△ RACE

IBPS RRB Officer Scale-I Preliminary Grand Test –IRP-180713

# HINTS & SOLUTIONS

ANSWER KEY

1. (1)	21. (2)	41. (2)	61. (1)
2. (5)	22. (3)	42. (1)	62. (5)
3. (3)	23. (2)	43. (3)	63. (4)
4. (2)	24. (5)	44. (4)	64. (1)
5. (1)	25. (3)	45. (1)	65. (3)
6. (5)	26. (2)	46. (4)	66. (5)
7. (1)	27. (1)	47. (5)	67. (4)
8. (3)	28. (4)	48. (1)	68. (1)
9. (2)	29. (2)	49. (1)	69. (5)
10. (4)	30. (4)	50. (3)	70. (5)
11. (4)	31. (1)	51. (1)	71. (2)
12. (1)	32. (4)	52. (2)	72. (5)
13. (2)	33. (3)	53. (5)	73. (4)
14. (3)	34. (3)	54. (4)	74. (5)
15. (5)	35. (1)	55. (3)	75. (3)
16. (5)	36. (5)	56. (2)	76. (3)
17. (3)	37. (5)	57. (2)	77. (2)
18. (5)	38. (1)	58. (5)	78. (4)
19. (5)	39. (3)	59. (2)	79. (5)
20. (1)	40. (2)	60. (2)	80. (5)

HINTS & SOLUTIONS

1. (1)

For-I From Venn diagram, Some Coffee which are Lemon tea are not Tea. Hence conclusion I can be concluded.
For-II From Venn diagram all those Black tea which are Lemon tea are not Tea. Hence conclusion II cannot be concluded

2. (5)

For-I From Venn diagram it is clear that some tree are herbs. Hence, conclusion I follows
For-II Since there is no direct relation between plants and herbs, Possibility case will hold true. Hence Conclusion II can be concluded

3. (3)

For-I Since there is no direct relation between elements Months and Weeks. Therefore, we cannot conclude that Some Months are Weeks.

For-II Since there is no direct relation between elements Months and Weeks. Therefore, we cannot conclude that No Months are Weeks.
Since the subject and predicate in both the conclusions are same and it is the case of some and no, therefore it will be 'either and or'.
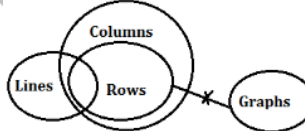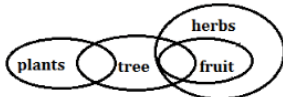
4. (2)
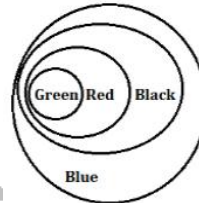
For-I From Venn diagram it is clear that all Red are Blue. Therefore, possibility case will not hold true. Hence, conclusion I cannot be concluded.
For-II From Venn diagram it is clear that all Green are Blue. Therefore Some Blue are Green is definitely true.

5. (1)

For-I Since Some Lines are Rows and No Row is Graph. Therefore, Some Lines are not Graphs is true. Hence Conclusion I can be concluded.
For-II Since there is no direct relation between elements Columns and Graphs. Therefore, No column is Graphs cannot be concluded. Hence conclusion II is not true.

6-10. No box is placed below Box 2 which is of White color. There are two boxes between White colored box and Box 8. More than three boxes are placed between Box 4 and the one which is of Red color. Box 4 is placed below the Red colored box. Green colored box is placed immediately below the Red colored box. Box 5 is placed immediately above Box 7 but neither of them is of Green color. Box 6 is of Orange color and is not placed above Box 8. Pink colored box is placed immediately above Orange colored box. We have three possibilities –

	Case 1		Case 2		Case 3
Box	**Color**	**Box**	**Color**	**Box**	**Color**
Box 5			Red		Red
Box 7	Red		Green		Green
	Green	Box 5		Box 5	
		Box 7		Box 7	
Box 8	Pink	Box 8	Pink	Box 8	
Box 6	Orange	Box 6	Orange	Box 4	Pink
Box 4		Box 4		Box 6	Orange
Box 2	White	Box 2	White	Box 2	White

Now, there is a gap of one box between Pink colored box and Black colored box. Neither Box 5 nor Box 7 is of Black color. This will eliminate Case 3. Yellow colored box is placed below Blue colored box. Now the arrangement will be -
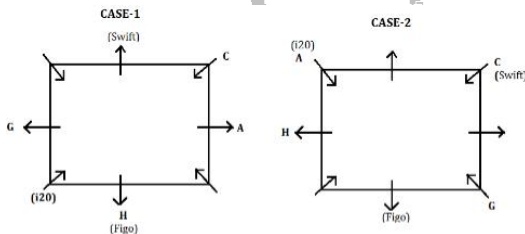
Case 1

Box	Color
Box 5	Blue
Box 7	Red
	Green
	Yellow
Box 8	Pink
Box 6	Orange
Box 4	Black
Box 2	White

Case 2

Box	Color
	Red
	Green
Box 5	Blue
Box 7	Yellow
Box 8	Pink
Box 6	Orange
Box 4	Black
Box 2	White

Now, Box 1 is placed above Box 3 and none of them is of Yellow color. This will eliminate Case 1. So the final arrangement will be –

Box	Color
Box 1	Red
Box 3	Green
Box 5	Blue
Box 7	Yellow
Box 8	Pink
Box 6	Orange
Box 4	Black
Box 2	White

6. (5)   7. (1)
8. (3)   9. (2)   10. (4)
11. (4)   I. J > C (False)   II. M < E (False)
12. (1)   I. U > O (True)   II. V < W (False)
13. (2)   I. Z ≥ P (False)   II. S ≤ C (True)
14. (3)   I. B < C (False)   II. C = B (False)
15. (5)   I. P < I (True)   II. S ≥ O (True)

16-20. C sits third to the left of the one who likes Figo. The one who likes Figo faces outside. Only two persons sit between C and H. The one who likes i20 sits on the immediate right of H. The one who likes Swift sits second to the right of G. G is neither an immediate neighbour of H nor of C. G does not like Figo. Only one person sits between A and the one who likes Swift.


D sits on the immediate left of the one who likes Creta. G does not like Creta. D does not like Swift. Therefore Case 1 will be cancelled as no place left for D. Now H likes Creta. E likes Brezza. E is not an immediate neighbour of A. Therefore, E sits between C and G. The one who likes Baleno is an immediate neighbour of E. The one who likes Liva is an immediate neighbour of F. So F likes Figo. Final arrangement will be----
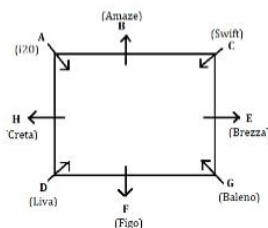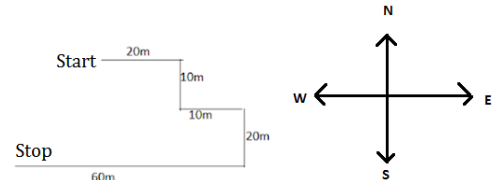

16. (5)   17. (3)
18. (5)   19. (5)   20. (1)
21. (2)

22. (3)   **L> J (175 cm) > N > M > K**
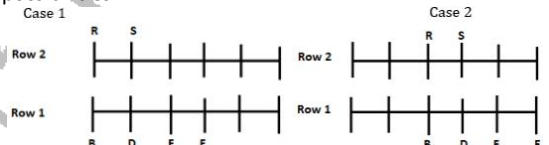23. (2)
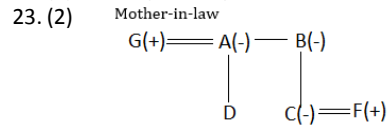
24. (5)   South-west


25. (3)   A C C I D E N T

26-30. E sits third to the right of B and one of them sits at an extreme end of the row. R faces B. R sits to the immediate right of S. D sits to the immediate left of F and neither of them sits at any extreme end. We got two possibilities –

Now, three persons sit between P and Q and one of them sits at an extreme end of the row. This will eliminate Case 1. P does not face E or F. U faces C. Now we will have two possibilities in Case 2 –
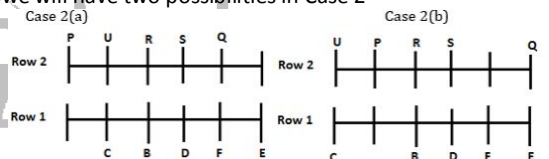
Now, R is not an immediate neighbor of U. This will eliminate Case 2(a). So the final arrangement will be –
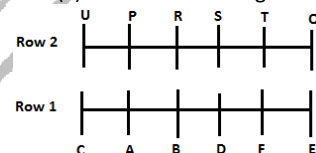
26. (2)   27. (1)
28. (4)   29. (2)   30. (4)
31. (1)   **New arrangement will be 587 256 174 438 362.**
32. (4)   33. (3)
34. (3)   35. (1)

36-40. Codes are as follows:

Element	Code
money	jo
making	qi
profit	ve
expected	lo
is	mn
number	pr
time	nj
hour/precious	ku/dq

36. (5)   37. (5)
38. (1)   39. (3)   40. (2)

41. (2)

19   26   52   115   239   454

+7   +26   +63   +124   +215

(2^3-1) (3^2-1) (4^3-1) (5^3-1) (6^3-1)

42. (1)

28   98   157   205   242   268

+70   +59   +48   +37   +26

−11   −11   −11   −11

43. (3)

16   8   12   30   105   472.5

×0.5   ×1.5   ×2.5   ×3.5   ×4.5

44. (4)

225   250   466   515   1027   1108

+25   +216   +49   +512   +81

45. (1)

64   64   32   96   24   120

×1   ÷2   ×3   ÷4   ×5

46. (4) Let the efficiency of Shalini be 2.
Then, efficiency of Surbhi = 3.

	Efficiency	Time
Shalini	2	3
Surbhi	3	2

1 = 6 days

Total work

Shalini   18
Surbhi   12   → 36 (LCM)

5 unit of work will be done by both in 2 days.

35 unit of work $= \frac{35}{5} \times 2 = 14$ days.

Remaining 1 unit of work will be done by Shalini in $\frac{1}{2}$ days

∴ Required time $= 14 + \frac{1}{2} = 14\frac{1}{2}$ days.

47. (5) Total two digits number = 90
Multiple of 3 = {12,15,18, … … 99} = 30
Multiple of 12 = {12,24,36, … … 96}= 8
Favorable events = 30 – 8 = 22
Required probability $= \frac{22}{90} = \frac{11}{45}$

48. (1) Number of female employees $= 50 \times \frac{60}{100} = 30$
∴ Number of male employees = 20
Let the average age of male employees be 7x
and average age of female employees = 6x
ATQ,
$32 \times 50 = 30 \times 6x + 7x \times 20$
$\Rightarrow x = \frac{32 \times 50}{320} \Rightarrow x = 5$
Average age of all the male employees = 35 years

49. (1) Let the total number of voters on the voter list be x
Valid votes $= \frac{x \times 75}{100} - 1850$
$= \frac{3x}{4} - 1850$
ATQ,
$\frac{51x}{100} + \frac{51x}{100} - 8600 = \frac{3x}{4} - 1850$
$\Rightarrow \frac{51x}{50} - 8600 = \frac{3x}{4} - 1850$
$\Rightarrow \frac{51x}{50} - \frac{3x}{4} = 6750$
$\Rightarrow \frac{27x}{100} = 6750 \Rightarrow x = 25000$
No. of votes that loser got $= \frac{51x}{100} - 8600$
$= \frac{51}{100} \times 25000 - 8600$
$= 4150$

50. (3) Let no. of items sold by A in Feb be x
$(x + 48) = \frac{80}{100} \times (36 + 54)$
x = 72 – 48 = 24
Items sold by A in Jan = 150 – 24 = 126

51. (1) Let total items sold by B in March be 'x '
Item sold by C in may =64
Atq,
$\frac{42 + x}{48 + 64} = \frac{1}{2}$
84 +2x = 112
$x = \frac{28}{2} = 14$

52. (2) Average of item sold in April is equal to average of
item sold in March by all sellers. So, total
item sold in march
is equal to total item sold in April
Total items sold by all sellers in March
= 32 + 28 + 48 + 56 = 164
No. of item sold by seller B in March
=164 – 48 – 24 – 74 = 18
Required percentage $= \frac{18}{36} \times 100 = 50\%$

53. (5) Average items sold by seller D in June
$= 64 \times \frac{150}{100} = 96$
Required difference = (96 + 32) – (48 + 32)
= 128 – 80 = 48

54. (4) Items sold by seller C in May
$= 81 \times \frac{1}{3} = 27$
Required ratio $= \frac{42+81}{27+36} = \frac{123}{63}$
= 41 : 21

55. (3) Let side of triangle = a
Side of square = b
∴ $a^2 = \frac{800}{100} \times 8 \times 4$
a = 16 m
∴ perimeter of triangle $= \frac{3}{8} \times 64$
= 24 m

56. (2) In this case we need to select the probability of
choosing one bag out of two given bags which will be $\frac{1}{2}$
So the required probability
$= \frac{1}{2}$(Red ball from bag 1 + Red ball from bag 2)
$= \frac{1}{2}\left(\frac{7}{14} + \frac{5}{14}\right)$
$= \frac{12}{28} = \frac{6}{14} = \frac{3}{7}$

57. (2) Let
$r_A \rightarrow$ radius of cylinders 'A'
$r_B \rightarrow$ radius of cylinders 'B'
$h_A \rightarrow$ height of cylinder 'A'
$h_b \rightarrow$ height of cylinder 'B'
ATQ,
$\frac{r_A}{r_B} = \frac{1}{2}$ & $\frac{h_A}{h_B} = \frac{2}{1}$
Required ratio $= \frac{\pi r_A^2 h_A}{\pi r_B^2 h_B} = \left(\frac{1}{2}\right)^2 \times \frac{2}{1} = \frac{1}{2}$

58. (5) In 6 min both pipes fill = (50 + 60) × 6
= 660 m³
∴ required time $= \frac{(1260-660)}{60}$
= 10 min

59. (2) CP of article $= \frac{100}{260} \times 520$
= Rs 200
∴ S.p. of article $= \frac{156}{100} \times 200$
= Rs 312

60. (2) Total number of students participated in singing from
both schools = 35 + 25 = 60
Required percent $= \frac{60}{20+50} \times 100 = 85\frac{5}{7}\%$

61. (1) Required ratio = $\frac{35+15}{35+20} = \frac{50}{55} = 10 : 11$

62. (5) Total number of students participated from school A = 165
Total number of students participated from school B = 145
Required Difference = 165 – 145 = 20

63. (4) Required ratio = $\frac{\frac{40}{100} \times 165}{\frac{60}{100} \times 145}$

$= \frac{66}{87} = \frac{22}{29}$

64. (1) Average number of students from school A who participated in Dancing, Drama and Painting together

$= \frac{40 + 15 + 50}{3} = \frac{105}{3} = 35$

Average number of students from school B who participated in Singing, Drama and Photography together

$= \frac{35 + 35 + 20}{3} = \frac{90}{3} = 30$

Required difference = 35 − 30 = 5

65. (3) Total number of students in school A
$= \frac{165 \times 100}{75} = 220$
Total number of students in school B
$= \frac{95}{100} \times 220$
= 209
Required number = 209 – 145 = 64

66. (5) I. $x^2 - 7x + 6 = 0$
$x^2 - 6x - x + 6 = 0$
$(x - 6)(x - 1) = 0$
x = 1, 6
II. $2y^2 - 8y + 6 = 0$
$\Rightarrow y^2 - 4y + 3 = 0$
$\Rightarrow y^2 - 3y - y + 3 = 0$
$\Rightarrow (y - 1)(y - 3) = 0$
$\Rightarrow y = 1, 3$
No relation

67. (4) I. $3x^2 + 13x - 16 = 0$
$\Rightarrow 3x^2 + 16x - 3x - 16 = 0$
$\Rightarrow (3x + 16)(x - 1) = 0$
$\Rightarrow x = 1, -\frac{16}{3}$
II. $y^2 - 5y + 4 = 0$
$\Rightarrow y^2 - 4y - y + 4 = 0$
$\Rightarrow (y - 4)(y - 1) = 0$
$\Rightarrow y = 4, 1$
$y \geqslant x$

68. (1) I. $x^2 + 11x + 30 = 0$
$\Rightarrow x^2 + 5x + 6x + 30 = 0$
$\Rightarrow (x + 5)(x + 6) = 0$
$\Rightarrow x = -5, -6$
II. $y^2 + 17y + 72 = 0$
$\Rightarrow y^2 + 8y + 9y + 72 = 0$
$\Rightarrow (y + 8)(y + 9) = 0$
$\Rightarrow y = -8, -9$
x > y

69. (5) I. x + 3y = 8
II. 2x + y = 6
Multiplying equation (i) by 2 and then substracting (ii) from (i) we get
x = 2, y = 2

70. (5) I. $2x^2 - 9x + 10 = 0$
$\Rightarrow 2x^2 - 4x - 5x + 10 = 0$
$\Rightarrow 2x(x - 2) - 5(x - 2) = 0$
$\Rightarrow (x - 2)(2x - 5) = 0$
$x = 2, \frac{5}{2}$
II. $3y^2 - 14y + 16 = 0$
$\Rightarrow 3y^2 - 6y - 8y + 10 = 0$
$\Rightarrow 3y(y - 2) - 8(y - 2) = 0$
$\Rightarrow (y - 2)(3y - 8) = 0$
$\Rightarrow y = 2, \frac{8}{3}$
No relation

71. (2)

	Men	:	Women	:	Child
Work	5	:	3	:	2
Number	8	:	12	:	16
wage	40	:	36	:	32
	10	:	9	:	8

Total wage of men = $5400 \times \frac{10}{27} = 2000$
Total wage of women = $5400 \times \frac{9}{27} = 1800$
Total wage of children = $5400 \times \frac{8}{27} = 1600$
Wage of a man = $\frac{2000}{8} = 250$
Wage of a woman = $\frac{1800}{12} = 150$
Wage of a child = $\frac{1600}{16} = 100$
Total wage of 10 man 12 women
= 10 × 250 + 12 × 150
= 2500 + 1800 = Rs 4300

72. (5) Let Ashu works for a hours
Therefore, Abhi works for 1.4 hours for the same work
Ratio of efficiency
Ashu : Abi
7 : 5
$\frac{7a \times x}{5a \times (x + 4)} = \frac{7}{9}$
9x = 5x + 20
4x = 20
x = 5
Total work = 7x + 5x + 20 = 80 unit
Abhi alone will complete the work in = $\frac{80}{5} = 16$ days

73. (4) Let the present age of son be x yrs
$\therefore$ present age of mother = 3x yrs
After 5 years
$(3x + 5) = \frac{5}{2}(x + 5)$
x = 25 – 10 = 15
10 years hence from present,
$= \frac{3 \times 15 + 10}{15 + 10} = \frac{55}{25} = 2.2$ times

74. (5) Let sum lent at 13% be Rs x
Therefore, sum lent at 17% be Rs (1250-x)
Atq,
$\frac{x \times 13 \times 3}{100} + \frac{(1250 - x) \times 17 \times 3}{100} = 525$
$\frac{39x}{100} - \frac{51x}{100} + \frac{63750}{100} = 525$
12x = 63750 − 52500
x = Rs 937.5
$\therefore$ sum lent at 13% is Rs 937.5
& lent at 17% is Rs 312.5
$\therefore$ required ratio = $\frac{937.5}{312.5} = 3 : 1$

75. (3) Curved surface area of hemisphere
$= 2\pi r^2 = 308$ [r → radius of hemisphere]
= 7 cm
Height of cylinder (h) = 7 cm
Radius of cylinder (R) = $\frac{7}{7} \times 3 = 3$ cm
Total surface area of cylinder
= 2πR (R + h)
= 2 × 3 × 10π = 60 π cm²

76. (3) $? \simeq 21^2 + 32^2 - 40^2 + 27^2$
$\simeq 441 + 1024 - 1600 + 729$
$\simeq 594$

77. (2) $\frac{500}{100} \times ? \simeq \frac{35}{100} \times 400 + \frac{50}{100} \times 250$
$\Rightarrow ? \simeq \frac{265}{5}$
$\Rightarrow ? \simeq 53$

78. (4) $\frac{?}{10} \simeq 12 \div 3 + 125 \div 5$
$\Rightarrow ? \simeq 290$

79. (5) $\frac{71}{100} \times ? \simeq 36 + 26 + 9$
$\Rightarrow ? \simeq 100$

80. (5) $? \simeq \frac{3700}{100} + \frac{2640}{30} - \frac{10}{12} \times 96$
$\simeq 37 + 88 - 80$
$\simeq 45$