IBPS RRB Officer Scale-I Preliminary Grand Test –IRP-180829
HINTS & SOLUTIONS

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

HINTS & SOLUTIONS

1. (5) I. S > L (True)
        II. O ≤ W (True)

2. (2) I. N ≥ U (False)
        II. G ≥ L (True)

3. (1) I. R < V (True)
        II. G > S (False)

4. (1) I. F > B (True)
        II. U ≤ D (False)

5. (3) I. U > X (False)
        II. Y = U (False)

6-10. V sits second to the right of R. R sits in the middle of one of the sides of table. Only two people sit between V and Q. S is one of the immediate neighbors of Q. T sits second to the left of S. So, there will be two possibilities-

CASE-1   CASE-2
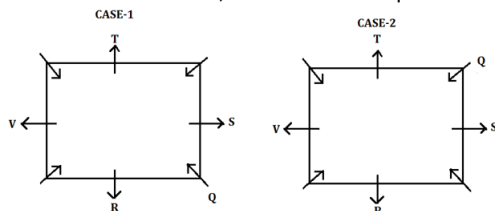
P sits second to the left of U. V is not an immediate neighbour of U. Therefore, case-1 will be eliminated and we got the final arrangement---

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

11-15. Only three persons live below the floor in which the one who works in CTS live. Two persons live between T and the one who works in CTS. P who works in HCL lives immediately above T. R works in L&T and does not live on an odd numbered floor. Four persons live between the one who works in Wipro and the one who works in Infosys and neither of them lives on the ground floor. There are as many persons live between V and the one who works in HCL as there are between S and the one who works in CTS. V works in Capgemini. U works in Oracle. We have two possibilities-

	Case 1			Case 2	
Floor	Person	Company	Floor	Person	Company
8	P	HCL	8	P	HCL
7	T	Wipro	7	T	Infosys
6	R	L&T	6	R	L&T
5	V	Capgemini	5	V	Capgemini
4		CTS	4		CTS
3	U	Oracle	3	U	Oracle
2		Infosys	2		Wipro
1	S		1	S	

Now, W lives in one of the floor above Q. The one who works in Infosys does not live above W. This will eliminate Case 2. So the final arrangement will be-

| Floor	Person	Company
8	P	HCL
7	T	Wipro
6	R	L&T
5	V	Capgemini
4	W	CTS
3	U	Oracle
2	Q	Infosys
1	S	TCS

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

16-20. The machine rearranges one word and one number in each step. The "words" are arranged in the reverse alphabetical order as per they appear in the dictionary from the left end in the last step. Such that "better" will arrange first in step I, then "company" in step II and so on. "numbers" are arranged according to the words that are arranged as the "number" are twice the number of words that appears in the input. It means for "better" number "12"will arrange first then for "company" "14" will arrange and so on.

Input: **roast 14 cricket 16 plug 12 twilight 10 output 8**
Step I: cricket roast 16 plug 12 twilight 10 output 8 14
Step II: output cricket roast 16 plug twilight 10 8 14 12
Step III: plug output cricket roast 16 twilight 10 14 12 8
Step IV: roast plug output cricket 16 twilight 14 12 8 10
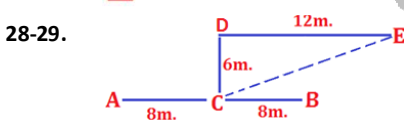Step V: twilight roast plug output cricket 14 12 8 10 16

16. (2)　　　　　　　　　　17. (1)
18. (3)　　　　　　　　　　19. (4)　　　　　　20. (2)

21-25. M likes Mathematics and does not study in class X. K likes Biology. N studies in Class XI and neither likes Computer nor studies with the one who likes English. P likes Hindi and studies with O. J likes English and does not study in class XI. O does not like Sanskrit. According to the given conditions-

Person	Subject	Class
J	English	~~Class XI~~
K	Biology	
L		
M	Mathematics	~~Class X~~
N	~~Computer~~	Class XI
O		
P	Hindi	

Now, the one who likes Sanskrit is studying with the one who likes Physics. K studies in a class only with the one who likes Computer. So the given arrangement will be-

Person	Subject	Class
J	English	Class IX
M	Mathematics	Class IX
L	Computer	Class X
K	Biology	Class X
N	Sanskrit	Class XI
O	Physics	Class XI
P	Hindi	Class XI

21. (2)　　　　　　　　　　22. (5)
23. (4)　　　　　　　　　　24. (4)　　　　25. (3)
26. (5)　$961 = 31^2$ and $169 = 13^2$

27. (3)　9 8 6 5 3 1

28-29.

D — 12m. — E
6m.
A — 8m. — C — 8m. — B

28. (2)　Distance = $\sqrt{12^2 + 6^2} = 6\sqrt{5}$
29. (2)
30. (3)

(+)
○
Woman(-) ———— Rajveer(+)

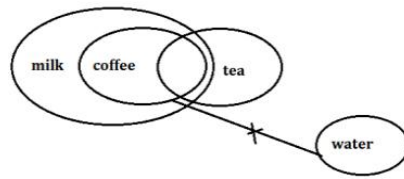31. (4)　DELAY → %4@2β
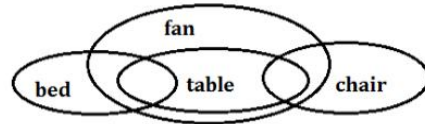
32. (2)
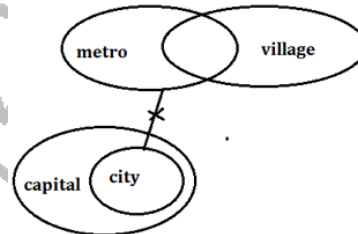

(-) — D
(+) — (+)
A

33. (3)

milk coffee tea water
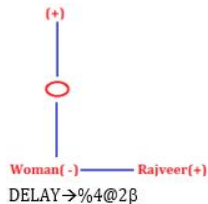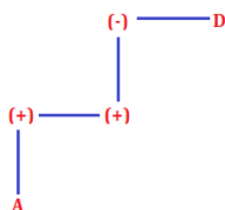
Conclusion (3) does not follow as there is not direct relation between elements tea and water. So, we cannot conclude that No tea is water.

34. (4)

fan
bed table chair

Conclusion (4) does not follows as it is given that all table are fan therefore, it cannot be a possibility conclude that some table are not fan

35. (4)

metro village
capital city

Conclusion (4) does not follows as there is no direct relation between elements city and village.

36-40. Codes of elements are:

Codes	Elements
water	wi
is	si
Time	tm
Save	vs
Precious	ps
Boiling	bi
Scarcity/of	fo/ty

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

41. (1)　I.　$21x^2 - 22x + 5 = 0$
　⇒　$21x^2 - 15x - 7x + 5 = 0$
　⇒　$3x(7x - 5) - 1(7x - 5) = 0$
　⇒　$(3x - 1)(7x - 5) = 0$
　⇒　$x = \frac{1}{3}$ or $\frac{5}{7}$

II.　$63y^2 - 54y + 11 = 0$
　⇒　$63y^2 - 21y - 33y + 11 = 0$
　⇒　$21y(3y - 1) - 11(3y - 1) = 0$
　⇒　$(21y - 11)(3y - 1) = 0$
　⇒　$y = \frac{11}{21}$ or $\frac{1}{3}$

∴ no relation can be established.

42. (5)　I.　$9x^2 - 64 = 0$
　⇒　$x^2 = \frac{64}{9}$
　⇒　$x = \pm \frac{8}{3}$

II.　$12y^2 - 65y + 88 = 0$
　⇒　$12y^2 - 32y - 33y + 88 = 0$
　⇒　$4y(3y - 8) - 11(3y - 8) = 0$
　⇒　$(4y - 11)(3y - 8) = 0$
　⇒　$y = \frac{11}{4}$ or $\frac{8}{3}$

$y \geq x$

43. (2)
I. $6x^2 + 42x + 72 = 0$
$\Rightarrow 6x^2 + 24x + 18x + 72 = 0$
$\Rightarrow 6x(x+4) + 18(x+4) = 0$
$\Rightarrow (6x+18)(x+4) = 0$
$\Rightarrow x = -4 \text{ or } 3$
II. $6y^2 + 57y + 135 = 0$
$\Rightarrow 6y^2 + 30y + 27y + 135 = 0$
$\Rightarrow 6y(y+5) + 27(y+5) = 0$
$\Rightarrow y = -\frac{9}{2} \text{ or } -5$
x>y

44. (4)
I. $2(x+5) - 7 = 3(x-2)$
$\Rightarrow 2x + 10 - 7 = 3x - 6$
$\Rightarrow x = 9$
II. $3y^2 - 243 = 0$
$\Rightarrow y^2 = 81$
$\Rightarrow y = \pm 9$
$x \geq y$

45. (2)
I. $8x^2 - 38x + 45 = 0$
$\Rightarrow 8x^2 - 20x - 18x + 45 = 0$
$\Rightarrow 4x(2x-5) - 9(2x-5) = 0$
$\Rightarrow x = \frac{9}{4} \text{ or } \frac{5}{2}$
II. $10y^2 - 41y + 42 = 0$
$\Rightarrow 10y^2 - 20y - 21y + 42 = 0$
$\Rightarrow 10y(y-2) - 21(y-2) = 0$
$\Rightarrow y = \frac{21}{10} \text{ or } 2$
$\therefore x > y$

46. (4)
Principle $\rightarrow 9600$
Interest earned with R% in 2 year
$= R + R + \frac{R \times R}{10} = \left(2R + \frac{R^2}{100}\right)\%$
Principle $\rightarrow 4800$
Interest earned with 2R% in 2 years
$= 2R + 2R + \frac{4R^2}{100}$
$= \left(4R + \frac{4R^2}{100}\right)\%$
ATQ,
$48 \times \left(4R + \frac{4R^2}{100}\right) - 96\left(2R + \frac{R^2}{100}\right) = 96$
$2R + \frac{2R^2}{100} - 2R - \frac{R^2}{100} = 1$
$\frac{R^2}{100} = 1$
$R^2 = 100$
R = 10%
$2R = 2 \times 10 = 20\%$

47. (2)
Total no. of chocolate $= 6 + 4 + 8 = 18$

No. of ways to draw one Munch $= {}^6c_1$

No. of ways to draw two Five star $= {}^4c_2$

Required probability $= \frac{{}^6c_1 \times {}^4c_2}{{}^{18}c_3} = \frac{3}{68}$

48. (4)
Let P invested Rs. $100x$
Q invested Rs. $150x$
While R invested Rs. $200x$
Profit ratio of P, Q and R
$= (100x \times 12) : (150x \times 12) : (200x \times 8)$
$= 6 : 9 : 8$
Required difference $= 5750 \times \frac{(9-6)}{(6+9+8)} = 750$ Rs.

49. (2)
Let Sameer one day work = 3 units/day
Rituraj one day work $= \left(3 + 3 \times \frac{2}{3}\right) = 5$ units/day
and Raj one day work = x unit/day
ATQ,
$10(5+x) = 7.5(3+5+x)$
$50 + 10x = 60 + 7.5x$
$2.5x = 10$
$x = 4$ units/day
Total work $= 10(5+4) = 90$ units
Raj complete alone $= \frac{90}{4} = 22.5$ days

50. (5)
Ratio of milk and water in mixture
$= 80 \times \frac{3}{4} : 80 \times \frac{1}{4}$
$= 3 : 1$
Remaining water and milk in mixture —
Milk $= 80 \times \frac{3}{4} - 24 \times \frac{3}{4}$
$= 60 - 18$
$= 42$ liter
Water $= 80 \times \frac{1}{4} - 24 \times \frac{1}{4}$
$= 20 - 6$
$= 14$ liter
Let x liter of water added
$\frac{42}{14+x} = \frac{7}{13}$
$98 + 7x = 546$
$7x = 448$
$x = 64$ liter

51. (3)
From I
Let breadth (b) be x cm
$\therefore$ length (ℓ) $= \frac{150}{100} \times x = 1.5x$ cm
From II
Perimeter of square (4a) = 48 cm
$\therefore$ side of square (a) = 12 cm
$\ell = 12 \times 1.5 = 18$ cm
$\therefore$ Area of rectangle $= \ell \times b = 18 \times 12$
$= 216$ cm^2
Can be answered from I & II both

52. (3)
From I
Total age of Arun & Neeraj
= 48 year
From II
Let age of Satish be x year
age of Neeraj = (x +4) year
age of Rahul = 2x years
then, age of Arun = 3x years
ATQ,
$\frac{3x + x + 4}{2} = 24 \ years$
x=11 years
age of Rahul 2 years later = 2×11+2 = 24years
Can be answered from I & II together

53. (4)
Let speed of boat in still water be x m/s
& speed of stream = y m/s
Atq,
x -y = y
x = 2y
From I & II
Let, distance be d m
$(x-y) \times 24 = (x+y) \times 8$
$24y = 24y$
$\therefore$ cannot be answered from I & II together
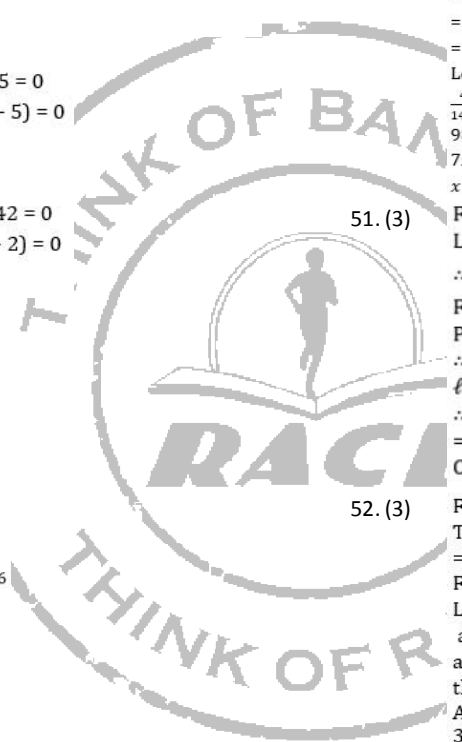
54. (1) Speed of train X = 20 m/sec
Let length of train X be x m
From II
length of train Y = 0.5 x m
From I
Speed of train Y = 20 × 1.5 = 30 m/sec
From I & II
$$\frac{x + 0.5x}{6} = 30 + 20$$
x = 200 m

55. (3) From II
Female = 280
Male = $280 \times \frac{50}{100} = 140$
∴ total strength = 420
Can be answered from II only

56. (3) Required avg. $= \frac{30,000+18,000+15,000+15,000+12,000}{5}$
$= \frac{90,000}{5} = 18,000$

57. (1) Total educated male population from cities A and E together
$= \frac{50000 \times 56}{100} + \frac{60000 \times 55}{100}$
= 28,000 + 33,000
= 61,000
Total educated male population from cities B and C together
$= \frac{52,000 \times 75}{100} + \frac{60,000 \times 55}{100}$
= 39,000 + 33,000
= 72,000
Required % $= \frac{11,000}{72,000} \times 100$
$= \frac{275}{18}\% = 15\frac{5}{18}\%$

58. (4) Number of male in city A $= 80,000 \times \frac{9}{16} = 45,000$
Number of female in city A = 35,000
Total educated population = 50,000
Number of educated male $= \frac{50,000 \times 56}{100} = 28,000$
Number of educated female = 22,000
Required ratio $= \frac{13,000}{17,000} = \frac{13}{17}$

59. (2) Number of educated females from cities B and D together
$= \frac{52,000 \times 25}{100} + \frac{45,000 \times 40}{100}$
= 13,000 + 18,000
= 31,000
Number of educated male from city B
$= \frac{52,000 \times 75}{100}$
= 39,000
Required difference = 8,000

60. (1) Total population of city F
$= \frac{50,000+52,000+60,000+45,000+60,000}{5} = 53,400$
Employed population of city F
$= 53,400 \times \frac{1}{3}$
= 17,800
Number of employed male in city F
$= \frac{17,800 \times 60}{100}$
= 10,680

61. (2) Passed student in Hindi $= \frac{12}{100} \times 12,000 = 1440$
Failed student in Hindi $= 1440 \times \frac{125}{100} = 1800$
Passed student in English $= 12,000 \times \frac{20}{100} = 2400$
Required percentage $= \frac{1800}{2400} \times 100 = 75\%$

62. (1) Total passed student in Physics
$= \frac{15}{100} \times 12,000 = 1800$
Passed student in Chemistry
$= \frac{10}{100} \times 12,000 = 1200$
Required Ratio $= \frac{4000-1800}{1200} = \frac{2200}{1200}$
= 11 : 6

63. (4) 25% of total student = 12,000
total student = 48,000
Total failed student = 48,000 – 12,000 = 36,000
Total passed student in Computer,
Math and Hindi together $= \frac{55}{100} \times 12,000 = 6,600$
Required difference = 36,000 – 6,600 = 29,400

64. (2) Required percentage $= \frac{(20+15)-(10+12)}{(10+12)} \times 100$
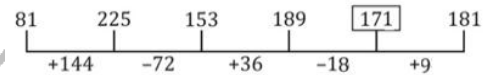$= \frac{35-22}{22} \times 100 = 59\frac{1}{11}\%$

65. (5) Total failed student $= \frac{12000}{2} \times 3 = 18,000$
Required average $= \frac{1}{2}\left[\frac{10+20}{100}\right] \times 18,000 = 2,700$
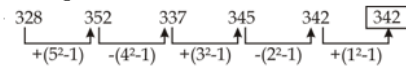
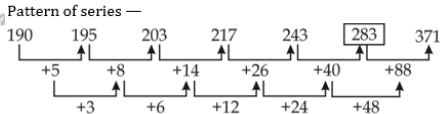**66. (2)** Wrong number = 276
Pattern of series —

84	140	185	221	250	274
+56	+45	+36	+29	+24	
–11	–9	–7	–5		
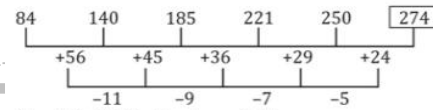
Should be 274 in the place of 276

67. (4) Wrong number = 173
Pattern of series —

81	225	153	189	171	181
+144	–72	+36	–18	+9	

68. (4) Wrong number = 343

328	352	337	345	342	342
$+(5^2-1)$	$-(4^2-1)$	$+(3^2-1)$	$-(2^2-1)$	$+(1^2-1)$	

69. (2) Wrong number = 285
Pattern of series —

190	195	203	217	243	283	371
+5	+8	+14	+26	+40	+88	
+3	+6	+12	+24	+48		

70. (3) Pattern of series —

64	32	48	120	420	1890
×0.5	×1.5	×2.5	×3.5	×4.5	
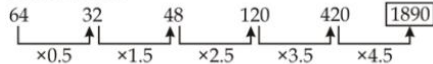
Wrong number = 1892

71. (2) Total time taken by Mr. Thomas = 75 hours
Total time taken by John = 60 hours

Mr. Thomas 75 — 4
John 60 — 5 → 300 (total work)
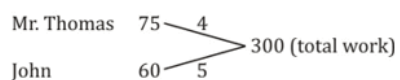
Required time $= \frac{300}{9 \times 4} = \frac{25}{3} = 8\frac{1}{3}$ days.

72. (4) Let the present age of Abhi = x years
Then, present age of Veer = (56 – x) years.
Present age of Satish = (x + 2) + 2 = (x + 4) yr.
ATQ,
$\Rightarrow$ x + x + 4 = 52
$\Rightarrow$ 2x = 48
$\Rightarrow$ x = 24 yr.
Present age of Veer = 32 years.

73. (1) Let the speed of current be x km/hr.
Then, speed in upstream = 3x km/hr
Speed of boat in still water = 3x + x = 4x km/hr
ATQ,
$\Rightarrow$ 5x = 30
$\Rightarrow$ x = 6 km/hr
Required time = $\frac{63}{3 \times 6}$ = 3.5 hr.

74. (4) Area of equilateral triangle = $\frac{\sqrt{3}}{4}a^2 = 49\sqrt{3}$
$\Rightarrow$ a = 14 cm = radius of cone(r)
Slant height of cone = 50 cm
Then, height of cone = $\sqrt{50^2 - 14^2}$ = 48 cm
$\therefore$ Volume of cone = $\frac{1}{3}\pi r^2 h$
$= \frac{1}{3} \times \frac{22}{7} \times 14 \times 14 \times 48$
= 9856 cm^3

75. (2) Let the time period for Q's investment be y months.
ATQ,
$\frac{5 \times 7}{9 \times y} = \frac{7}{9}$
$\Rightarrow y$ = 5 months.

76. (1) ? = $\frac{144 \times 12 \times 36 \times 36}{432}$ = 5184

77. (4) $(?)^2 = 121$
? = 11

78. (4) $? = \frac{7}{3} + \frac{17}{5} \times \frac{5}{4} - \frac{8}{3}$
$= \frac{7}{3} + \frac{17}{4} - \frac{8}{3}$
$= \frac{17}{4} - \frac{1}{3}$
$= \frac{51-4}{12}$
$= \frac{47}{12}$

79. (3) $\frac{1898}{73} \times 72 = (?)^2 \times 13$
$\Rightarrow 26 \times 72 = (?)^2 \times 13$
$\Rightarrow (?)^2 = \frac{26 \times 72}{13} = 144$
$\therefore ? = \sqrt{144} = 12$

80. (4) $\{(0.9)^2\}^2 \div \{(0.9)^3\}^3 \times (0.9)^2 = (0.9)^{?-3}$
$\Rightarrow (0.9)^4 \div (0.9)^9 \times (0.9)^2 = (0.9)^{?-3}$
$\Rightarrow (0.9)^{4-9+2} = (0.9)^{?-3}$
$\Rightarrow ? = 3 - 3 = 0$