

IBPS RRB Officer Scale-I Preliminary Grand Test –IRP-180708

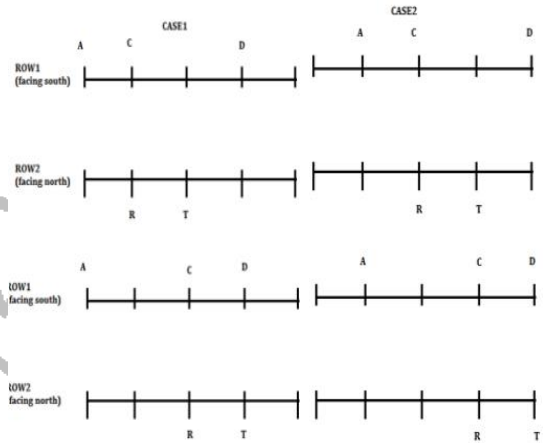
HINTS & SOLUTIONS

ANSWER KEY

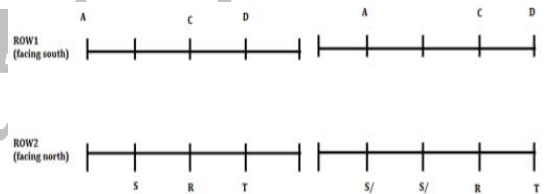
1. (3)	21. (1)	41. (1)	61. (1)
2. (5)	22. (3)	42. (5)	62. (5)
3. (2)	23. (4)	43. (1)	63. (2)
4. (3)	24. (4)	44. (5)	64. (3)
5. (5)	25. (2)	45. (1)	65. (1)
6.(3)	26. (5)	46. (4)	66. (4)
7. (2)	27. (4)	47.(5)	67. (5)
8. (4)	28. (1)	48.(3)	68. (1)
9. (1)	29. (2)	49.(1)	69. (1)
10. (5)	30. (3)	50. (4)	70.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

- 6.(3) 7. (2)
8. (4) 9. (1) 10. (5)

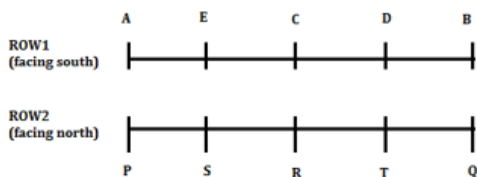
11-15. Two persons sit between A and D, one of them sits at the end of the row. D sits left to A. R is immediate left to T. C faces R, who does not sit at any end of the row. We get four possibilities:



The one who faces S does not sit at the end. E does not face T. Also, T does not face B, so case1 and 2 gets eliminated, as there is no place left for E and B.

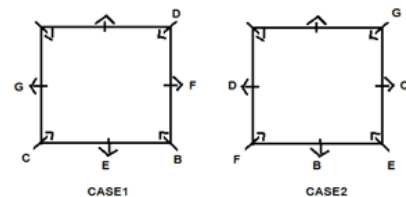


S is not neighbor of Q, from this position of S gets confirmed in case 4 i.e. immediate left to R. E does not face Q. More than one person sits between E and B. So, case4 gets eliminated. The final arrangement is:



11. (1) 12. (1)
13. (2) 14. (5) 15. (1)

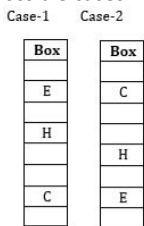
16-20. G sits 2nd to the right of E. B sits exactly between E and F. C sits 2nd to the right of the one who is 3rd right to E. Two persons sit between G and D. We get two cases:



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1. (3) 2. (5) N47, K3%, C6#, P18
3. (2) U\$E, @©L, Y*M 4. (3)
5. (5)

6-10. Four boxes are placed between C and E and neither of them is on top or bottom of the stack. There are two boxes between C and H. So from this there are two possible cases---

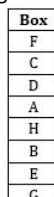


There are as many boxes between A and E as between A and F. D is not placed just below or just above E. G is not placed just below or just above H. So, B is placed immediately above H in case1 and immediately below H in case2.

Case-1 Case-2



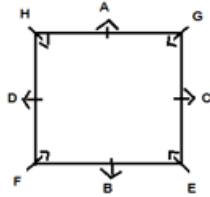
Now, it is given that the number of boxes places above H is more than that placed below H. Therefore, **case 1** will be eliminated. The final arrangement:



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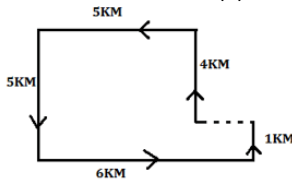


A does not face towards the center. No two persons are sitting adjacent to each other according to the English alphabet. Therefore, H does not sit next to G. So, case1 gets eliminated. The final arrangement is:

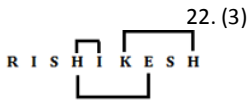


- 16. (3)
- 18. (3)
- 21-23.

- 17. (1)
- 19. (1)
- 20. (2)



- 21. (1)
- 24. (4)



- 25. (2)
- 26-30.

P > A > O > M > E
Q travel in Tata only with the one who likes red. R likes green and travel with the one who likes Yellow. So, there are two possible cases. Either R travel in Maruti or in Honda. S does not travel in Tata or with R---

Case1

CARS	Persons(Colors)
Maruti	R(green), (yellow)
Honda	S
Tata	Q, (red)

Case2

CARS	Persons(Colors)
Maruti	S
Honda	R(green), (yellow)
Tata	Q, (red)

CARS	Persons(Colors)
Maruti	R(green), T (yellow)
Honda	P(blue), S(white), V(black)
Tata	Q(pink), U(red)

P and V travel in same car but none of them likes Yellow or white. Therefore P and V are travelling with S. P does not like black. Q does not like black or white. T does not like red. So, T is travelling with R. U does not travel with the one who likes blue. So, Q likes pink. The one who likes white does not travel in Maruti, by this condition case 2 will be eliminated and we got the final arrangement as.

- 26. (5)
- 28. (1)
- 31. (1)
- 32. (3)
- 33. (2)
- 34. (1)
- 35. (4)
- 36-40.

- 27. (4)
- 29. (2)
- 30. (3)

ELEMENT	CODE
Room	ka
Are	ro
Date/off	nx/pt
All	ja
Content	sj
We	mn
Learning	ca
Often/around	la/xa

- 36. (5)
- 38. (4)

- 37. (1)
- 39. (5)
- 40. (2)

- 41. (1)

I. $x^2 - 13x + 40 = 0$
 $x^2 - 5x - 8x + 40 = 0$
 $x(x - 5) - 8(x - 5) = 0$
 $x = 5, 8$
 II. $2y^2 - y - 15 = 0$
 $2y^2 - 6y + 5y - 15 = 0$
 $2y(y - 3) + 5(y - 3) = 0$
 $y = 3, -5/2$
 $x > y$

- 42. (5)

I. $5x^2 + 17x + 6 = 0$
 $5x^2 + 15x + 2x + 6 = 0$
 $5x(x + 3) + 2(x + 3) = 0$
 $x = -3, -2/5$
 II. $2y^2 + 11y + 12 = 0$
 $2y^2 + 8y + 3y + 12 = 0$
 $2y(y + 4) + 3(y + 4) = 0$
 $y = -4, -3/2$

- 43. (1)

No relation
 $7x^2 - 19x + 10 = 0$
 $7x^2 - 14x - 5x + 10 = 0$
 $7x(x - 2) - 5(x - 2) = 0$
 $x = 2, 5/7$
 II. $8y^2 + 2y - 3 = 0$
 $8y^2 + 6y - 4y - 3 = 0$
 $2y(4y + 3) - 1(4y + 3) = 0$
 $y = -3/4, 1/2$
 $x > y$

- 44. (5)

$3x^2 - 25x + 8 = 0$
 $3x^2 - 24x - x + 8 = 0$
 $3x(x - 8) - 1(x - 8) = 0$
 $x = 8, 1/3$
 II. $4y^2 - 13y + 3 = 0$
 $4y^2 - 12y - y + 3 = 0$
 $4y(y - 3) - 1(y - 3) = 0$
 $y = 3, 1/4$
 No relation

- 45. (1)

I. $3x + 4y = 2$..(i)
 II. $2x - y = 5$..(ii)
 Multiplying (ii) by 4 and solving
 $x = 2, y = -1$
 $x > y$

- 46. (4)

Let length and breadth of rectangle be $3x$ cm and $2x$ cm respectively. Given,
 $3x \times 2x = 486 \text{ cm}^2$
 $x^2 = \frac{486}{6}$
 $x = 9 \text{ cm}$
 Length of rectangle = $3 \times 9 = 27 \text{ cm}$
 Breadth of rectangle = $2 \times 9 = 18 \text{ cm}$
 Radius of cone = $18 - 4 = 14 \text{ cm}$
 Height of cone = $27 - 9 = 18 \text{ cm}$
 Volume of cone = $\pi r^2 \frac{h}{3}$
 $= \frac{22}{7} \times 14 \times 14 \times \frac{18}{3}$
 $= 3696 \text{ cm}^3$

- 47. (5)

Let Veer, Sameer and Neeraj invested Rs. $4x$, Rs. $5x$ and Rs. $8x$ respectively.
 Simple interest received by Veer after two years
 $= 4x \times \frac{25}{100}$
 $= x \text{ Rs.}$
 Simple interest received by Sameer after two years
 $= 5x \times \frac{20}{100}$
 $= x \text{ Rs.}$
 Simple interest received by Neeraj after two years
 $= 8x \times \frac{40}{100}$
 $= 3.2x \text{ Rs.}$
 Ratio of profit share of Veer, Sameer and Neeraj
 $= x : 1.2 : 3.2x : 15$
 $= 12x : 18x : 48x$
 $= 2 : 3 : 8$
 Required difference = $8450 \times \frac{(8-3)}{(2+3+8)}$
 $= 8450 \times \frac{5}{13}$
 $= 3250 \text{ Rs.}$

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48.(3) Let total saving of Aman be 8P Rs.
Share of Aman's son = 5P Rs.
and, share of Aman's Daughter = 3P Rs.
CI received by his son
 $= 5P \left[\left(1 + \frac{10}{100} \right)^2 - 1 \right] = \frac{105P}{100}$
 ATQ
 $3P \times \frac{15 \times 3}{100} - \frac{105P}{100} = 480$
 $\frac{135P}{100} - \frac{105P}{100} = 480$
 $\frac{30P}{100} = 48000$
 P = 1600 Rs.
 Aman son's share = 1600 × 5 = 8000 Rs.
 Aman daughter share = 1600 × 3 = 4800 Rs.

49.(1) ATQ.
 $\frac{8}{24} + \frac{12}{32} + \frac{28}{x} = 1$ (where x is time taken by R to complete whole work)
 $\frac{1}{3} + \frac{3}{8} + \frac{28}{x} = 1$
 $\frac{3}{8} + \frac{28}{x} = \frac{2}{3}$
 $\frac{28}{x} = \frac{2}{3} - \frac{3}{8} = \frac{16-9}{24} = \frac{7}{24}$
 $x = 96$ days
 Time taken by R to complete the whole work = 96 days

50. (4) Downstream speed = 20 + 4 = 24 km/hr
 Upstream speed = 20 - 4 = 16 km/hr
 ATQ—
 $\frac{(d-40)}{16} = \frac{(d-24)}{24}$
 $3d - 120 = 2d + 48$
 $d = 168$
 let boat will take T hours to cover a distance of (d + 48) km in downstream and in upstream both
 $T = \frac{120+48}{24} + \frac{120+48}{16}$
 $T = 7 + 10.5$
 $T = 17.5$ hours

51. (3) No. of items sold of type A & C together
 $= 1200 \times \frac{25}{100} + 1500 \times \frac{32}{100} = 300 + 480 = 780$
 No. of items sold of type D & F together = $2200 \times \frac{45}{100} + 1800 \times \frac{35}{100} = 990 + 630 = 1620$
 Required percentage = $\frac{1620-780}{1620} \times 100 \approx 52\%$

52. (2) Defective items which are unsold of type B & D together
 $= 800 \times \frac{82}{100} \times \frac{3}{8} + 2200 \times \frac{55}{100} \times \frac{5}{11}$
 $= 246 + 550 = 796$
 Non-defective items which are unsold of type B & D together
 $= 800 \times \frac{82}{100} \times \frac{5}{8} + 2200 \times \frac{55}{100} \times \frac{6}{11}$
 $= 410 + 660 = 1070$
 Required difference = 1070 - 796 = 274

53. (1) Sold items of type C & E together
 $= 1500 \times \frac{32}{100} + 2500 \times \frac{48}{100}$
 $= 480 + 1200 = 1680$
 Unsold items of type A & E together
 $= 900 + 1300 = 2200$
 Required ratio = $\frac{1680}{2200} = 42 : 55$

54. (5) Total cost = $1500 \times \frac{32}{100} \times 200 + 2200 \times \frac{45}{100} \times 300$
 $= 96000 + 297000 = 3,93,000$
 Required average = $\frac{393000}{2} = \text{Rs}1,96,500$

55. (2) Items of type F which are non-defective = $1800 \times \frac{60}{100} = 1080$
 Average items unsold of type A & E
 $= \frac{1}{2} \left[1200 \times \frac{75}{100} + 2500 \times \frac{52}{100} \right]$
 $= \frac{900 + 1300}{2} = 1100$
 Required percentage = $\frac{1080}{1100} \times 100 = 98 \frac{2}{11} \%$

56. (1) Total pens sold by P, R & T together
 $= 180 + 180 + 120 = 480$
 Total note books sold by P & U together
 $= 280 + 280 = 560$
 Required % = $\frac{480}{560} \times 100 = 85 \frac{5}{7} \%$

57.(2) Required ratio = $\frac{320+180}{220+220} = \frac{500}{440} = 25 : 22$

58.(3) Total note books sold by P & U together
 $= 280 + 280 = 560$
 Total pens sold by R & T together
 $= 180 + 120 = 300$
 Required % = $\frac{560-300}{300} \times 100 = \frac{260}{300} \times 100 = 86 \frac{2}{3} \%$

59.(4) Average number of pen sold by P, Q & T
 $= \frac{180+240+120}{3} = \frac{540}{3} = 180$
 Average number of note books sold by T & U
 $= \frac{240+280}{2} = \frac{520}{2} = 260$
 Required difference = 260 - 180 = 80

60.(3) Total number of pencils sold by Q, S & U together
 $= 220 + 180 + 220 = 620$
 Total number of note books sold by P, R & T together
 $= 280 + 240 + 240 = 760$
 Required difference = 760 - 620 = 140

61. (1) Let amount be Rs. P
 S.I. = $\frac{P \times R \times T}{100}$ [R → rate, T → time]
 $180 = \frac{P \times 5 \times 3}{100}$
 $P = \text{Rs. } 1200$
 We know,
 $C.I. = P \left[\left(1 + \frac{R_1}{100} \right) \left(1 + \frac{R_2}{100} \right) - 1 \right]$
 $R_1 = 10\%$
 $R_2 = R$
 $318 = 1200 \left[\left(1 + \frac{10}{100} \right) \left(1 + \frac{R}{100} \right) - 1 \right]$
 $\frac{318}{1200} + 1 = \left[\left(\frac{11}{10} \right) \left(1 + \frac{R}{100} \right) \right]$
 $\frac{1518}{1200} = \frac{11}{10} \times \left(\frac{100+R}{100} \right)$
 $\therefore R = 15\%$

62. (5) Let C.P. of cycle be 100 unit
 Mark up price = $100 \times \frac{120}{100} = 120$ unit
 S.P. after 15% discount = $120 \times \frac{85}{100} = 102$ unit
 S.P. after 10% discount = $120 \times \frac{90}{100} = 108$ unit
 ATQ,
 (108 - 102) unit → 1800
 1 unit = Rs. 300
 \therefore C.P. of cycle = $300 \times 100 = \text{Rs. } 30,000$
 Mark up price = $120 \times 300 = \text{Rs. } 36,000$
 S.P. after 25% discount = $36000 \times \frac{75}{100} = \text{Rs. } 27,000$
 \therefore Required loss = S.P. - C.P. = Rs. 3000

63. (2) Probability that no one can solve the given question
 $= \frac{2}{3} \times \frac{3}{5} \times \frac{1}{2} = \frac{1}{5}$
 Probability that the question will be solved = 1 - Probability that no one can solve the question
 $= 1 - \frac{1}{5} = \frac{4}{5}$

64. (3) Let speed be S, distance be D & time be T
 $S = \frac{D}{T}$
 ATQ,
 $S + X = \frac{D}{5} \dots(i)$
 $S - X = \frac{D}{8} \dots(ii)$
 On adding both the equations, we get
 $2S = D \left[\frac{1}{5} + \frac{1}{8} \right]$
 $2S = D \left[\frac{8+5}{40} \right]$
 $T = \frac{D}{S} = \frac{80}{13} = 6 \frac{2}{13}$ hours

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65. (1) Female population = $20,000 \times \frac{3}{10} = 6000$
 Male population = $20,000 - 6000 = 14,000$
 Required ratio = $\frac{14000 \times \frac{100}{100} \times \frac{140}{100}}{6000 \times \frac{100}{100} \times \frac{100}{100}}$
 = 343 : 108

66. (4) $84 \xrightarrow{+13} 97 \xrightarrow{+17} 114 \xrightarrow{+19} 133 \xrightarrow{+23} 156 \xrightarrow{+29} 185$
 $\therefore 187$ is wrong
 Right no. = $156 + 29 = 185$
 13, 17, 19, 23, 29 are prime numbers

67. (5) Pattern is
 $121 \xrightarrow{+49} 170 \xrightarrow{+81} 251 \xrightarrow{+121} 372 \xrightarrow{+169} 541 \xrightarrow{+225} 766$
 $\uparrow \quad \uparrow \quad \uparrow \quad \uparrow \quad \uparrow$
 $7^2 \quad 9^2 \quad 11^2 \quad 13^2 \quad 15^2$
 Wrong No. = 543
 Right no. = $372 + 169 = 541$

68. (1) Pattern is
 $210 \xrightarrow{+3} 70 \xrightarrow{\times 4} 280 \xrightarrow{+5} 56 \xrightarrow{\times 6} 336 \xrightarrow{+7} 48$
 Wrong no. = 49
 Right no. = $336 + 7 = 48$

69. (1) Pattern is
 $19 \xrightarrow{+121} 140 \xrightarrow{+119} 259 \xrightarrow{+117} 376 \xrightarrow{+115} 491 \xrightarrow{+113} 604$
 Wrong no = 490
 Right no = $376 + 115 = 491$

70. (1) Pattern is
 $21 \times 1 + 2 = 23$
 $23 \times 2 + 3 = 49$
 $49 \times 3 + 4 = 151$
 $151 \times 4 + 5 = 609$
 $609 \times 5 + 6 = 3051$
 Wrong no = 3053
 Right no = $609 \times 5 + 6 = 3051$

71. (5) Required probability = $1 - \left[\frac{13}{52} + \frac{4}{52} - \frac{1}{52} \right]$
 $= 1 - \left[\frac{16}{52} \right]$
 $= 1 - \frac{4}{13}$
 $= \frac{9}{13}$

72. (2) 3 digit number = $9 \times 10 \times 10 = 900$
 Required answer = Total 3 digit number - none of digit is 4
 $= 900 - 8 \times 9 \times 9$
 $= 900 - 648 = 252$

73. (4) Ratio of amount invested by P, Q and R = 8 : 6 : 9

P	Q	R
8×12	$6 \times 5 + 10 \times 7$	9×12
96	100	108

Ratio of their profit shares

P	Q	R
24	25	27

ATQ,

3 unit = Rs. 1350

1 unit = Rs. 450

Profit share of Q = $450 \times 25 = \text{Rs. } 11,250$

74. (2) Ratio of Alcohol and water in mixture = 60 : 40 = 3 : 2
 Quantity of Alcohol left in mixture after 20 gm of mixture is taken out
 $= 60 \times \frac{3}{5} = 36 \text{ gm.}$

Quantity of water = $60 \times \frac{2}{5} = 24 \text{ gm}$

\therefore Required ratio = $\frac{36}{24+6} = 6 : 5$

75. (5) Let total article bought = x

So, number of articles sold at different profit percent = $\frac{2}{5}x, \frac{3}{5}x$

For articles sold at 20% profit

$$\frac{\text{Profit}}{\text{Selling Price}} \times 100 = 20$$

$$\frac{\text{Profit}}{\text{Selling Price}} = \frac{1}{5}$$

So, cost price = 4

And selling price = 5

For article sold at $33\frac{1}{3}\%$ profit

$$\frac{\text{Profit}}{\text{Selling Price}} = \frac{1}{3}$$

So, cost price = 2 and selling price = 3

But cost price is same for both

$$\text{Required ratio} = \frac{5 \times \frac{2}{5}x}{(3 \times 2) \times \frac{3}{5}x} = 5 : 9$$

76. (2) $\sqrt{64 \times 36} + \frac{420}{6} - 540 = ? - 800$
 $? = \sqrt{2304} + 70 - 540 + 800$
 $? = 378$

77. (1) $\frac{16}{100} \times 1600 + \frac{7}{100} \times 1200 = 20 \times 122$
 $256 + ? \times 12 = 2440$
 $? = \frac{2184}{12} = 182$

78. (4) $(8)^3 + (15)^2 - (12)^2 = ? - 1220 - 1750$
 $512 + 225 - 144 = ? - 2970$
 $? = 3563$

79. (5) $20 \times \sqrt{7} = \frac{64}{100} \times 400 + \frac{12}{100} \times 1200$
 $20 \times \sqrt{7} = 256 + 144$
 $\sqrt{7} = \frac{400}{20} = 20$
 $? = 400$

80. (3) $(?)^2 + \frac{14}{100} \times 1600 = 59 \times 12$
 $(?)^2 + 224 = 708$
 $(?)^2 = 484$
 $? = 22$

