S36. Ans.(b)

Sol. male population who did not visit park A = $\frac{20}{100} \times \frac{60}{100} \times 400 = 48$

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 = $30 \times 5 = 150$

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)

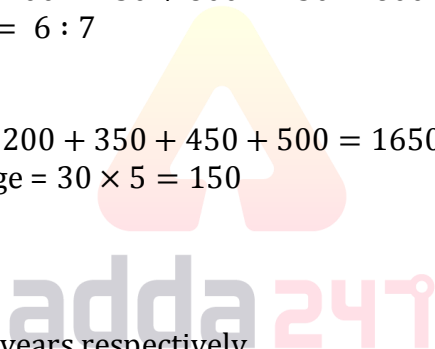$x = 24 \ years$

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 = $8x + x = 27 \ kmph$

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S43. Ans.(a)
Sol. let salary of Manoj be Rs 100x

Amount given to wife = $\frac{60}{100} \times 100x = Rs.\,60x$

ATQ, $60x \times \frac{50}{100} = 18000$

$x = 600$

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 = $\pi r^2 = \frac{22}{7} \times 21 \times 21 = 1386\ cm^2$

S46. Ans.(e)
Sol.
I. x^2 - 7x + 12 = 0

$x^2 - 4x - 3x + 12 = 0$

$(x - 4)(x - 3) = 0$

$x = 3,4$

II. y^2 - 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. 2x^2 + x – 28 = 0

$2x^2 + 8x - 7x - 28 = 0$

2x (x + 4) – 7 (x + 4) = 0

(2x – 7) (x + 4)= 0

$x = -4, \dfrac{7}{2}$

II. 2y^2 - 23y + 56 = 0

2y^2 - 16y – 7y + 56 = 0

2y(y – 8) – 7(y – 8) = 0

(2y – 7) (y – 8) = 0

$y = \dfrac{7}{2}, 8$

y ≥ x

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

II. $3y^2 + 13y + 4 = 0$
$3y^2 + 12y + y + 4 = 0$
$3y (y + 4) + 1 (y + 4) = 0$
$(3y + 1) (y + 4) = 0$
$y = -\dfrac{1}{3}, -4$
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 % = $\dfrac{1000-700}{1000} \times 100 = 30\% \ less$

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

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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 = $100x = Rs\ 750$

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

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

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

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