S36. Ans.(b)
Sol. male population who did not visit park A =
(20/100) x (60/100) x 400 = 48

Male population who visited in park A = 400 − (150 + 48) = 202
Required % = $\frac{202}{500} \times 100 = 40.4\%$

S37. Ans.(d)
Sol. male population in park B, C & D = (500 − 200) + (700 − 350) + (800 − 450) = 1000
Required average = $\frac{1000}{3}$ = 333.33

S38. Ans.(e)
Sol.
Male population in park E = 900 − 500 = 400
Required % = $\frac{450-400}{400} \times 100 = 12.5\%$

S39. Ans.(a)
Sol. male population in park A & D = 400 − 150 + 800 − 450 = 600
Required ratio = 600 : (200 + 500) = 6 : 7

S40. Ans.(c)
Sol. total female population = 150 + 200 + 350 + 450 + 500 = 1650
Female population above 80 years age = 30 × 5 = 150
Required average = $\frac{1650-150}{5} = 300$

S41. Ans.(b)
Sol. let present age of A & B be x & y years respectively
$\frac{x-4}{y-4} = \frac{5}{3}$
3x − 12 = 5y − 20
3x = 5y − 8 **......... (i)**
Let present age of C be z years
x + y + z = 80
x + y = z
x + y = 40................ **(ii)**
On solving (i) & (ii)
x = 24 years
Present age of A = 24 years

S42. Ans.(d)
Sol. let speed of boat in still water & stream be 8x kmph & x kmph
respectively
ATQ, $\frac{54}{8x+x} + \frac{42}{8x-x} = 4$;
$\frac{6}{x} + \frac{6}{x} = 4$
x = 3 Downstream speed = $8x + x = 27\ kmph$

S43. Ans.(a)
Sol. let salary of Manoj be Rs 100x
Amount given to wife = $\frac{60}{100} \times 100x$ = Rs. 60x
ATQ, 60x × $\frac{50}{100}$ = 18000
x = 600
Salary of Manoj = 100x = Rs 60000

S44. Ans.(c)
Sol. let length & breadth of rectangle be 4x cm & 7x cm
ATQ, $2(4x + 7x) = 88$ $x = 4$;
Area of rectangle = $4x \times 7x = 448$ cm^2

S45. Ans.(b)
Sol. radius of second circle = $1.5 \times 14 = 21$ cm ; Required area of circle = $\pi r^2 = 22/7 \times 21 \times 21 = 1386$ cm^2

S46. Ans.(e)
Sol. I. x² - 7x + 12 = 0
$x^2 - 4x - 3x + 12 = 0$
$(x - 4)(x - 3) = 0$
$x = 3,4$

II. y² - 8y + 12 = 0
$y^2 - 6y - 2y + 12 = 0$
$(y - 6)(y - 2) = 0$
$y = 2,6$

No relation can be established

S47. Ans.(d)
Sol.
I. 2x² + x − 28 = 0
2x² + 8x − 7x − 28 = 0
2x (x + 4) − 7 (x + 4) = 0
(2x − 7) (x + 4)= 0
$x = -4, 7/2$

II. 2y² - 23y + 56 = 0
2y² - 16y − 7y + 56 = 0
2y(y − 8) − 7(y − 8) = 0
(2y − 7) (y − 8) = 0
$y = 7/2 , 8$

y ≥ x

S48. Ans.(e)
Sol.
I. $2x^2 - 7x - 60 = 0$
$2x^2 - 15x + 8x - 60 = 0$
$x(2x - 15) + 4(2x - 15) = 0$
$(x + 4)(2x - 15) = 0$
$x = -4, 15/2$

II. $3y^2 + 13y + 4 = 0$
$3y^2 + 12y + y + 4 = 0$
$3y(y + 4) + 1(y + 4) = 0$
$(3y + 1)(y + 4) = 0$
$y = -1/3, -4$
No relation between x and y

S49. Ans.(e)
Sol.
I. $x^2 - 17x - 84 = 0$
$x^2 + 4x - 21x - 84 = 0$
$(x + 4)(x - 21) = 0$
$x = -4, 21$

II. $y^2 + 4y - 117 = 0$
$y^2 - 9y + 13y - 117 = 0$
$(y - 9)(y + 13) = 0$
$y = 9, -13$
No relation between x and y

S50. Ans.(d)
Sol.
I. $x^2 = 81$
$x = \pm 9$

II. $(y - 9)^2 = 0$
$y = 9$
Clearly, $x \leq y$

S51. Ans.(d)
Sol. total population of city A = 300 + 400 = 700
Total population of city D = 450 + 550 = 1000
Required % = $\frac{1000 - 700}{1000} \times 100 = 30\%$ less

S52. Ans.(a)
Sol. total graduate population = $\frac{70}{100} \times (300 + 400) = 490$
Female graduate population = $\frac{4}{7} \times 490 = 280$
Female population who is not graduate = 400 − 280 = 120

S53. Ans.(e)

Sol. required average = $\frac{300+550+500+450+350}{5} = \frac{2150}{5} = 430$

S54. Ans.(b)

Sol. required % = $\frac{350}{400} \times 100 = 87.5\%$

S55. Ans.(d)

Sol.

Postgraduate population in city B = 300 + 400 = 700

Postgraduate population in city C = $\frac{8}{7} \times 700 = 800$

Required ratio = (1000 − 700) : (900 − 800) = 300 : 100 = 3 : 1

S56. Ans.(b)

Sol. when X liter milk is taken out

Quantity of milk left = (240-X) lit

Quantity of water = X lit

When 20% of mixture taken out

Remaining quantity of milk = $\frac{80}{100} \times (240 - x) = (192 - 0.8x)$ *lit*

Remaining quantity of water = $\frac{80}{100} \times x + \frac{20}{100} \times 240 = (0.8x + 48)$ *lit*

ATQ, (192 − 0.8x) − (0.8x + 48) = 128

16 = 1.6x

x = 10

S57. Ans.(c)

Sol.

	Time (days)	Work (units)	Efficiency (units/day)
A	36	144	4
B	48		3

Work completed by A and B in mentioned days = $\frac{1}{3} \times 144 = 48$ units

ATQ, 4x + 3(x + 2) = 48

x = 6

S58. Ans.(a)

Sol. let cost price be Rs. 100x

Marked price = $\frac{140}{100} \times 100x$ = Rs 140x

Selling price = Rs (140x − 224)

Selling price after tax = $\frac{110}{100} \times (140x − 224)$ = Rs (154x − 246.4)

ATQ, 100x + 158.6 = 154x − 246.4

x = 7.5 ; Cost price of article = 100x = Rs 750

S59. Ans.(b)
Sol.
Let period of investment of Pinki and Rinki be 2x and 3x units respectively Ratio of profit share

Pinki   Rinki
$6000 \times 2x$: $9000 \times 3x$
4   :   9
Profit share of Pinki = Rs 20,000

S60. Ans (c)
Sol.
ATQ
$\frac{x}{40} - \frac{x+20}{60} = 2$
x = 280 km
Required time = $\frac{320}{40}$ = 8 hours

S61. Ans.(c)
Sol.
$111.01 + 41.23 + (4.96)^2 + (2.09)^2 = ?$
$111 + 41 + 5^2 + 2^2 = ?$
$? = 152 + 25 + 4 = 181$

S62. Ans.(a)
Sol.

$109.07\sqrt{?} - 61 / 21.02 \times ? = 47.96\sqrt{?}$
$109\sqrt{?} - 48\sqrt{?} \approx 61 / 21 \times ?$
$61\sqrt{?} = 61 / 21 \times ?$
$? = 441$

S63. Ans.(d)
Sol.
$1332.89 + 171.928 + 17.01 + ?^2 = 1690.67$
$1333 + 172 + 17 - 1691 \approx -?^2$
$?^2 = 169$
$? = 13$

S64. Ans.(b)
Sol. 150.09% of 20 + 322.9 / 17.02 + $\sqrt{?} = (8.96)^2 = 30 + 19 + \sqrt{?} = 81 = ? = 1024$

S65. Ans.(b)
Sol.
56.08% of 149.92 + $\sqrt{28.02} \times 6.98 - 11* 1/ 9$ % 998.9 = ?
56% of 150 + $\sqrt{28} \times 7 - 1 / 9 \times 999 \approx ?$
$84 + 14 - 111 = -13$

Solutions (66-70):-

Let number of girls in hostel B=100x
Then number of boys in hostel B=200x
Number of girls in hostel A= 130x
Number of boys in hostel C=120+100=220
Number of girls in hostel C=1000-220=780
Total number of girls in hostel A and that of in hostel D=446
Number of girls in hostel D=(446-130x)
Number of boys in hostel D=302
ATQ
200x-302=98
x=2

Hostels	Boys	Girls
A	120	260
B	400	200
C	220	780
D	302	186

S66. Ans (b)

Sol. Required percent= $\frac{(302-186)}{(400-200)} \times 100 = 58\%$

S67. Ans (a)

Sol. Required difference=$(302 + 186) - (120 + 260) = 108$

S68. Ans (a)

Sol. Required ratio= $\frac{600}{1000} = \frac{3}{5}$

S69. Ans (d)

Sol.

Required average=$\frac{100+380+200+282}{4} = 240.5$

S70. Ans (b)

Sol. Total number of boys in hostel A and that of girls in hostel C=900

Required %= $\frac{900-400}{400} \times 100 = 125\%$