HINTS & SOLUTIONS

31. (1) Here the series is:
$14 \times 1 - 1 = 13$
$13 \times 2 - 4 = 22$
$22 \times 3 - 9 = 57$
$57 \times 4 - 16 = 212$
$212 \times 5 - 25 = 1035$
Hence, the wrong number is 55.

32. (3) Here the series is:
$217 + 7 = 224$
$224 - 11 = 213$
$213 + 13 = 226$
$226 - 17 = 209$
$209 + 19 = 228$
Hence, the wrong number is 210.

33. (5) Here the series is:
$153 + 7^3 = 496$
$496 + 6^3 = 712$
$712 + 5^3 = 837$
$837 + 4^3 = 901$
$901 + 3^3 = 928$
Hence, the wrong number is 495.

34. (2) Here the series is:
$11 \times 7 - 7 \times 5 = 42$
$42 \times 6 - 6 \times 6 = 216$
$216 \times 5 - 5 \times 7 = 1045$
$1045 \times 4 - 4 \times 8 = 4148$
$4148 \times 3 - 3 \times 9 = 12417$
Hence, the wrong number is 214.

35. (4) Here, the series is
$488 \div 2 + 1.0 = 245$
$245 \div 2 + 1.5 = 124$
$124 \div 2 + 2.0 = 64$
$64 \div 2 + 2.5 = 34.5$
$34.5 \div 2 + 3.0 = 20.25$
Hence, the wrong number is 35

36. (3) I. $20x^2 - 31x + 12 = 0$
$(4x - 3)(5x - 4) = 0$
$x = \dfrac{3}{4}, \dfrac{4}{5}$
II. $20y^2 + y - 12 = 0$
or, $(4y - 3)(5y + 4) = 0$
$y = \dfrac{3}{4}, -\dfrac{4}{5}$ $(x \geq y)$

37. (5) I. $2x^2 - 27x + 91 = 0$
or, $(x - 7)(2x - 13) = 0$
$\therefore \ x = 7, \dfrac{13}{2}$
II. $2y^2 + y - 136 = 0$
or, $(y - 8)(2y + 17) = 0$
$\therefore \ y = 8, \dfrac{-17}{2}$

38. (4) I. $2x - 13\sqrt{x} + 21 = 0$
$= (\sqrt{x} - 3)(2\sqrt{x} - 7) = 0$
$\therefore \ x = 9, \dfrac{49}{4}$
II. $2y - 15\sqrt{y} + 28 = 0$
or, $(2\sqrt{y} - 7)(\sqrt{y} - 4) = 0$
$\therefore \ y = \dfrac{49}{4} \ y = 16$,   Hence, $x \leq y$

39. (5) I. $x^2 = 3136$
$\therefore \ x = \pm 56$
II. $y^2 = 1764$
$\therefore \ y = \pm 42$

40. (5) I. $x^2 - 20x + 91 = (x - 7)(x - 13) = 0$ $x = 7, 13$
II. $y^2 - 6y - 91 = (y - 13)(y + 7) = 0$ $x = 13, -7$

41. (2) It is obvious from the chart given above.

42. (4) The required per cent $= \dfrac{5}{12} \times 16\% = 6\dfrac{2}{3}\%$

43. (3) The required number of men = 675 + 340 = 1015

44. (1) The required per cent $= \dfrac{4}{5} \times 100 = 80\%$

45. (2) It is obvious from the chart given above.

46. (1) Probability that all 3 balls black $= \dfrac{^5C_3}{^9C_3} = \dfrac{10}{84} = \dfrac{5}{42}$

Out of 42 cases only 5 are favourable and 37 are not favourable.

So, odd against these being all black is $\dfrac{37}{5}$.

47. (3) $P(A) = \dfrac{1}{5}$, $P(\overline{A}) = 1 - \dfrac{1}{5} = \dfrac{4}{5}$
The probability that he will not hit the target in 10 shots is $\left(\dfrac{4}{5}\right)^{10}$.
So, probability that at least once target will be hit =
$1 - \left(\dfrac{4}{5}\right)^{10}$.

48. (4) Average number pen drive
$= \dfrac{(15 + 7.5 + 15 + 30 + 17.5) \times 1000}{5}$
$= \dfrac{85 \times 1000}{5} = 17000$

49. (5) Total no. of products produced by company in the year 2006 = 32500
Total no. of products produced by company in the year 2008 = 75000
Total products in both 2006 and 2008 = 32500 + 75000 = 107500

50. (1) No. of CD's produced by company in 2009 = 22500
No. of Keyboards produced by company in 2005 = 25000
Ratio = 22500 : 25000 = 9 : 10

51. (1) Total no. of CD's and Pendrives in 2008
= (25 + 30) × 1000 = 55000
Total no. of Keyboards in the year 2006 = 15000
Difference = 55000 – 15000 = 40000

52. () Male teachers who teaches Mathematics
$$= \frac{2}{7} \times \frac{14}{100} \times 2000 = 80$$

Total no. of teachers who teaches $= \frac{7}{100} \times 2000 = 140$

% approximately $= \frac{80}{140} \times 100 = 57.14 \cong 57$

53. (4) Total no. of teachers in English, History
$$= \left[\frac{7 + 27}{100}\right] \times 2000 = 34 \times 20 = 680$$

Total no. of teachers in Mathematics and Biology
$$= \left[\frac{14 + 12}{100}\right] \times 200 = 26 \times 20 = 520$$

Difference = 680 – 520 = 160

54. (5) Total teachers in Biology and History
$$= \frac{47}{100} \times 2000 = 940$$

55. (2) Average no. of teachers
$$= \frac{\frac{64}{100} \times 2000}{3} = \frac{64 \times 20}{3} = 426 \cong 420$$

56. (1)
57. (2)
58. (4)
59. (3)
60. (1)

61. (1) $\left(42\frac{6}{7}\% \text{ of } 5474 \div 25\% \text{ of } 1564\right)\sqrt{48} = \sqrt{3} \times ?$

$= \left(\frac{3}{7}\text{of } 5474 \div \frac{1}{4} \text{ of } 1564\right) \times \sqrt{48}$

$= (2346 \div 391)\sqrt{48}$

$= 6 \times 4\sqrt{3} = 24\sqrt{3}$

$\therefore ? = \frac{24 \times \sqrt{3}}{\sqrt{3}} = 24$

62. (1) $\sqrt{14641} \times 0.55\% \text{ of } 2000 = \left(?\sqrt{?}\right)^2 = 121 \times 11$

$(11)^3 = \left(11\sqrt{11}\right)^2$

63. (2) $\sqrt[3]{103823} + \sqrt{10609} = 47 + 103 = 150$

64. (3) $?^2$ = 69% of 4589 – 29% of 6932.44
= 3166.41 – 2010.41 = 1155.59 = 1156

= 1156 = $(34)^2$
∴ ? = 34

65. (4) $?^2 = \frac{8}{23} \times \frac{4}{17} \times \frac{2}{31} \times 48484 = 256 = 16^2$

∴ ? = 16

66. (4) S _ from statements I
S P R Q from statements II

67. (4)
arrival	of	queen	......(i)
tee	gee	see	
transaction	in	bank	......(ii)
tee	jic	uic	
flowers	of	queen	........(iii)
sav	tee	gee	

From (i) and (iii) arrival → see

68. (5) A, B, C, D, E, F
A > C, D ......(i)
E – 3rd rank ......(ii)
F – 2nd, 3rd, 4th or 5th ranks ....(iii)
No details of B is given

69. (4) From I:
From II:
From III:
L is not son of M
Now, from I and III, L is daughter of M.

70. (1) Given statement
Y ≥ R = C = D > M > L
Check for I: Y > M
Means M < Y. hence, conclusion I follows. But conclusions II does not follow.

71. (4) Given statement
@ > G .... (i)
Q < P ....(ii)
I = A ≤ 7 ...... (iii)
Combination is not possible. Hence neither I nor II follows.

72. (4) Given statement
L > T .... (i)
S ≥ N ....(ii)
T = N < Q ...... (iii)
Combining (i), (ii) and (iii) we ave,
L > T = N ≤ S
T ≤ , Thus, conclusion I does not follow.
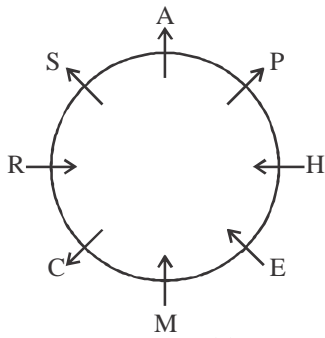Again, L > T
Thus, II does not follows.

73. (2) All are metals in solid states while mercury is a substance in liquid state.

74. (4) Rest contains that numerical digit which is the next number of alphabet.

75. (3) Rest are put according to their positions in alphabetical series. For example – D has 4th positions in alphabetical series. So, it's repeated 4 times.

76-79.
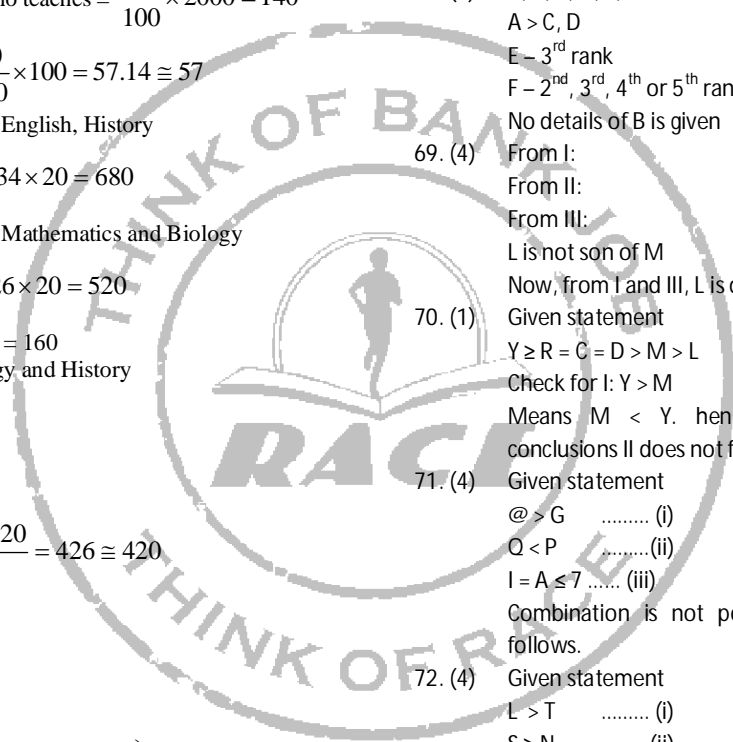
76. (2)	77. (1)	
78. (1)	79. (3)	
80. (4)		
81. (3)	82. (3)	
83. (2)	84. (4)	
85. (4)		

86. (4) All scooters are vehicles + No vehicle is a four-wheeler = A + E = E = No scooter is a four-wheeler. Hence neither I nor II follows.

87. (1) Some pens are pencils(1) → conversion → Some pencils are pens (I). hence I follows. Some pens are pencils + No pencils are black = 1+1 = No conclusion. Hence II does not follow.

88. (4) All professionals are doctor + No doctor is rich = A + E = E = No professional is rich conversion →No rich is professional (E).

89. (1) 1+1 = No conclusion. So possibilities are open (hence I follows) but certainties are not (hence II does not follow).

90. (1) All shares are debentures + No debentures is an equity = A + E = E = No share is an equity -> conversion. No equity is a share (E) Some equalities are not shares (O). hence I and II does not follow.

91. (5)	92. (3)	
93. (3)	94. (4)	
95. (1)		