IBPS RRB Officer Scale-I Preliminary Grand Test –IRP-180830

HINTS & SOLUTIONS

ANSWER KEY

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

HINTS & SOLUTIONS

1. (5) **I.** $T < Z$ (True) **II.** $U < Y$ (True)
2. (1) **I.** $W < G$ (True) **II.** $D \geq N$ (False)
3. (1) **I.** $Y < O$ (True) **II.** $F > T$ (False)
4. (4) **I.** $O < D$ (False) **II.** $X = D$ (False)
5. (2) **I.** $P > S$ (False) **II.** $N \geq G$ (True)

6-10. The given conditions are

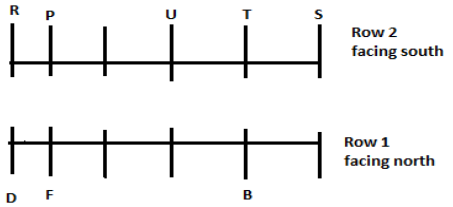
Person	City	Car
A		~~Hyundai~~
B	Goa	Audi
C		
D	Shimla	~~Maruti~~
E	~~Kochi~~	
F		BMW
H		

Now, D travels only with the one who has Mahindra car. B travels to Goa with A. The one who has Honda travels to Kochi. The one who has Hyundai does not travel to Shimla. The one who has BMW does not travel to Goa. C travels with the one who has Maruti. So, the final arrangement will be-

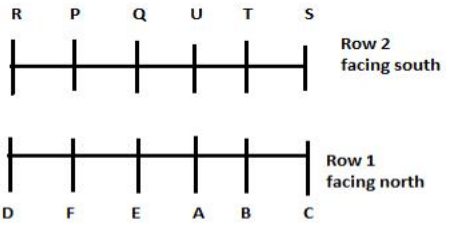
City	Person	Car
Goa	A	Maruti
Goa	B	Audi
Goa	C	Hyundai
Shimla	D	Renault
Shimla	E	Mahindra
Kochi	F	BMW
Kochi	H	Honda

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

11-15. Two persons sit between F and B. Neither F nor B sits at any end. R sits at one of the end and faces D. Three persons sit between T and R. F does not face T. S sits to the immediate left of T. U sits second to the left of P. We will have following arrangement –



Now, Q faces E. One of the immediate neighbors of A faces T. C does not face U. Immediate neighbor of the one facing B faces C. So the final arrangement will be-



11. (1) 12. (3)
13. (2) 14. (4) 15. (5)

16-20. Only three people live above the floor on which A live. Only one person lives between A and the one travelling to Bengaluru. Only three people live between the ones travelling to Bengaluru and Patna. The one travelling to Mumbai lives on an even numbered floor. F lives immediately below the one travelling to Mumbai. Only two people live between B and the one travelling to Kolkata. The one travelling to Kolkata lives below the floor on which B live. We have two possibilities-

Case 1

Floor	Person	City
7		
6	B	Bengaluru
5		
4	A	Mumbai
3	F	Kolkata
2		Patna
1		

Case 2

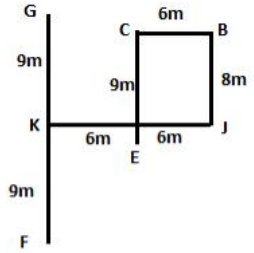
Floor	Person	City
7		
6	B	Patna
5		
4	A	Mumbai
3	F	Kolkata
2		Bengaluru
1		

Now, E live immediately above C. E is not travelling to Patna. This will eliminate Case 1. Now, the one travelling to Delhi does not live immediately above or immediately below B. D does not live immediately above or immediately below A. G does not travel to Chennai. So the final arrangement will be-

Floor	Person	City
7	D	Chennai
6	B	Patna
5	G	Lucknow
4	A	Mumbai
3	F	Kolkata
2	E	Bengaluru
1	C	Delhi

16. (5) 17. (3)
18. (5) 19. (3) 20. (5)

21-24.



21. (2) 22. (4)
23. (3) 24. (2)

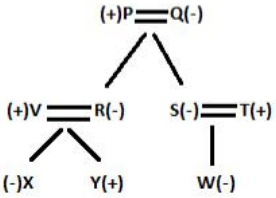
25. (4)

26. (3)

27. (3)

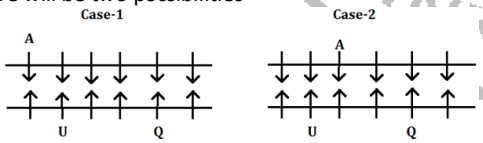
M	A	R	C	E	L
7	@	1	2	6	3

28-30.

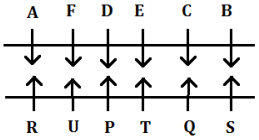


28. (2) 29. (2) 30. (4)

31-35. Two people sit between Q and U. Neither Q nor U sits at an extreme end of the line. The immediate neighbour of Q faces the person who sits third to the left of A. So, there will be two possibilities ----



D sits third to the right of B. Either D or B sits at an extreme end of the line. The one who faces B sits second to the right of T. Therefore, case2 will be cancelled. C and E are immediate neighbors. R sits second to the left of P. E does not face the immediate neighbour of S. Final arrangement will be----



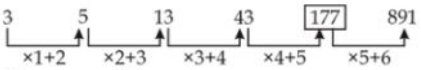
31. (5) 32. (2)
33. (3) 34. (2) 35. (4)

36-40. Codes of elements are:

Codes	Elements
study	dy
rent	rt
is	si
room	rm
book	bk
high	gh
more	me
pay	yp
work/hard	wk/hd

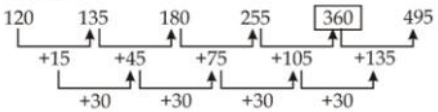
36. (3) 37. (3)
38. (4) 39. (2) 40. (5)

41. (4) Pattern is



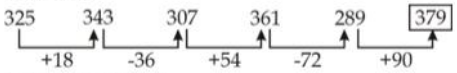
Wrong no. = 175

42. (3) Pattern is



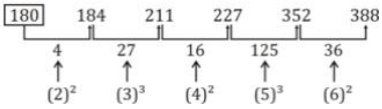
Wrong no. = 365

43. (5) Pattern is



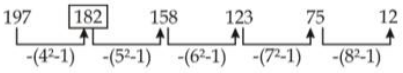
∴ wrong no. = 375

44. (1) Pattern is



Wrong no. = 178

45. (4) Pattern is



Wrong no. = 180

46. (1) Let man invested Rs. $100x$ in both schemes

ATQ,

$$\frac{100x\times R\times 2}{100} = \frac{100x\times\frac{(R+5)}{2}\times 3}{100}$$

$$2R = \frac{3R+15}{2}$$

$4R - 3R = 15$

$R = 15\%$

Required interest $= \frac{1200\times(15+2.5)\times 2}{100}$

$= 12 \times 35$

$= 420$ Rs.

47. (2) Selling price of 1 kg Rice

$= \frac{144}{2.4} = 60$ Rs.

Cost Price of One kg Rice $= 60 \times \frac{5}{6} = 50$ Rs.

Selling Price of one kg pulse

$= \frac{216}{4.8} = 45$ Rs.

Cost price of one kg pulse

$= 45 \times \frac{4}{3} =$ Rs 60

Required % $= \frac{50}{60} \times 100 = 83\frac{1}{3}\%$

48. (2) Upstream speed of boat $= 12 \times \frac{60}{40} = 18$ km/hr

Let speed of boat be $4x$ km/hr and speed of stream be x km/hr

ATQ—

$4x - x = 18$

$x = 6$ km/hr

Downstream speed = 5 × 6 = 30 km/hr

Required time $= \frac{135}{30} = 4.5$ hours

49. (2) Let side of square is x cm and length of rectangle $3x$ cm
ATQ—
$2(3x + 12) - 4x = 36$
$6x - 4x = 36 - 24$
$x = 6$ cm
Required sum = Area of square + Area of rectangle
$= a^2 + (\ell + b)$
$= (6)^2 + (18 \times 12)$
$= 36 + 216$
$= 252$ cm^2

50. (4) P can do whole work alone $= \frac{4}{40} \times 100 = 10$ days
Q can do whole work alone $= \frac{3}{25} \times 100 = 12$ days
R can do whole work alone $= \frac{9}{60} \times 100 = 15$ days

	Days	Work	Efficiency
P	10	60	6 units/day
Q	12		5 units/day
R	15		4 units/day

Two day work of all
$= 2 (6 + 5 + 4)$
$= 30$ units
Remaining work $= 60 - 30 = 30$ units
Q and R complete remaining work together
$= \frac{30}{(5+4)}$
$= 3\frac{1}{3}$ days

51. (2) Let cost price of Jeans $= 100x$ Rs.
Marked price of Jeans $= 125x$ Rs.
Selling price of jeans $= 125x \times \frac{90}{100} \times \frac{95}{100}$
$= 106.875x$ Rs.
ATQ —
$106.875x - 100x = 89.1$
$x = 12.96$
Cost price of jeans = 1296 Rs.
For 40% of profit
Selling price $= 1296 \times \frac{140}{100} = 1814.4$ Rs.

52. (3) Required Difference
$= \frac{(63+90)-(60+27)}{360} \times 1440 = 264$

53. (2) Total number of Ducks and pigeons together = 90
Total number of Fowl and Emus together
$= 45 + 75 = 120$
Required % $= \frac{(120-90)}{120} \times 100 = 25\%$

54. (3) Required Percentage $= \frac{(60+63+27)}{360} \times 100 = 41\frac{2}{3}\%$

55. (1) Required percentage $= \frac{(45+63)}{(60+75)} \times 100$
$= \frac{108}{135} \times 100$
$= 80\%$

56. (3) Required ratio $= \frac{90+27+63}{60+45+75} = \frac{180}{180} = 1 : 1$

57. (4) **I.** $5x^2 - 19x + 12 = 0$
$or, 5x^2 - 15x - 4x + 12 = 0$
$or, 5x(x-3) - 4(x-3) = 0$
$or, (5x-4)(x-3) = 0$
$\therefore x = 3, \frac{4}{5}$
II. $5y^2 + 11y - 12 = 0$
$or, 5y^2 + 15y - 4y - 12 = 0$
$or, 5y(y+3) - 4(y+3) = 0$
$or, (5y-4)(y+3) = 0$
$\therefore y = \frac{4}{5}, -3$
Hence, $x \geq y$

58. (1) **I.** $x^2 = \sqrt[3]{1331} = 11$
$\therefore x = \pm\sqrt{11} = \pm 3.316$
II. $2y^2 - 21y + 55 = 0$
Or, $2y^2 - 10y - 11y + 55 = 0$
Or, $2y(y-5) - 11(y-5) = 0$
Or, $(2y-11)(y-5) = 0$
$\therefore y = 5, \frac{11}{2}$ $\therefore$ Hence, $x < y$

59. (3) **I.** $2x^2 - 8x - 3x + 12 = 0$
$or, 2x(x-4) - 3(x-4) = 0$
$or, (2x-3)(x-4) = 0$
$\therefore = \frac{3}{2}, 4$
II. $2y^2 - 8y - 9y + 36 = 0$
$or, 2y(y-4) - 9(y-4) = 0$
$or, (2y-9)(y-4) = 0$
$\therefore y = 4, \frac{9}{2}$ Hence, $x \leq y$

60. (5) I. $2x^2 + 16x + 30 = 0$
$2x^2 + 10x + 6x + 30 = 0$
$2x(x+5) + 6(x+5) = 0$
X = – 3, – 5
II. $y^2 + 5y + 3y + 15 = 0$
$y(y+5) + 3(y+5) = 0$
Y = – 3, – 5
X=Y

61. (2) I. $13x^2 - 106x + 160 = 0$
$13x^2 - 80x - 26x + 160 = 0$
$x(13x - 80) - 2(13x - 80) = 0$
$X = 2, \frac{80}{13}$
II. $6y^2 + 19y + 15 = 0$
$6y^2 + 10y + 9y + 15 = 0$
$2y(3y+5) + 3(3y+5) = 0$
$Y = -\frac{3}{2}, -\frac{5}{3}$
$x > y$

62. (2) Total 'Grade A' quality wheat produced by Uttar Pradesh & Rajasthan together
= 525 + 275
= 800 kg
Total 'Grade B' quality wheat produced by Punjab & Madhya Pradesh together
= (750 – 350) + (625 – 325)
= 400 + 300
= 700 kg
Required percentage $= \frac{800-700}{700} \times 100$
$= 14\frac{2}{7}\%$

63. (2) Average quality of 'Grade A' Wheat produced by Uttar Pradesh & Madhya Pradesh
$= \frac{525+325}{2}$
$= \frac{850}{2}$
= 425 kg
Average quality of 'Grade B' wheat produced by Haryana & Punjab
$= \frac{(650-300)+(750-350)}{2}$
$= \frac{350+400}{2}$
$= \frac{750}{2}$
= 375 kg
Required difference = 425 – 375 = 50 kg

64. (5) Let production cost of 'Grade A' and 'Grade B' quality wheat produced by Rajasthan is Rs. $3x$ and Rs. $2x$ respectively
ATQ—
$275 \times 3x + (600 - 275) \times 2x = 5900$
$825x + 650x = 5900$
$x = \frac{5900}{1475}$
$x = 4$ Rs.

Production cost of 'Grade B' quality wheat produced by Uttar Pradesh
= 4 × 2 – 2
= 6 Rs. per kg
Total production cost of 'Grade B' quality wheat produced by Uttar Pradesh
= (850 – 525) × 6
= 325 × 6
= 1950 Rs.

65. (4) 'Grade A' quality wheat produced by Haryana, Rajasthan & Madhya Pradesh together
= 300 + 275 + 325
= 900 kg
'Grade B' quality of wheat produced by Punjab, Madhya Pradesh together
= (750 – 350) + (625 – 325)
= 400 + 300
= 700
Required ratio = $\frac{900}{700}$ = 9 : 7

66. (3) Total 'Grade A' quality of wheat produced by Haryana = 300
Total 'Grade B' quality of wheat produced by Punjab
= (750 – 350)
= 400 kg
Required percentage
= $\frac{400-300}{400} \times 100$
= 25%

67. (3) Let upstream speed be x km/hr & downstream speed be y km/hr
Atq,
$x = \frac{1}{2}y$ ...(i)
$\left(\frac{A+4}{x}\right) = 3\left(\frac{A-2}{y}\right)$ ...(ii)
Solving (i) & (ii)
A = 14 km
$y = \frac{14+6}{2} = 10$ km/hr
x = 5 km/hr
Speed of boat in still water = $\frac{10+5}{2} = 7.5$ km/hr

68. (2) Quantity of water in mixture
$= 16 \times \frac{25}{100} = 4$ litre
Quantity of water in new mixture
$= 16 \times \frac{10}{100} = 1.6$ litre
Quantity of water removed = 4 – 1.6 = 2.4 litre
Required percentage = $\frac{2.4}{16} \times 100 = 15\%$

69. (5) Volume of cone = $\frac{1}{3}\pi r^2 h$ $\begin{bmatrix} r \to \text{radius} \\ r \to \text{height} \end{bmatrix}$
Volume of hemispherical bowl = $\frac{2}{3}\pi[a^3 - b^3]$ $\begin{bmatrix} a \to \text{outer radius} \\ b \to \text{inner radius} \end{bmatrix}$
Atq,
$\frac{1}{3}\pi r^2 h = n \times \frac{2}{3}\pi\left[\left(\frac{16}{2}\right)^3 - \left(\frac{14}{2}\right)^3\right]$
$\frac{1}{3}\pi(13)^2 \times 16 = \frac{2}{3}\pi[169] \times n$
$n = \frac{16}{2} = 8$

70. (3) Multiple of 3 in 120 balls = $\frac{120}{3} = 40$
Multiple of 5 in 120 balls = $\frac{120}{5} = 24$
Multiple of 15 in 120 balls = $\frac{120}{15} = 8$
Therefore required no. of balls
= 40 + 24 – 8 = 56
∴ required probability = $\frac{56}{120} = \frac{7}{15}$

71. (1) Total words = 9
O is two times
∴ total vowels = E, O, U, I
Total words = $4 \times \frac{\lfloor 9}{\lfloor 2} = 2\lfloor 9$

72. (2) $(17)^2 + (21)^2 + \sqrt{2916} \approx (?)^2$
$\Rightarrow 289 + 441 + 54 = (?)^2$
$\Rightarrow ? = \sqrt{784} = 28$

73. (4) 60% of 960 + 65% of 240 ≈?% of 6100
$\Rightarrow \frac{60}{100} \times 960 + \frac{65}{100} \times 240 = \frac{?}{100} \times 6100$
$\Rightarrow ? = \frac{732}{61} = 12$

74. (1) $\Rightarrow \sqrt{(13)^2 + 28 \div 4 - (27) + ?} \approx 16$
$\Rightarrow \sqrt{169 + 7 - 27 + ?} = 16$
$\Rightarrow 149 + ? = 256$
$\Rightarrow ? = 107$

75. (1) $\Rightarrow 286 \times 10 + 65 \times 54 \approx ? + 164$
$\Rightarrow 2860 + 3510 = ? + 164$
$\Rightarrow ? = 6206$

76. (3) $\Rightarrow 1000 \div 25 \approx ? - 223$
$\Rightarrow 40 = ? - 223$
$\Rightarrow ? = 263$

77-80. Total number of female employee who represent HCL and IBM = 420 × 2 = 840
Let, Number of male employee who represent HCL = a
And, Number of male employee who represent IBM = b
ATQ,
a + b = 1620 ...(i)
$\frac{2}{3}a + \frac{2}{5}b = 840$ ... (ii)
On solving (i) & (ii)
a = 720, b = 900
Number of female employee who represent HCL
$= \frac{2}{3} \times 720$
= 480
Number of female employee who represent IBM
$= \frac{2}{5} \times 900$
= 360
Total Female employee who represent TCS
$= 480 \times \frac{125}{100} =$ 600
Total male employee who represent TCS
$= 360 \times \frac{4}{3} = 480$

Companies	Male	Female
HCL	720	480
IBM	900	360
TCS	480	600

77. (1) Total employee who represent HCL
= 720 + 480 = 1200
Required percentage = $\frac{1200-900}{900} \times 100$
$= 33\frac{1}{3}\%$

78. (3) Total employee who represent IBM & TCS who do not have MBA degree
$= (900 + 480) \times \frac{80}{100} + (360 + 600) \times \frac{75}{100}$
= 1104 + 720
= 1824

79. (3) Required ratio = $\frac{(900+480)}{(480+600)}$
= 23 : 18

80. (1) Required difference = 480 – 360
= 120