IBPS RRB Officer Scale-I Preliminary Grand Test –IRP-180707
HINTS & SOLUTIONS

ANSWER KEY

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

HINTS & SOLUTIONS

1. (1)

For-I From venn diagram No pen is clipboard and Some Sharp are Pen therefore Some sharp are not clipboard. Hence, Conclusion I can be concluded
For-II Since, there is no direct relation between elements Pages and Clipboard. Hence, Conclusion II cannot be concluded.

2. (1)
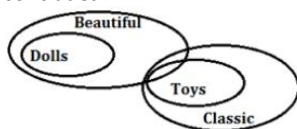
For-I From venn diagram it is clear that Some beautiful are Classic. Hence, Conclusion I follows.
For-II From venn diagram it is clear that Some beautiful are Classic, Therefore, we cannot conclude that No Beautiful is Classic. Hence, Conclusion II does not follow.

3. (5)

For-I Since No bottle is Plate and All bottle are glass it is clear that glass which are bottle are not plate. Hence, Conclusion I is true

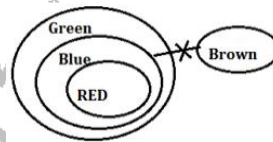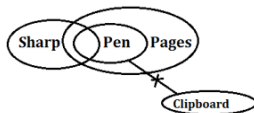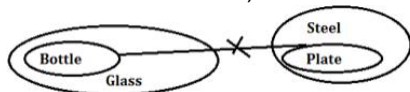For-II Since No Plate is Bottle and All plate are Steel it is clear that steel which are plate are not bottle. Hence, Conclusion II is true.

4. (2)

For-I Since, there is no direct relation between Keys and CPU. Therefore, we cannot conclude that Some Keys are CPU.
For-II. From venn diagram it is clear that All mouse are CPU and No CPU is Phone. Therefore, Mouse cannot be Phone and Conclusion II will be True.

5. (4)

For-I Since there is no direct relation between Green and Brown. Therefore, we cannot conclude that Some Brown are Green.
For-II Since all red is Blue and No blue is Brown. Therefore, Brown cannot be Red. Hence, Conclusion II cannot be concluded.

6-10. T sells jasmine. S sells Sunflower and has 2 shops. P sells rose and R has 4 shops. Q does not sell lotus and Daffodil. U does not sell lotus.

Person	Flowers	Shops
P	Rose	
Q	~~Lotus/Daffodil~~	
R		4
S	Sunflower	2
T	Jasmine	
U	~~lotus~~	
V		

The difference between number of shops between P and U is an even number. P has more shops than U, so only one possibility is there that P has 4 shops and U has 2. T has same number of shop only as the one who sells marigold. T has more shops than V. So, Q sells marigold and T and Q both have 5 shops. Also, V sells lotus. The ones who sell Lotus and Daffodil have same number of shop. The final arrangement is:

Person	Flowers	Shops
P	Rose	4
Q	Marigold	5
R	Lily	4
S	Sunflower	2
T	Jasmine	5
U	Daffodil	2
V	Lotus	2

6. (2)　　　　　　　　　7. (4)
8. (3)　　　　　　　　　9. (5)　　　　　　　10. (3)
11. (2)　BK
12. (4)

3 6 1 9 3 8 4 7 9

13. (1)　THIS, HIST, SHIT, HITS
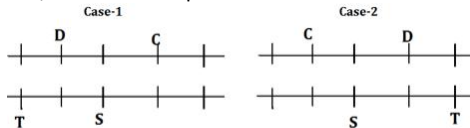
14. (3)

6 5 9 3 4 2 7

8 4 8 2 6 4 6

4, 6, 8 are the numbers which appear twice.

15. (2) F I N I S H / F H I I N S

16-20. T sits at one of the extreme end. C sits next to the one who is sitting diagonally opposite to T. One person sit between C and D. S sits next to the one who is facing D. Therefore position of S is confirmed at middle of the row. So, there are two possible cases---

Two persons sit between P and R, who does not face D. Therefore R sits at extreme end in both the cases. B sits to the right of E but none of them face S. E and B do not sit together.
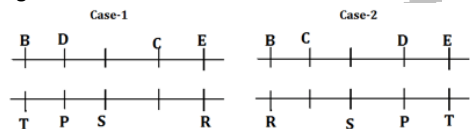
A does not sit second to the right of one who faces T. By this condition case 2 will be eliminated and we go the final arrangement----
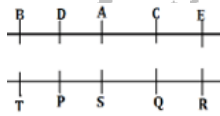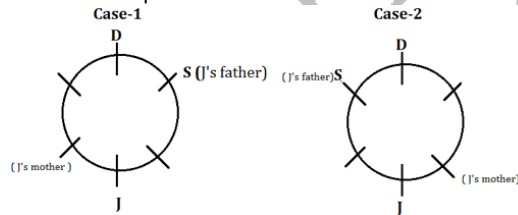

| 16. (2) | 17. (5) |
| 18. (3) | 19. (4) | 20. (1) |

21-25. Only one person sits between J and his father S. S sits opposite to his wife. One person sits between S's wife and D, who is not an immediate neighbor of J. S can sit either 2nd to the right of J or 2nd to the left of J. So, there are two possible cases-----

C sits second to the right of his grandmother and opposite to his mother W. Therefore case 2 will be eliminated. W has only one son and one daughter.
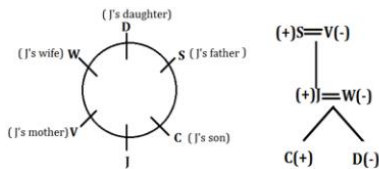
| 21. (1) | 22. (1) |
| 23. (3) | 24. (3) | 25. (3) |

26-30. F was born in Kolkata in a month having less than 31 days. Two persons were born between F and B. Three persons were born between A and E, who was born after F. D was born before C, who was born in cochin. D was born after G, who was born in Mumbai.

CASE1

Month	Person	Place
January	G	Mumbai
February	F	Kolkata
April	A	
July	D	
August	B	
September	C	Cochin
December	E	

CASE2

Month	Person	Place
January	A	
February	G	Mumbai
April	F	Kolkata
July	D	
August	E	
September	B	
December	C	Cochin

Neither D nor E born in Delhi or Darjeeling. B was not born in Delhi, So A was born is Delhi and B was born in Darjeeling in case1 and case 2. The one born in Bhopal was born in the month having 31 days. The one who was born in Bhopal was born immediately before the one born in Chennai. So, case1 gets eliminated as there is no place for the ones born in Bhopal and Chennai according to this condition. The final arrangement is:

Month	Person	Place
January	A	Delhi
February	G	Mumbai
April	F	Kolkata
July	D	Bhopal
August	E	Chennai
September	B	Darjeeling
December	C	Cochin

26. (2)	27. (1)
28. (2)	29. (5)	30. (3)
31. (5)	S>V (True), W<K (True)
32. (4)	A≤F (False), G<C (False)
33. (1)	Q<O (True), T<P (False)
34. (2)	K>P (False), N<Q (True)
35. (1)	T<Y (True), T=Y (False)

36-40.

Word	Code
key	fo
room	lo
lock/flat	ka/ra
Is	nk
floor/home	sk/nd
house	da

| 36. (1) | 37. (2) |
| 38. (3) | 39. (4) | 40. (4) |

41. (3) Pattern of series
$12 \times 0.5 + 1 = 7$
$7 \times 1 + 1.5 = 8.5$
$8.5 \times 1.5 + 2 = 14.75$
$? = 14.75 \times 2 + 2.5 = 32$
$32 \times 2.5 + 3 = 83$

42.(1) Pattern of series —
$12 \times 6 + 6 = 78$
$78 \times 5 + 5 = 395$
$395 \times 4 + 4 = 1584$
$1584 \times 3 + 3 = 4755$
$? = 4755 \times 2 + 2 = 9512$

43. (5)
$26 \times 2 + 1 = 53$
$53 \times 4 + 2 = 214$
$214 \times 6 + 3 = 1287$
$1287 \times 8 + 4 = 10300$
$? = 10300 \times 10 + 5 = 103005$

44. (4) Pattern of series —
$4187 - (11^3 - 1) = 2857$
$2857 - (9^3 - 1) = 2129$
$2129 - (7^3 - 1) = 1787$
$1787 - (5^3 - 1) = 1663$
$? = 1663 - (3^3 - 1) = 1637$

45. (5) Pattern of series
$27 \div 1 = 27$
$27 \times 2 = 54$
$54 \div 3 = 18$
$18 \times 4 = 72$
$? = 72 \div 5 = 14.4$

46. (2) Ratio of profit → Archit : Sandy
$\quad\quad\quad\quad\quad\quad 2 \times 4 \;:\; 3 \times 5$
$\quad\quad\quad\quad\quad\quad\quad 8 \;:\; 15$
Let profit of Archit be 8x and Sandy be 15x.
ATQ,
$15x - 8x = 420$
$7x = 420$
$x = 60$
Required total = 60 × 23 = Rs. 1380

47. (1)

Tap	Time	Tank Capacity
X	12	↓
Y	15	60 unit
Z	10	

ATQ,
Work done by X & Y in 6 minutes= (5+4)×6=54 unit
Remaining work = 60 – 54 = 6 unit
Required time = $\frac{6}{(5+4-6)}$ = 2 minutes.

48. (5) Age of Ayush = $\frac{50}{2} + 11 = 36$ years
Age of Abhishek = $\frac{3}{4} \times 36 = 27$ years.
Required difference = 36 – 27 = 9 years.

49. (4) Volume of sphere = $\frac{4}{3}\pi R^3$ (R → Radius)
Volume of cylinder = $\pi r^2 h$ (r → radius of cylinder, h → height of cylinder)
R = r (given)
ATQ,
$\frac{4}{3}\pi R^3 = 288\pi \Rightarrow R^3 = 216 \Rightarrow R = 6cm = r$
Radius of cylinder=r=6cm
Height of cylinder=h=12cm
Volume of cylinder = $\pi r^2 h$
= 432π cm³

50. (3) 1 men 1 day work = $\frac{1}{8 \times 4} = \frac{1}{32}$
1 women 1 day work = $\frac{1}{6 \times 6} = \frac{1}{36}$
Work done in 2 days by 4 men and & 6 women
= $2\left(\frac{4}{32} + \frac{6}{36}\right) = \frac{3+4}{12} = \frac{7}{12}$
Remaining work = $1 - \frac{7}{12} = \frac{5}{12}$
No. of women required to complete the remaining work in 1 day.
= $36 \times \frac{5}{12} = 15$ women

51. (4) Total sold TV's of MI brand
= $7200 \times \frac{25}{100}$
=1800
Total sold TV's of Sony & Onida together
= $7200 \times \frac{(12+10)}{100}$
= $7200 \times \frac{22}{100}$
= 1584
Required percentage = $\frac{1800-1584}{1800} \times 100$
= $\frac{216 \times 100}{1800}$
= 12%

Alternative solution
Required percent= $\frac{25-(12+10)}{25} \times 100 = 12\%$

52. (5) Average numbers of sold TV's of ONIDA & Tosiba brand
= $\frac{7200 \times \frac{(10+18)}{100}}{2}$
= $\frac{1656}{2}$
= 828
Average number of sold TV's of LG & Sony brand
= $\frac{7200 \times \frac{(16+12)}{100}}{2}$
= $\frac{2016}{2}$
= 1008
Required difference = 1008 – 828 = 180

53.(1) Total LED TV's sold by Samsung & MI together
= $7200 \times \frac{24}{100} \times \frac{5}{12} + 7200 \times \frac{25}{100} \times \frac{4}{9}$
= 720 + 800
= 1520
Total LCD TV's sold by Samsung & MI together
= $7200 \times \frac{24}{100} \times \frac{7}{12} + 7200 \times \frac{25}{100} \times \frac{5}{9}$
= 1008 + 1000
= 2008
Required difference = 2008 – 1520 = 488

54. (2) Required ratio = $\frac{7200 \times \frac{(16+10)}{100}}{7200 \times \frac{(24+12)}{100}}$
= 13 : 18

Or, Alternative —
Required ratio = $\frac{(16+10)\%}{(24+12)\%}$
= 13 : 18

55. (3) Required percentage
= $\frac{7200 \times \frac{16}{100} - 7200 \times \frac{13}{100}}{7200 \times \frac{13}{100}} \times 100$
= $\frac{1152-936}{936} \times 100$
= $\frac{216}{936} \times 100$
= $23\frac{1}{13}\%$

OR

Alternative : $\frac{16-13}{13} \times 100 = \frac{300}{13} = 23\frac{1}{3}\%$

56. (3) Average no. of female employees in company X, Y & K
= $\frac{900 + 1800 + 1500}{3} = \frac{4200}{3} = 1400$
Average no. of male employees in company X, Y & L
= $\frac{1200 + 1500 + 900}{3} = \frac{3600}{3} = 1200$
Required difference = 1400 – 1200 = 200

57.(4) No. of female employees in company L = 2200
Total no. of employees in company K & L together
= (1000 + 1500) + (900+ 2200)
= 5600
Required percentage = $\frac{2200}{5600} \times 100$
= $39\frac{2}{7}\%$

58. (1) No. of male employees in company Y in 2017
= $1500 \times \frac{110}{100} = 1650$
No. of male employees in company Z in 2017 = $2200 \times \frac{120}{100} = 2640$
No. of female employees in company Y in 2017 = $1800 \times \frac{70}{100} = 1260$
No. of female employees in company Z in 2017 = $1200 \times \frac{60}{100} = 720$
Required ratio = $\frac{1650+1260}{2640+720} = \frac{2910}{3360}$
= 97 : 112

59. (5) Illiterate female employees of company L = $2200 \times \frac{25}{100} = 550$
Illiterate male employees of company L = $900 \times \frac{5}{9} = 500$
Total illiterate employees of company L = 550 + 500 = 1050
Required percentage = $\frac{1050}{2500} \times 100$
= 42%

60. (2) No. of male employees in company A = $4500 \times \frac{40}{100} = 1800$
No. of female employees in company A = $(1200 + 900) \times \frac{1}{2} = 1050$
Required total = 1800 + 1050 = 2850

61. (1) I. $6x^2 + 7x + 2 = 0$
$6x^2 + 3x + 4x + 2 = 0$
$3x (2x + 1) + 2 (2x + 1) = 0$
$x = \frac{-1}{2}, \frac{-2}{3}$
II. $3y^2 + 8y + 5 = 0$
$3y^2 + 5y + 3y + 5 = 0$
$y(3y + 5) + 1 (3y + 5) = 0$
$y = -1, \frac{-5}{3}$
$x > y$

62. (4)   I. $7x^2 - 23x + 6 = 0$
$7x^2 - 21x - 2x + 6 = 0$
$7x (x - 3) - 2 (x - 3) = 0$
$x = 3, \frac{2}{7}$

II. $y^2 - 7y + 12 = 0$
$y^2 - 3y - 4y + 12 = 0$
$y(y - 3) - 4 (y - 3) = 0$
$y = 3, 4$
$y \geq x$

63. (5)   I. $5x^2 + 13x - 6 = 0$
$5x^2 + 15x - 2x - 6 = 0$
$5x (x + 3) - 2 (x + 3) = 0$
$x = \frac{2}{5}, -3$

II. $2y^2 + 13y - 7 = 0$
$2y^2 + 14y - y - 7 = 0$
$2y (y + 7) - 1 (y + 7) = 0$
$y = -7, \frac{1}{2}$

No relation.

64. (3)   I. $4x + 3y = 4$ …(i)
II. $6x + 5y = 8$ …(ii)
Multiplying (i) by 5 and (ii) by 3 & subtracting (ii) from (i),
we get x = −2
put x=-2 in (i), we get y = 4
y > x

65. (1)   I. $x^2 - 19x + 88 = 0$
$x^2 - 11x - 8x + 88 = 0$
$x (x - 11) - 8 (x - 11) = 0$
$x = 8, 11$

II. $y^2 + y - 56 = 0$
$y^2 + 8y - 7y - 56 = 0$
$y (y + 8) - 7 (y + 8) = 0$
$y = 7, - 8$
$x > y$

66. (3)   No. of girls playing indoor games in college A
$= 1200 \times \frac{40}{100} \times \frac{2}{5} = 192$
No. of boys playing outdoor games in college C
$= 1650 \times \frac{50}{100} \times \frac{2}{5} = 330$
Required difference = 330 – 192 = 138

67. (1)   No. of boys playing outdoor games in college D
$= 1400 \times \frac{25}{100} \times \frac{3}{7} = 150$
No. of girls playing outdoor games in college E
$= 1250 \times \frac{20}{100} \times \frac{2}{5} = 100$
Required percentage $= \frac{150-100}{100} \times 100 = 50\%$

68. (4)   No. of boys in college X
$= 1200 \times \frac{60}{100} \times \frac{150}{100} = 1080$
No. of girls in college X = 1800 – 1080 = 720
No. of girls playing indoor games in college C
$= 1650 \times \frac{50}{100} \times \frac{2}{5} = 330$
Required average $= \frac{720+330}{2} = 525$

69. (2)   Total number of students playing indoor games in college D
$= 1400 \times \frac{25}{100} \times \frac{4}{7} + 1400 \times \frac{75}{100} \times \frac{3}{7}$
$= 200 + 450 = 650$
Total number of students playing outdoor games in college E
$= 1250 \times \frac{80}{100} \times \frac{4}{5} + 1250 \times \frac{20}{100} \times \frac{2}{5}$
$= 800 + 100 = 900$
Required ratio $= \frac{650}{900} = 13 : 18$

70. (5)   Total number of girls in college B and C together
$= 800 \times \frac{55}{100} + 1650 \times \frac{50}{100}$
$= 440 + 825 = 1265$
Total number of students playing outdoor games in college D
$= 1400 \times \frac{25}{100} \times \frac{3}{7} + 1400 \times \frac{75}{100} \times \frac{4}{7}$
$= 150 + 600 = 750$
Required percentage $= \frac{1265 - 750}{750} \times 100$
$= \frac{206}{3}\%$
$= 68\frac{2}{3}\%$

71. (3)   Let speed of current be x km/hr.
ATQ,
$(240-x) \times \frac{60}{100} = x$
144-0.6x=x
1.6x=144
x=90
speed in upstream=250-90=150km/hr

72. (1)   Let the age of his son be x yrs
Therefore age of father = 4x yrs
Atq,
$(x - 5) = (4x - 5) \times \frac{1}{5}$
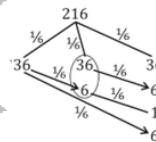5x - 25 = 4x - 5
x = 20 yrs
∴ age of son = 20 yrs

73. (2)   Total CI for 3 yrs
$CI = P \left[\left(1 + \frac{50}{300}\right)^3 - 1\right]$
$= P \left[\frac{7}{6} \times \frac{7}{6} \times \frac{7}{6} - 1\right]$
$CI = P \left[\frac{343 - 216}{216}\right] = \frac{127}{216} P$
Total CI for 2 yrs
$CI = P \left[\left(1 + \frac{50}{300}\right)^2 - 1\right]$
$= P \left[\frac{49}{36} - 1\right] = \frac{13}{36} P$
CI only for 3rd year
$= \frac{127P}{216} - \frac{13P}{36}$
$= \frac{49P}{216}$
CI only for 2nd year
$= \frac{13P}{36} - \frac{P}{6} = \frac{7P}{36}$
Atq,
$\frac{49P}{216} - \frac{7P}{36} = 210$
$\Rightarrow \frac{49P - 42P}{216} = 210$
$P = 30 \times 216 = Rs\ 6,480$

Alternative solution
$16\frac{2}{3}\% = \frac{1}{6}$
Let the amount be $(6)^3$ = Rs. 216

Total CI in 2nd yr = Rs. 42
Total CI in 3rd yr = Rs. 49
ATQ,
$7 \rightarrow 210$
$1 \rightarrow \frac{210}{7} = 30$
$216 \rightarrow 216 \times 30 = Rs.\ 6480$

74. (4)   Let CP of 100 gm be Rs 100
After cheating at time of buying
CP of 110 gm be Rs 100.
After cheating at time of selling
SP of 90 gm be Rs 100
After equating 110 gm & 90 gm
Multiplying 110 gm by 9 & 90 gm by 11.
∴ CP of 990 gm be Rs 900
& SP of 990 gm be Rs 1100
∴ Profit % $= \frac{200}{900} \times 100 = 22\frac{2}{9}\%$

75. (4) Let side of square be a cm.
∴ $a^2 = 400$ cm²
a = 20 cm
Length of rectangle (ℓ) = 20 × 1.4 = 28 cm
ATQ,
4 × 20 = 2(ℓ + b)   [b → breadth of rectangle]
80 = 2 (28 + b)
b = 12 cm
∴ Area of rectangle = 28 × 12 = 336 cm²

76. (1) $308 + 672 - \frac{40}{100} \times ? + \frac{80 \times 355}{100} = (28)^2$
$980 + 284 - 784 = \frac{2 \times ?}{5}$
$? = \frac{480 \times 5}{2}$
? = 1200

77. (2) $\frac{178 + ?}{8} + 25 \times 42 - \frac{16}{100} \times 400 = (32)^2$
$\frac{178 + ?}{8} = 1024 + 64 - 1050$
? = 38 × 8 – 178
? = 126

78. (5) $\sqrt{1296} + \sqrt{2025} + \sqrt{1521} - \sqrt{?} = \frac{13}{100} \times 900$
$36 + 45 + 39 - \sqrt{?} = 117$
$\sqrt{?} = 120 - 117$
? = 9

79. (2) $350 + \frac{56 \times 240}{14} + \sqrt{?} = (11)^3$
$\sqrt{?} = 1331 - 350 - 960$
$\sqrt{?} = 21$
? = 441

80. (3) $32 \times 35 + \sqrt{961} + \frac{19 \times ?}{100} = \frac{40}{100} \times 3305$
$1120 + 31 + \frac{19 \times ?}{100} = 1322$
$\frac{19 \times ?}{100} = 1322 - 1151$
$? = \frac{171 \times 100}{19}$
? = 900