇒ Total student of school T
$= \frac{32}{1} \times (1 + 7 + 4) = 384$
Total students of school P = 384
Passed student in school P
$= \frac{384 \times 4}{8} = 192$
Passed students of school T
$= \frac{384 \times 7}{12} = 224$
Required difference = 224 – 192 = 32

32. (d): Absent students of school U = Absent student of school R
Let Absent students of school U and R = x
Failed student of school R $= \frac{x}{2} \times 5 = \frac{5}{2}x$
Failed student of school U $= \frac{x}{1} \times 2 = 2x$
Required% $= \frac{2x}{\frac{5}{2}x} \times 100 = 80\%$

33. (a): Absent student of school Q = 312
Total students of school Q $= \frac{312}{2} \times 10 = 1560$
Total students of school R $= \frac{1560}{3} \times 2 = 1040$
Total students of school S $= \frac{1560}{3} \times 4 = 2080$
Required Average $= \frac{1560 + 1040 + 2080}{3} = 1560$

34. (c): Let passed student of school P = 12x
which is equal to the failed students of school U
Absent student of school P $= \frac{12x}{4} \times 1 = 3x$
Absent student of school U $= \frac{12x}{2} \times 1 = 6x$
Required % $= \frac{3x}{6x} \times 100 = 50\%$

35. (e): Let total students of school R = 13x
Passed student = 6x
% of Passed students of school R
$= \frac{6x}{13x} \times 100 = \frac{600}{13}\%$
Let total student of school S = 10y
Passed student = 5y
% of Passed students of school S $= \frac{5y}{10y} \times 100 = 50\%$
Required percentage $= \frac{\frac{600}{13}}{50} \times 100$
$= \frac{1200}{13}\% = 92\frac{4}{13}\%$

36. (c): Total number of child tourist who visited Goa in 2017
$= \frac{840}{28} \times [100 - (42 + 28)] = 900$
Total number of Adult female tourist visit Agra
$= \frac{680}{40} \times 32 = 544$
Required difference = 900 – 544 = 356

37. (b): Let total number of tourist visiting Delhi is 3x and Mumbai is 5x
Required ratio $= \frac{3x \times \frac{44}{100}}{5x \times \frac{42}{100}} = 22 : 35$

38. (d): Let total number of tourist visiting Delhi is 11x and Kerala is 15x
$15x \times \frac{38}{100} - 11x \times \frac{44}{100} = 430$
$\frac{570x - 484x}{100} = 430$
86x = 43000
$x = \frac{43000}{86} \Rightarrow x = 500$
Total number of tourist visiting Kerala = 500 × 15 = 7500

39. (e): Let total number of tourist visiting Agra is 7x and total number of tourist visiting Goa is 11x
Total Adult female tourist visit Goa
$= 11x \times \frac{28}{100} = \frac{77x}{25}$
Total number of female tourist visit Agra
$= 7x \times \frac{32}{100} = \frac{56x}{25}$
Required % $= \frac{\frac{77x}{25} - \frac{56x}{25}}{\frac{56x}{25}} \times 100$
$= \frac{21x}{56x} \times 100 = 37.5\%$

40. (d): Let total tourist visit Kerala is 4x and total tourist visit Agra 5x
Required % $= \frac{\frac{5x \times [100 - (32+28)]}{100}}{\frac{4x \times [100 - (38+36)]}{100}} \times 100$
$= \frac{5x \times 40}{4x \times 26} \times 100 = 192\frac{4}{13}\%$

Solutions (41-45): Ratio of profit share

Arun		Veer
60000×15		90000×8
5	:	4

Let the profit share of Arun & Veer be Rs. 5x & Rs. 4x respectively.
ATQ, x = 10000
Profit share of Arun = Rs. 50,000
Profit share of Veer = Rs. 40,000
Amount received by Arun at the end of 1.5 years at 20% p.a CI = Rs. 66,000
Amount received by Veer at the end of 2 years at 15% p.a SI = Rs. 52,000
Cost price of bike = Rs. 66,000
Selling price of bike = Rs. 66,000 × 0.95 = Rs. 62,700
Cost price of laptop L_1 = Rs. 26,000
Cost price of laptop L_2 = Rs. 26,000
Selling price of laptop L_1 = Rs. 28,600
Selling price of laptop L_2 = Rs. 29,900

41. (b): Profit earned by Veer on selling both laptops
= (28600 + 29900 – 52000) = Rs. 6500
Required interest received = $\frac{6500\times4\times10}{100}$ = Rs. 2600

42. (a): Price of a bike after two years. = $66000\left(1-\frac{15}{100}\right)^2$
= Rs. 47,685

43. (d): Marked price of laptop L_1 = 26000 × 1.4
= Rs. 36,400
New selling price = Rs. 28600 + Rs. 2600
= Rs. 31,200
Then discount % = $\frac{36400-31200}{36400}\times100$
= $\frac{5200}{36400}\times100 = 14\frac{2}{7}\%$

44. (c): Total selling price of all the three items
= Rs. (62,700 + 28,600 + 29,900) = Rs. 1,21,200
Total cost price of all the items
= Rs. (66,000 + 52,000) = Rs. 1,18,000
108% of total CP = Rs. 1,27,440
Required difference = Rs. 6240

45. (b): Current net profit on all the items together
= (62700 + 28600 + 29900) – (66000 + 52000)
= Rs. 3200
Let the profit share of Arun and Veer be Rs. 5x & Rs. 4x respectively.
ATQ,
x = 11000
Profit share of Arun = Rs. 55,000
Profit share of Veer = Rs. 44,000
Amount received by Arun at the end of 1.5 yr
= Rs. 72,600.
Selling price of bike = Rs. 72,600 × 0.95 = Rs. 68,970
Amount received by Veer at the end of 2 years
= Rs. 57,200
Cost price of laptop L_1 = Rs. 28,600
Selling price of laptop L_1 = Rs. 31,460
Cost price of laptop L_2 = Rs. 28,600
Selling price of laptop L_2 = Rs. 32,890
New net profit
= (68970 + 31460 + 32890) – (72600 + 57200)
= Rs. 3520
Required changes = Rs. (3520 – 3200) = Rs. 320

46. (e): From I and II.
Let the speed of the boat be U_b and that of the stream be U_S
∴ Speed upstream = $U_b - U_S = \frac{160}{8} = 20$ ... (i)
Speed downstream = $U_b + U_S = \frac{160}{4} = 40$ ... (ii)
From (i) and (ii), we get
U_b = 30 km/hr
U_s = 10 km/hr

47. (d): From I.
$G = \frac{25}{100}B$
B = 4G
From II.
$\frac{B}{G} = \frac{5}{7}$
∴ 7B = 5G. Hence both are not sufficient to answer the question.

48. (e): From I and II.
Let the number be 10x + y.
Now, x + y = 13 …(i)
∴ $x = \frac{160}{100}y = \frac{8}{5}y$ ... (ii)
From (i) and (ii), we get
x = 8, y = 5
∴ Number = 85

49. (c): From I
Area of square = $\frac{1}{2}(d)^2$
= $\frac{1}{2}\left(8\sqrt{2}\right)^2 = \frac{1}{2}\times64\times2 = 64\ m^2$
From II
Perimeter of the square = 32 m
Side = $\frac{32}{4} = 8$ m
∴ Area of the square = $(8)^2 = 64\ cm^2$
Hence the question can be answered either from statement I or from statement II.

50. (d): From I. The length of the train is not given. So, we can't find the answer.
From II. In this statement the length of the train is not definite. So we can't find the answer.