IBPS RRB Officer Scale-I Preliminary Grand Test –IRP-180825

HINTS & SOLUTIONS

ANSWER KEY

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

HINTS & SOLUTIONS

1. (4) I. $M < O$ (False) II. $L = O$ (False)
2. (2) I. $N > V$ (False) II. $R > Y$ (True)
3. (1) I. $S \leq C$ (True) II. $L > N$ (False)
4. (5) I. $G > E$ (True) II. $F \leq Y$ (True)
5. (4) I. $S > W$ (False) II. $P \leq R$ (False)

6-10. Three boxes are placed between box O and box M, which contains 48 coins. N contains 50 coins and is placed immediately above O. The box which contains 50 coins is not placed below the box which contains 48 coins. There is only one box which is placed between box N and box Q, which contains 60 coins. The box which contains highest number of coins is not placed on top. Only two boxes are placed between box S and box T, which contains 25 coins. Box S has less coins than box T. Box S is not placed at an odd numbered position when counted from bottom to top. Box P contains 5 coins. We have following possibilities-

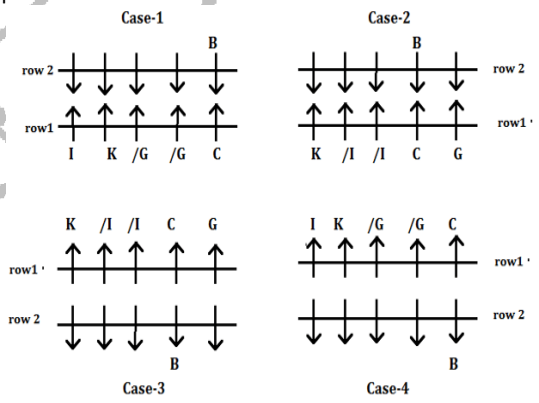
Case 1			Case 2		
Box No.	Box	No. of coins	Box No.	Box	No. of coins
8			8	N	50
7	N	50	7	O	
6	O		6	Q	60
5	Q	60	5		
4	S	18	4	S	18
3			3	M	48
2	M	48	2		
1	T	25	1	T	25

Now, box P is placed somewhere below box S. Box R contains more coins than box O. The box which contains 35 coins will not be placed on top. So the final arrangement will be-

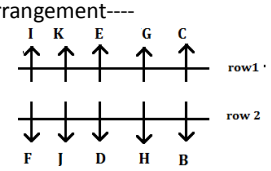
Box No.	Box	No. of coins
8	N	50
7	O	30
6	Q	60
5	R	35
4	S	18
3	M	48
2	P	5
1	T	25

6. (2) 7. (4)
8. (2) 9. (4) 10. (2)

11-15. In the given seating arrangement members of each row sits opposite to each other, which means either they can face each other or not. C sits opposite to B and 3rd right to K. I is to the left of G but not immediate left. So we get 4 possible cases----



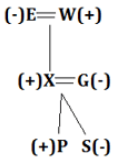
Two people sit between F and H. G does not sit opposite to D nor faces H. J sits 2nd to the right of H. By this condition case 1and 2 get cancelled, also D does not sit at any of the end therefore, case 3 also get cancelled and we got the final arrangement----



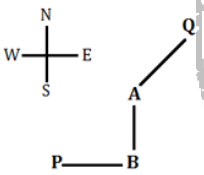
11. (3) 12. (4)
13. (4) 14. (1) 15. (1)

16-20. Let us understand the logic behind it- In each step one word and one number is arranged simultaneously, the numbers are arranged from right end and the words are arranged from left. For words- One word will be arranged in each step. The word which comes last according to alphabetical series is arranged first from left and then all others words are arranged in the same manner.
For numbers- The numbers are arranged in decreasing order. The highest number is arranged first on right end and then the 2nd highest is arranged to right most end in the next step and so on.
Input: **roast 32 59 passion 44 treasure door 79 bill 11**
Step I: treasure roast 32 59 passion 44 door bill 11 79
Step II: roast treasure 32 passion 44 door bill 11 79 59
Step III: passion roast treasure 32 door bill 11 79 59 44
Step IV: door passion roast treasure bill 11 79 59 44 32
Step V: bill door passion roast treasure 79 59 44 32 11

16. (2) 17. (4)
18. (3) 19. (2) 20. (3)
21. (5) From I and II S is granddaughter of E

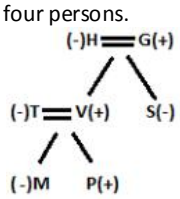


22. (2) From II S is tallest.
S > T > P > R > Q
23. (1) From I Sum is coded as 'ta'
24. (2) From II P is in South-west of Q



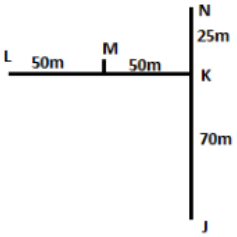
25. (4) From I and II we cannot determine the directions of all four persons.

26-28.



26. (2) 27. (1) 28. (1)

29-30.



29. (1) 30. (4)

31-35. M speaks Maithili and is preparing for UPSC. P speaks Punjabi. L speaks English and does not prepare for UPSC. K is preparing for Banking and neither speaks Hindi nor Telugu. N does not speak Tamil. We will have following conditions-

Students	Exams	Language
J		
K	Banking	~~Hindi, Telugu~~
L	~~UPSC~~	English
M	UPSC	Maithili
N		~~Tamil~~
O		
P		Punjabi

P prepares only with the one who speak Tamil. J is preparing with the one who speaks Hindi. The one who speaks Tamil is not preparing for Banking. So the final arrangement will be –

Students	Exams	Language
J	UPSC	Telugu
K	Banking	Bengali
L	Banking	English
M	UPSC	Maithili
N	UPSC	Hindi
O	SSC	Tamil
P	SSC	Punjabi

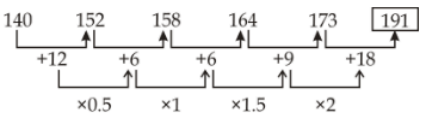
31. (3) 32. (4)
33. (5) 34. (5) 35. (2)

36-40.

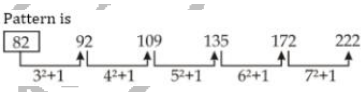
Element	Code
Bus	mj
Travel/road	un/lk
train	ka
miles	ro
track	sa
platform	wl
seat	mo
transport	nj

36. (3) 37. (4)
38. (1) 39. (3) 40. (5)

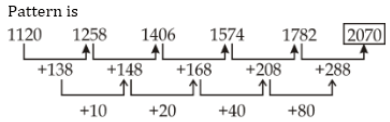
41. (3) Pattern is



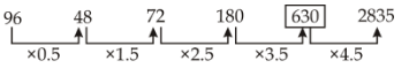
42. (1) Pattern is



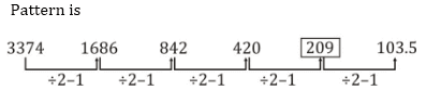
43. (3) Pattern is



44. (4) Pattern is



45. (2) Pattern is



46. (2) Let the fraction be $\frac{x}{y}$
ATQ,
$\frac{2.5x}{0.75y} = \frac{8}{9}$
$\Rightarrow \frac{x}{y} = \frac{4}{15}$

47. (4) Total age of 60 students = 60 × 21 = 1260 yrs.
Actual age of 60 students = 1260 − 54 + 24 = 1230 yrs.
Actual avg. age = $\frac{1230}{60}$ = 20.5 yrs

48. (3) Let the length of a rectangle be 154x cm and breadth be 13x cm.
ATQ,
$2(154x + 13x) = 668$ cm
$\Rightarrow 167x = 334$
$\Rightarrow x = 2$ cm
$\therefore$ length = 308 cm
And, breadth = 26 cm
Radius of circle = $\frac{308}{4} = 77$ cm
Circumference of circle = $2 \times \frac{22}{7} \times 77 = 484$ cm
Side of square = $\sqrt{484} = 22$ cm.

49. (4) No. of male = $\frac{15}{5} \times 3 = 9$
No. of female = 15 – 9 = 6
No. of ways to select 2 employees = ${}^{15}C_2$
Male only = ${}^{9}C_2 = 36$
Probability to select male only = $\frac{36}{105} = \frac{12}{35}$
Required probability = $1 - \frac{12}{35} = \frac{23}{35}$

50. (1) Let cost price of article be Rs 100x
Marked price = $100x \times \frac{152}{100} = 152x$
Selling price after single discount of 30%
$= 152x \times \frac{70}{100} =$ Rs 106.4x
Selling price after two successive discounts of 25% and 12%
$= 152x \times \frac{75}{100} \times \frac{88}{100} =$ Rs 100.32x
ATQ,
106.4x – 100.32x = 76
x = 12.5
$\therefore$ Cost price of article = Rs 1250

51. (1) Literate female in city B
$= 8000 \times \frac{30}{100} \times \frac{20}{100} = 480$
Literate male in city B $= 8000 \times \frac{30}{100} - 480$
$= 1920$
Illiterate female in city B $= 8000 \times \frac{1}{2} - 480 = 3520$
Required ratio $= \frac{1920}{3520} = 6 : 11$

52. (5) Total males in city D & E together $= 7000 \times \frac{3}{7} + 4500 \times \frac{1}{3}$
$= 3000 + 1500 = 4500$
Total females in city B & C together $= 8000 \times \frac{1}{2} + 5000 \times \frac{2}{5}$
$= 4000 + 2000 = 6000$
Required percentage $= \frac{6000-4500}{6000} \times 100$
$= 25\%$

53. (2) Illiterate males in city A who died due to alcohol consumption
$= \frac{1}{2}\left[12000 \times \frac{75}{100} \times \frac{25}{100}\right]$
$= 1125$
Females in city B
$= 8000 \times \frac{1}{2} = 4000$
Required percentage $= \frac{1125}{4000} \times 100 = 28\frac{1}{8}\%$

54. (4) Total literate in city A & E together $= 12000 \times \frac{25}{100} + 4500 \times \frac{20}{100}$
$= 3000 + 900 = 3900$
Total illiterate in city B & D together
$= 8000 \times \frac{70}{100} + 7000 \times \frac{50}{100}$
$= 5600 + 3500 = 9100$
Required ratio 3 : 7

55. (3) Illiterate males in city C
$= 5000 \times \frac{60}{100} \times \frac{55}{100} = 1650$
Females in city E $= 4500 \times \frac{2}{3} = 3000$
Required difference = 3000 – 1650 = 1350

56. (3)

	Time	LCM
P	15 hr. (+4)	
Q	12 hr. (+5)	60 (Total capacity of tank)
R	20 hr. (–3)	

When all three tap opened for alternate hours -

P	Q	R
+4	+5	– 3

6 units of tank is filled in 3 hours.
54 unit of tank = $\frac{3}{6} \times 54 = 27$ hours.
Remaining tank is filled by tap P and Q in $1\frac{2}{5}$ *hours*
Required time = $27 + 1 + \frac{2}{5} = 28\frac{2}{5}$ hr.

57. (2) Total number of passed students = 120 + 130 – 70 = 180
Number of failed students = 200 – 180 = 20
Required probability = $\frac{20}{200} = \frac{1}{10}$

58. (4) Let the CP of article = $100x$ Rs.
SP of article = $85x$ Rs.
ATQ,
$85x + 62.5 = 110x$
$25x = 62.5$
$\Rightarrow x = 2.5$ Rs.
$\Rightarrow$ CP = 250 Rs.
Required percent = $\frac{\frac{250\times15}{100}}{\frac{250\times25}{100}} \times 100 = 60\%$

Alternative Solution
Required percent = $\frac{15}{25} \times 100 = 60\%$

59. (1) Required number = 7 × 7 × 6 × 5 × 4 = 5880

60. (5) Let the original fraction be $\frac{x}{y}$
ATQ,
$\frac{3x\times\frac{120}{100}}{2y\times\frac{90}{100}} = \frac{5}{8} \times \frac{32}{25}$
$\Rightarrow \frac{3.6x}{1.8y} = \frac{4}{5}$
$\Rightarrow \frac{x}{y} = \frac{2}{5}$

61. (3) Required average $= \frac{(22+19+18)\times24000}{3\times100}$
$= 4{,}720$

62. (1) Total number of accidents caused by trucks and autos $= \frac{30}{100} \times 24000 = 7200$
Required number of injuries $= \frac{11}{24} \times 7200$
$= 3300$

63. (4) Number of accidents of male
$= \frac{5}{8} \times 24000$
$= 15000$
Number of male accidents due to Car and Cycle $= 15000 \times \frac{40}{100} = 6000$
Number of female accidents due to car and cycle $= 24000 \times \frac{29}{100} - 6000$
$= 6960 - 6000$
$= 960$

64. (3) Required angle $= \frac{(36-27)}{100} \times 360$
$= 32.4°$

65. (1) Number of spot deaths $= \frac{48}{100} \times 24000$
$= 11,520$
Total population of city $= \frac{11520}{25} \times 4 \times 100$
$= 1,84,320$
Number of female population $= \frac{184320 \times 11}{24} = 84,480$

66. (4) I. $6x^2 + 13x + 6 = 0$
$\Rightarrow 6x^2 + 9x + 4x + 6 = 0$
$\Rightarrow 3x(2x + 3) + 2(2x + 3) = 0$
$\Rightarrow x = \frac{-2}{3}\ or \frac{-3}{2}$
II. $2y^2 + 7y + 6 = 0$
$\Rightarrow 2y^2 + 4y + 3y + 6 = 0$
$\Rightarrow 2y(y + 2) + 3(y + 2) = 0$
$\Rightarrow (2y + 3)(y + 2) = 0$
$\Rightarrow y = \frac{-3}{2}\ or - 2$
$\therefore x \geq y$

67. (1) I. $\frac{x}{3} + 1 = \frac{7}{15}$
$\Rightarrow \frac{x}{3} = \frac{-8}{15}$
$\Rightarrow x = \frac{-8}{5}$
II. $5(y - 2) + 18 = 0$
$\Rightarrow 5y - 10 = -18$
$\Rightarrow 5y = -8$
$y = \frac{-8}{5}$
$\therefore x = y$

68. (5) I. $4x^2 + 16x + 15 = 0$
$\Rightarrow 4x^2 + 10x + 6x + 15 = 0$
$\Rightarrow 2x(2x + 5) + 3(2x + 5) = 0$
$\Rightarrow x = \frac{-5}{2}\ or \frac{-3}{2}$
II. $2y^2 + 5y + 3 = 0$
$\Rightarrow 2y^2 + 3y + 2y + 3 = 0$
$\Rightarrow y(2y + 3) + 1(2y + 3) = 0$
$\Rightarrow y = -1$ or $\frac{-3}{2}$
$y \geq x$

69. (2) $12x^2 - 17x + 6 = 0$
$\Rightarrow 12x^2 - 9x - 8x + 6 = 0$
$\Rightarrow 3x(4x - 3) - 2(4x - 3) = 0$
$\Rightarrow x = \frac{3}{4}\ or \frac{2}{3}$
II. $35y^2 - 29y + 6 = 0$
$\Rightarrow 35y^2 - 15y - 14y + 6 = 0$
$\Rightarrow 5y(7y - 3) - 2(7y - 3) = 0$
$\Rightarrow y = \frac{3}{7}\ or \frac{2}{5}$
$\therefore x > y$

70. (1) I. $x(4x - 9) = 9(16 - x)$
$\Rightarrow 4x^2 - 9x = 144 - 9x$
$\Rightarrow x^2 = \frac{144}{4}$
$\Rightarrow x = \pm 6$
II. $4y^2 + 20y + 25 = 0$
$\Rightarrow 4y^2 + 10y + 10y + 25 = 0$
$\Rightarrow 2y\ (2y + 5) + 5\ (2y + 5) = 0$
$\Rightarrow y = \frac{-5}{2}$
$\therefore$ relationship can't be established.

71. (3) Required number of girls $= \frac{6300}{45} \times 100 \times \frac{3}{7} = 6000$

72. (1) Let the number of candidates appeared in 2014 and 2015 be 2x and 3x respectively
Required ratio $= \frac{2x \times 80}{3x \times 60} = \frac{8}{9}$

73. (4) Let the number of candidates appeared in 2010 be x
Then, in 2011 = $42400 - x$
ATQ,
$\frac{x \times 50}{(42400 - x) \times 70} = \frac{5}{7} \Rightarrow x = 42400 - x \Rightarrow x = 21200$
Required average $= \frac{21200\left(\frac{50}{100} + \frac{70}{100}\right)}{2} = 12,720$

74. (2) Let the total number of candidates appeared in 2015 and 2016 be x and y respectively
Then, number of qualified candidates in 2016 $= \frac{90}{100} \times x \times \frac{60}{100}$
ATQ,
$y \times \frac{63}{100} = \frac{90}{100} \times x \times \frac{60}{100} \Rightarrow \frac{y}{x} = \frac{54}{63} = \frac{6}{7}$

75. (5) Number of candidates qualified in 2012 $= \frac{5100}{45} \times 55 = 9900$
Number of candidates qualified in 2014 $= \frac{4500}{20} \times 80 = 18,000$
Required% $= \frac{9900}{18000} \times 100 = 55\%$

76. (3) $\sqrt{(7)^2 + (17)^2 + (5)^2 - 2} = ?$
$\Rightarrow \sqrt{361} = ?$
$\Rightarrow ? = 19$

77. (2) $\frac{16}{100} \times 350 + \frac{46}{100} \times 4450 - ? = 1783$
$\Rightarrow 56 + 2047 - ? = 1783$
$\Rightarrow ? = 320$

78. (1) $8476 \div ? \times 45 + 32 = 5900$
$\Rightarrow \frac{8476}{?} \times 45 = 5868$
$\Rightarrow ? = \frac{8476 \times 45}{5868} = 65$

79. (4) $\frac{?}{100} \times 540 - 78 = \frac{15}{100} \times 920$
$\Rightarrow \frac{?}{100} \times 540 = 138 + 78 = 216$
$\Rightarrow ? = \frac{216 \times 100}{540} = 40$

80. (5) $(216)^3 \div (36)^2 = (6)^? \times 36$
$\Rightarrow (6)^? = \frac{(216)^3}{(36)^2 \times 36} = 216 = (6)^3$
$\Rightarrow ? = 3$