IBPS RRB Officer Scale-I Preliminary Grand Test –IRP-180828
HINTS & SOLUTIONS

## ANSWER KEY

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

HINTS & SOLUTIONS

1. (4) I. K ≤ T (False)
    II. J > S (False)
2. (2) I. A > U (False)
    II.J < S (True)
3. (5) I. F > E (True)
    II. P < A (True)
4. (3) I. G > J (False)
    II.H = J (False)
5. (4) I. A > C (False)
    II. W < B (False)

6-10. E sits second to the left of F and belongs to Mumbai. Two persons live between E and the one who belongs to Kolkata. G belongs to Kochi and faces the one who belongs to Mumbai. The one who belongs to Hyderabad sits second to the right of the one who belongs to Kolkata. The one who belongs to Hyderabad is an immediate neighbor of the one who belongs to Delhi. The one who belongs to Bangalore faces A. A does not belong to Hyderabad and delhi. We have two possibilities-
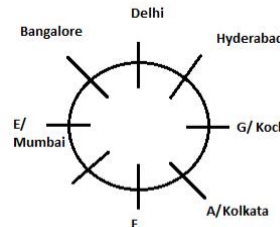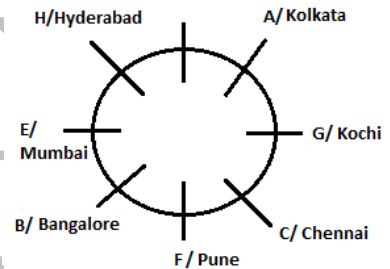

Case 1 / Case 2
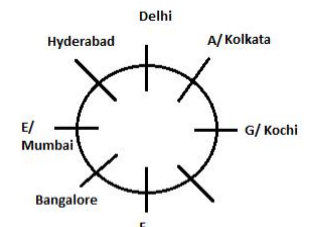
Now, C belongs to Chennai. H sits second to the left of B. D does not sit third to the right of A. This will eliminate Case 1. So the final arrangement will be –

6. (4)   7. (1)
8. (3)   9. (3)   10. (5)

11-15. In the arrangement words are arranged along with a number in each step. As for words, they are arranged in reverse alphabetical order on the left end while the numbers are arranged in such a manner that the number of letters present in the word comes after the word.

Input: 6 proud hot 9 extreme following 4 rush 7 5 splash 3
Step I: splash 6 proud hot 9 extreme following 4 rush 7 5 3
Step II: rush 4 splash 6 proud hot 9 extreme following 7 5 3
Step III: proud 5 rush 4 splash 6 hot 9 extreme following 7 3
Step IV: hot 3 proud 5 rush 4 splash 6 9 extreme following 7
Step V: following 9 hot 3 proud 5 rush 4 splash 6 extreme 7
Step V I: extreme 7 following 9 hot 3 proud 5 rush 4 splash 6

11. (2)   12. (2)
13. (4)   14. (4)   15. (2)

16-20. B sits third to the right of E and one of them sits at an extreme end of the row. One person sit between S and P and neither of them sits at any end. The pair who likes Badminton sits to the immediate left of B. C sits second to the right of E. S likes Cricket. D likes football and sits at one of the end. T sits at one of the end and does not like Football. Q does not like Football. We have three possibilities-
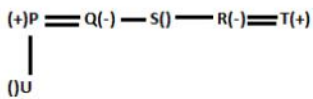
Case 1
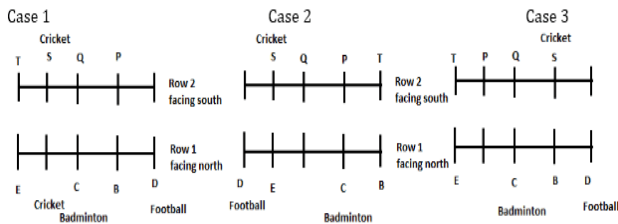
Case 2

Case 3

Now, Q does not face A. This will eliminate Case 2. Now, either of the pair who sits at the extreme ends does not like Hockey. The pair who likes Tennis does not sit to the immediate right of P. This will eliminate Case 3. So the final arrangement will be-
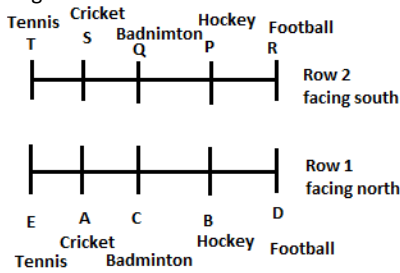

16. (2)
17. (3)
18. (4)
19. (2)
20. (5)
21. (5) From both I and II, R is sister-in-law of P.

22. (3) From I, Tejas is in south direction with respect to his starting point.
From II, Tejas is in north direction with respect to his starting point.
Hence, Either I alone or II alone is sufficient to answer the question

23. (5) From I and II both it is clear that Aayush join his duty on 25th of the month.

24. (5) From I, Q > S, T and Q is not the costliest
From II, R < Q, T and R is not the cheapest
From I and II, we get P > Q > T > R > S
So S is the cheapest.

25. (5) From I, J sits at one end of the row and second to the right of M. K faces north.
From II, N sits to the immediate left of K, who is an immediate neighbor of M.
From I and II we get the position of L with respect to K,
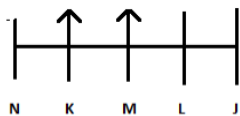
26-30. H lives on floor 4 and F lives to the east of H. There are two floors between floors of F and P. There is a gap of two floors between J and V, who does not live on top floor. J does not live on same flat number as of P. So, there will be two possibilities----

Case-1				Case-2		
Floor	Flat 1	Flat 2		Floor	Flat 1	Flat 2
5		J		5		J
4	H	F		4	H	F
3				3		
2		V		2	V	
1	P			1		P

G and T lives on same floor. G lives in same flat number as of J. R lives below G but not with V.

Case-1				Case-2		
Floor	Flat 1	Flat 2		Floor	Flat 1	Flat 2
5		J		5		J
4	H	F		4	H	F
3	T	G		3	G	T
2		V		2	V	
1	P	R		1	R	P

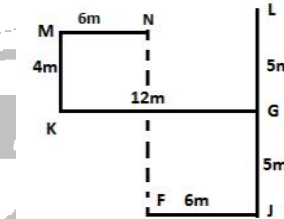S lives above U but not on flat-1. By this condition Case-1 will be cancelled and we got the final arrangement.

Floor	Flat 1	Flat 2
5	J	S
4	H	F
3	G	T
2	V	U
1	R	P

26. (3)
27. (4)
28. (1)
29. (2)
30. (3)

31-32.
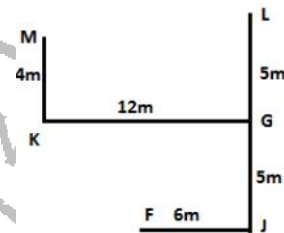
31. (4) South east
32. (3) Distance $= \sqrt{12^2 + 5^2} = 13m$
33. (3) Distance $= 5 + 4 = 9m$

34. (4)

O	U	R	S	E	L	F
#	7	9	5	@	$	2

35. (2)

P A R T I C L E

36. (3)
37. (2)

38-40.
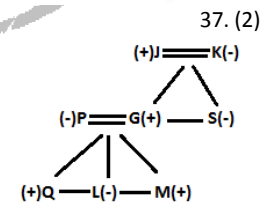
38. (1)
39. (3)
40. (4)
41. (2) Series is

$8000 \times \frac{2}{5} = 3200$,

$3200 \times \frac{2}{5} = 1280$,

$1280 \times \frac{2}{5} = 512$,

$512 \times \frac{2}{5} = 204.8$,

$204.8 \times \frac{2}{5} = 81.92$

So, ? $= 204.8 \times \frac{2}{5} = 81.92$

42. (5) The pattern is-
$33 + 288 = 321$
$321 + 144 = 465$
$465 + 72 = 537$
$537 + 36 = 573$
$573 + 18 = 591$
$591 + 9 = 600$

43. (5) Series is
$374 - 19 = 355$,
$355 - 38 = 317$,
$317 - 57 = 260$,
$260 - 76 = 184$,
$184 - 95 = 89$
So,
$? = 317 - 57$
$= 260$

44. (4) Series is
$30 \times 1.5 = 45$,
$45 \times 2 = 90$,
$90 \times 2.5 = 225$,
$225 \times 3 = 675$,
$675 \times 3.5 = 2362.5$,
So,
$? = 675 \times 3.5 = 2362.5$

45. (3) Series is $3 + (2^2 + 1) = 8$,
$8 + (3^2 - 1) = 16$,
$16 + (4^2 + 1) = 33$,
$33 + (5^2 - 1) = 57$,
$57 + (6^2 + 1) = 94$
So,
$? = 57 + (6^2 + 1)$
$= 57 + 37$
$= 94$

46. (1) Quantity of gold in final alloy mixture
$= \frac{6 \times 3}{5} + \frac{18 \times 2}{5}$
$= 3.6 + 7.2$
$= 10.8$ kg
Quantity of silver in final alloy mixture
$= 24 - 10.8 = 13.2$ kg
Required ratio $= \frac{10.8}{13.2} = \frac{9}{11}$

47. (2) Required probability $= \frac{6}{14} = \frac{3}{7}$

48. (3) Let two numbers are x and y respectively
According to question.
$\frac{70 \times x}{100} = \frac{30 \times y}{100}$
$\Rightarrow \frac{x}{y} = \frac{3}{7}$
$\Rightarrow x = \frac{3}{7}y$ ...(i)
Now Average of numbers $= \frac{x+y}{2} = 24$
$\Rightarrow x + y = 48$ ...(ii)
Put value of x from (i) into (ii)
$\Rightarrow \frac{3}{7}y + y = 48$
$\Rightarrow \frac{10y}{7} = 48$
$\Rightarrow y = 33.6$
$\Rightarrow x = 48 - 33.6 = 14.4$
Larger number = 33.6

49. (1) S.I. for one year is Rs. 2000
Rate of interest $= \frac{180}{2000} \times 100 = 9\%$
Required S.I. $= \frac{9000 \times 3 \times 9}{100} = $ Rs 2430

50. (3) Let the original CP be Rs. $100x$
CP at which Saurav buys
$= 160x \times \frac{85}{100} \times \frac{90}{100}$
$= $ Rs. $\frac{612x}{5}$
Selling price on which Saurav sold this scooter
$= 100x \times \frac{132}{100}$
$= 132x$
ATQ,
$\Rightarrow 132x - \frac{612x}{5} = Rs. 4800$
$\Rightarrow \frac{48x}{5} = 4800$
$\Rightarrow x = 500$
Original CP $= 500 \times 100$
$= $ Rs. 50,000

51. (2) Total casual shoes sold by store on Monday and Friday together
$= \frac{240}{48} \times 32 + \frac{340}{68} \times 22$
$= 160 + 110$
$= 270$
Total sport shoes sold by store in Wednesday & Thursday together
$= \frac{420}{35} \times 20 + \frac{360}{24} \times 20$
$= 240 + 300$
$= 540$
Required percentage $= \frac{540-270}{540} \times 100$
$= \frac{270}{540} \times 100$
$= 50\%$

52. (3) Average number of casual shoes sold by store on Tuesday & Thursday
$= \frac{\frac{320}{40} \times 48 + \frac{360}{24} \times 56}{2}$
$= \frac{384 + 840}{2}$
$= 612$
Average number of formal shoes sold by store on Thrusday & Friday
$= \frac{360 + 340}{2}$
$= \frac{700}{2}$
$= 350$
Required difference $= 612 - 350 = 262$

53. (1) Total casual shoes sold by store on Sunday
$= \frac{360}{24} \times 56 \times \frac{125}{100}$
$= 1050$
Total sport shoes sold by store on Sunday
$= \frac{340}{68} \times 10 \times \frac{400}{100}$
$= 200$
Required sum $= 1050 + 200 = 1250$

54. (3) Total sport shoes sold on Wednesday
$= \frac{420}{35} \times 20$
$= 240$
Total sport shoes sold on Monday & Tuesday together
$= \frac{240}{48} \times 20 + \frac{320}{40} \times 12$
$= 100 + 96$
$= 196$
Required percentage $= \frac{240-196}{196} \times 100$
$= \frac{44}{196} \times 100$
$= 22\frac{22}{49}\%$
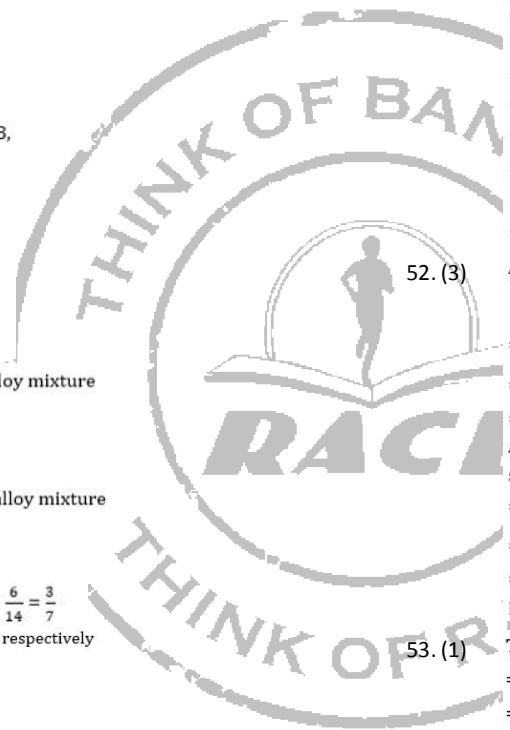
55. (2) Required ratio = $\dfrac{\frac{240}{48}\times 100}{\frac{360}{24}\times 100}$

$= \dfrac{500}{1500}$

$= 1:3$

56. (2) Number of students who joined the college in year 2013 and 2014 together
= 225 + 400 = 625
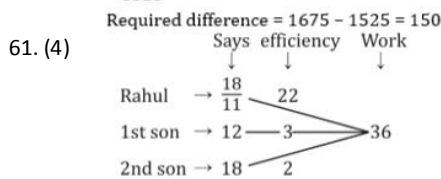Number of students who left the college in year 2012 and 2013 together
= 250 + 350
= 600
Required percentage = $\dfrac{625-600}{600}\times 100$

$= \dfrac{25}{600}\times 100$

$= 4\frac{1}{6}\%$

57. (5) For year 2011 = $\dfrac{300-200}{200}\times 100 = 50\%$

For year 2012 = $\dfrac{50}{300}\times 100 = 16\frac{2}{3}\%$

For year 2013 = $\dfrac{100}{250}\times 100 = 40\%$

For year 2014 = $\dfrac{200}{350}\times 100 = \frac{400}{7}\% = 57\frac{1}{7}\%$

For year 2015 = $\dfrac{125}{150}\times 100 = \frac{250}{3} = 83\frac{1}{3}\%$

Answer → 2015

58. (1) Required average

$= \dfrac{250+200+300+225+400+300}{6} = 279\frac{1}{6}$

59. (3) Number of students studying in year 2012
= 2500 + 250 + 200 + 300 − 200 − 300 − 250
= 2500
Number of students studying in year 2013
= 2500 + 225 − 350 = 2375
Required % = $\dfrac{(2500-2375)}{2500}\times 100$

$= \dfrac{125}{2500}\times 100$

$= 5\%$

60. (2) Total number of students who joined the college in all the six years = 1675
And, the total number of students who left the college in all the six years
= 200 + 300 + 250 + 350 + 150 + 275
= 1525
Required difference = 1675 − 1525 = 150

61. (4)
```
        Says   efficiency   Work
          ↓         ↓         ↓
Rahul  → 18/11 ⟍ 22
               ⟍
1st son →  12 — 3 ⟍
                   ⟍ 36
2nd son →  18 — 2 ⟋
```
Rahul efficiency is twice than his all son together
∴ Rahul efficiency → 22
All 3 son efficiency → 11
∴ efficiency of 3rd child = 11 − 3 − 2 = 6
∴ 3rd child can complete work alone
$= \dfrac{36}{6} = 6$ days

62. (1) $P \times \dfrac{130}{100} = Q$

= 1.3P = Q   ...(i)

$P \times \dfrac{90}{100} \times \dfrac{120}{100} = Q - 44$

1.08P = Q − 44   ...(ii)
Solving (i) & (ii)
P = 200
Q = 200 × 1.3 = Rs 260

63. (3) Let total capital be Rs 100
When
Profit = 8%
Abhi = $8 \times \dfrac{3}{8} = 3$ unit

When profit = 16%
Abhi = $16 \times \dfrac{3}{8} = 6$ unit

Difference = 3 unit → 420
1 unit = $\dfrac{420}{3} = Rs\ 140$

∴ Total capital = 100 × 140 = Rs 14,000

Abhi	:	Rahul + Rola
3	:	5

8 unit = 14,000
1 unit = Rs 1750
∴ Capital invested by Rola = $\dfrac{1750\times 5}{2} = Rs\ 4375$

64. (4) Let principal be Rs P
P + SI (for 5 years) = 5,000
P + SI (for 7 years) = 5,400
∴ SI for 2 years = 400
SI for 1 years = Rs 200
∴ P = 5000 − 200 × 5
= Rs 4000
∴ Rate = $\dfrac{200\times 100}{4000\times 1}$

= 5%

65. (2) Lets total number of fruits seller have = 42x
Total number of mangoes seller have
$= 42x \times \dfrac{2}{7} = 12x$

Total number of orange seller have
$= 42x \times \dfrac{1}{6} = 7x$

ATQ,
12x + 7x + 46 = 42x
23x = 46
x = 2
Total number of fruit seller have
= 12 × 2 + 7 × 2 + 46
= 84

66. (2)
I. $16x^2 + 32x - 4x - 8 = 0$
     $16x(x + 2) - 4(x + 2) = 0$
     $(16x - 4)(x + 2) = 0$
     $x = \dfrac{1}{4}, -2$

II. $y^2 + 8y + 2y + 16 = 0$
     $y(y + 8) + 2(y + 8) = 0$
     $(y + 2)(y + 8) = 0$
     $y = -2, -8$
     $x \geq y$

67. (5)
I. $x^2 + 16x + 8x + 128 = 0$
     $x(x + 16) + 8(x + 16) = 0$
     $(x + 16)(x + 8) = 0$
     $x = -16, -8$

II. $y^2 + 24y + 6y + 144 = 0$
     $y(y + 24) + 6(y + 24) = 0$
     $(y + 24)(y + 6) = 0$
     $y = -24, -6$
     No relation

68. (5)
I. $x^2 - 7x - 8x + 56 = 0$
     $x(x - 7) - 8(x - 7) = 0$
     $(x - 7)(x - 8) = 0$
     $x = 7, 8$

II. $y^2 - 12y - 7y + 84 = 0$
     $y(y - 12) - 7(y - 12) = 0$
     $(y - 12)(y - 7) = 0$
     $y = 12, 7$
     no relation

69. (2) **Quantity I—**

Let five successive odd numbers of P_1 series

$= a, (a + 2), (a + 4), (a + 6), (a + 8)$

Given,

$\frac{a+(a+2)+(a+4)+(a+6)+(a+8)}{5} = 11$

$5a + 20 = 55$

$a = 7$

Second number of P_2 series

$= (a + 6)$

$= 13$

So P_2 series will be = 11, 13, 17, 19, 23

Required average of P_2 series

$= \frac{(11+13+17+19+23)}{5}$

$= 16.6$

Quantity II —

Total of five number = 18.8 × 5 = 94

Third number = 94 – (14.5 × 2 + 23 × 2)

= 94 – (29 + 46)

= 19

So, Quantity I < Quantity II

70. (1) **Quantity I—**

Let total male and female in town in the year 2016 be $6x$ and $5x$ respectively

$6x \times \frac{5}{4} + 5x \times \frac{6}{5} = 5508$

$7.5x + 6x = 5508$

$x = \frac{5508}{13.5}$

$x = 408$

Total population in the year 2016

$= 408 \times 11$

$= 4488$

Quantity II —

Let total students in IIT Mumbai in the year 2014 & 2015 be $4x$ and $7x$ respectively —

ATQ—

$7x \times \frac{120}{100} = 7560$

$x = 900$

Total students in IIT Mumbai in the year 2014

$= 900 \times 4$

$= 3600$

So, Quantity I > Quantity II

71. (1) Total bike sold by all shopkeeper

$= \frac{1250}{25} \times 100 = 5000$

Total Bajaj bike sold by A & E together

$= 5000 \times \frac{18}{100} \times \frac{3}{5} + 1250 \times \frac{2}{5}$

$= 540 + 500 = 1040$

Total Hero bike sold by A & B together

$= 5000 \times \frac{18}{100} \times \frac{2}{5} + 5000 \times \frac{22}{100} \times \frac{3}{10}$

$= 360 + 330 = 690$

Required difference = 1040 – 690 = 350

72. (3) Required percentage

$= \frac{5000 \times \frac{22}{100} \times \frac{7}{10} - 5000 \times \frac{15}{100} \times \frac{7}{10}}{5000 \times \frac{22}{100} \times \frac{7}{10}} \times 100$

$= \frac{770-525}{770} \times 100 = \frac{24500}{770} = \frac{350}{11}$

$= 31\frac{9}{11}\%$

73. (3) Total bike sold by C in 2017

$= \frac{1250}{25} \times 20 \times \frac{120}{100} = 1200$

Total bike sold by D in 2017

$= \frac{1250}{25} \times 15 \times \frac{140}{100} = 1050$

Required percentage $= \frac{1050}{1200} \times 100 = 87.5\%$

74. (2) Required ratio $= \frac{18 \times \frac{8}{5}}{20 \times \frac{9}{14}}$

$= 21 : 25$

75. (1) Required total

$= \frac{1250}{25} \times 22 \times \frac{7}{10} + \frac{1250}{25} \times 15 \times \frac{7}{10} + 1250 \times \frac{3}{5}$

$= 770 + 525 + 750 = 2045$

76. (2) $\frac{42}{100} \times 650 + (3)^5 - \sqrt{?} \approx 2 \times (4)^4$

$273 + 243 - \sqrt{?} = 2 \times 256$

$\sqrt{?} = 516 - 512$

$\sqrt{?} = 4$

$? = 16$

77. (4) $\frac{?}{100} \times 750 + (15)^2 - \frac{72}{100} \times 450 \approx (8)^2 + (2)^5$

$\frac{?}{100} \times 750 + 225 - 324 = 64 + 32$

$\frac{?}{100} \times 750 = 96 + 99$

$? = \frac{195 \times 100}{750}$

$? = 26$

78. (5) $\frac{728}{?} \times 15 + \frac{24}{100} \times 550 - 38 \approx (22)^2$

$\frac{728 \times 15}{?} = 484 + 38 - 132$

$? = \frac{728 \times 15}{390}$

$? = 28$

79. (1) $36 \times ? + 33 \times 4 + \sqrt{441} \approx (21)^2$

$36 \times ? = 441 - 21 - 132$

$? = \frac{288}{36}$

$? = 8$

80. (2) $568 + 330 - (12)^2 \approx \frac{8}{100} \times ?$

$\frac{8}{100} \times ? = 898 - 144$

$? = \frac{754 \times 100}{8}$

$? = 9425$