IBPS RRB Office Asst. Preliminary Grand Test –IRP-180705

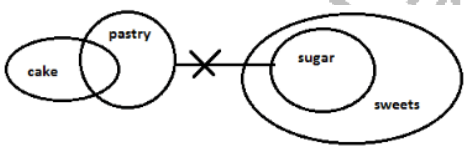
HINTS & SOLUTIONS

ANSWER KEY

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

HINTS & SOLUTIONS

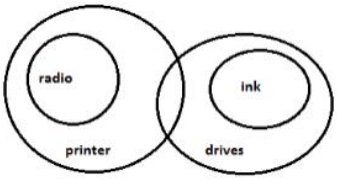
1. (5)



For I – Since, there is no direct relation between element cake and sweets. Hence, Conclusion I cannot be concluded.

For II – Since, there is no direct relation between element sweets and pastry. Hence, Conclusion II cannot be concluded.

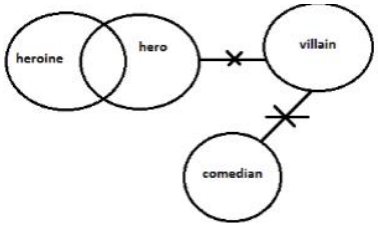
2. (5)



For I – Since, there is no direct relation between element printer and ink. Hence, Conclusion I cannot be concluded.

For II – Since, there is no direct relation between element radio and drives. Hence, Conclusion II cannot be concluded.

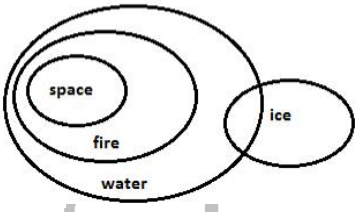
3. (3)



For I – Since, there is no relation between the elements hero and comedians. Hence, Conclusion I cannot be concluded.

For II – From Venn diagram it is clear that some heroine are hero and no hero is villain, therefore, some heroine are not villain. Hence, Conclusion II can be concluded.

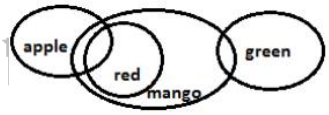
4. (1)



For I – Since, there is no direct relation between element ice and space, therefore possibility case will hold true. Hence, Conclusion I can be concluded.

For II – Since all space is fire and all fire is water therefore some space are water is definitely true. Hence, Conclusion II can be concluded.

5. (2)



For I – Since, there is no direct relation between element apple and green. Hence, Conclusion I cannot be concluded.

For II – Since, there is no direct relation between element apple and green. Hence, Conclusion II cannot be concluded.

Since the elements are same and some & some not case is mentioned. Therefore, "Either –Or" case will be concluded.

6. (2) 96,44

7. (3) 6

8. (2) 2

9. (4) 9

10. (5) Six- 45,97,15,13,13,47

11-15. C likes Geography and participates in Cricket. D likes History but do not participate in Cricket, i.e. D participates in Hockey (Since only the one who likes English and Hindi participates in Football). E likes Chemistry. B likes Computer and do not participate with C, i.e. B participates in Hockey.

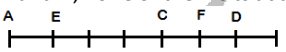
Sports	Students	Subjects
	A	
Hockey	B	Computer
Cricket	C	Geography
Hockey	D	History
	E	Chemistry
	F	
	G	

Now, neither A nor G likes Biology, i.e. F likes Biology. E participates with the one who likes Biology so, E participate in Cricket. A does not like English so G likes English and A likes Hindi. So the final arrangement is :

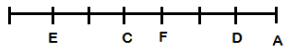
Sports	Students	Subjects
Football	A	Hindi
Hockey	B	Computer
Cricket	C	Geography
Hockey	D	History
Cricket	E	Chemistry
Cricket	F	Biology
Football	G	English

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

16-20. A sits at one of the ends. Three persons sit between A and C, who is immediate left to F. Four persons sit between E and D, none of them sits at any end.

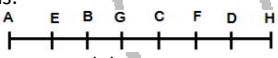


case1



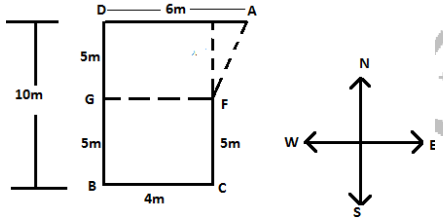
case2

No one sits between B and G, So case2 gets eliminated as there is no place for G and B. No two persons are sitting adjacent to each other according to the English alphabet. Therefore, B cannot sit next to C. The final arrangement is:



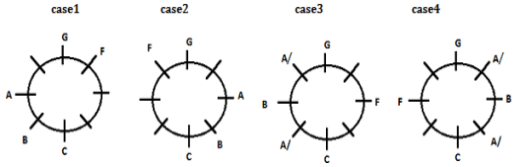
16. (3) 17. (1)
18. (1) 19. (3) 20. (2)

21-23.

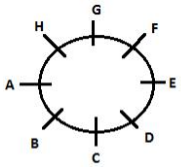


21. (4) Southwest
22. (3) 4m
23. (4) $\sqrt{5^2 + 2^2} = \sqrt{29}$ m

24-28. C sits fourth to the right of G who is not an immediate neighbor of B. B who faces F is an immediate neighbor of A. We get four possibilities

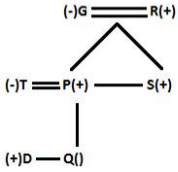


E sits third to the left of H, So case3 and 4 gets eliminated. H is not an immediate neighbor of D. So, Case 2 will be eliminated.
So the final arrangement will be:

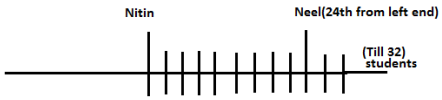


24. (5) 25. (1)
26. (3) 27. (4) 28. (3)

29-31.



29. (2) 30. (5) 31. (3)
32. (1) I. O > P (True) II. S > R (False)
33. (2) I. B > E (False) II. D < C (True)
34. (3) I. Y < V (False) II. V = Y (False)
35. (4) I. R < M (False) II. N < R (False)
36. (5) I. G < J (True) II. L < J (True)
37. (4) Grandfather
38. (4)



Neel's position from right end = (33-24) =9th from right end

Eight persons sit between Neel and Nitin so Nitin's position from right hand = (9+9) = 18th from right end. Since there are only eight persons to the right of Neel, Nitin cannot sit on the right side of Neel.

39. (2) $(25 \div 5 \times 8 - 150 + 4) = 29$
40. (4) Three

41. (2)
I. $x^2 - 5x - 14 = 0$
$\Rightarrow x^2 - 7x + 2x - 14 = 0$
$\Rightarrow x(x - 7) + 2(x - 7) = 0$
$\Rightarrow (x - 7)(x + 2) = 0$
$\Rightarrow x = 7, -2$
II. $y^2 - 16y + 64 = 0$
$\Rightarrow (y - 8)^2 = 0$
$\Rightarrow y = 8, 8$
$\Rightarrow y > x$

42. (3)
I. $x^2 - 9x + 20 = 0$
$\Rightarrow x^2 - 5x - 4x + 20 = 0$
$\Rightarrow (x - 5)(x - 4) = 0$
$\Rightarrow x = 5, 4$

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

$x \geq y$

43. (5)
I. $2x^2 + 11x + 12 = 0$
$\Rightarrow 2x^2 + 8x + 3x + 12 = 0$
$\Rightarrow (x + 4)(2x + 3) = 0$
$\Rightarrow x = -4, -\frac{3}{2}$
II. $4y^2 + 13y + 10 = 0$
$\Rightarrow 4y^2 + 8y + 5y + 10 = 0$
$\Rightarrow (y + 2)(4y + 5) = 0$
$\Rightarrow y = -2, -\frac{5}{4}$
No relation

44. (1)
I. $2x + 3y = 4$
II. $3x + 2y = 6$
Multiplying equation (i) by 2 and Equation (ii) by 3 and then subtracting,
$4x + 6y = 8$
$\underline{9x + 6y = 18}$
$-5x = -10$
$\Rightarrow x = 2$
$x = 2$ in (I)
$4 + 3y = 4$
$\Rightarrow y = 0$
$\therefore x > y$

45. (5)
I. $6x^2 - x - 1 = 0$
$6x^2 - 3x + 2x - 1 = 0$
$\Rightarrow (2x - 1)(3x + 1) = 0$
$\Rightarrow x = \frac{1}{2}, -\frac{1}{3}$
II. $8y^2 - 2y - 1 = 0$
$\Rightarrow 8y^2 - 4y + 2y - 1 = 0$
$\Rightarrow (2y - 1)(4y + 1) = 0$
$\Rightarrow y = \frac{1}{2}, -\frac{1}{4}$
No relation

46. (2)
1 day work of A = $\frac{1}{18}$
1 day work of B = $\frac{1}{24}$
3 day's work of B = $\frac{3}{24} = \frac{1}{8}$
Remaining work = $1 - \frac{1}{8} = \frac{7}{8}$
(A + B)'s 1 day work = $\frac{1}{18} + \frac{1}{24} = \frac{7}{72}$
Time required to complete $\frac{7}{8}^{th}$ work by A and B together
$= \frac{7}{8} \div \frac{7}{72}$
= 9 day
Total time required to complete whole work
= 9 + 3 days
= 12 days

47. (4)
Let principle is Rs. x
So interest = $\frac{7x}{2} - x = \frac{5}{2}x$
Time = 10 year
$I = \frac{P \times T \times R}{100}$
$\frac{5}{2}x = \frac{x \times 10 \times R}{100}$
R = 25%

48. (1)
Required probability = $\frac{{}^5C_1 \times {}^7C_1 + {}^7C_2 \times {}^5C_0}{{}^{12}C_2}$
$= \frac{35+21}{66} = \frac{56}{66} = \frac{28}{33}$

49. (3)
Let length of train = x meter
$x = 30 \times 54 \times \frac{5}{18} = 450$ meter
Time required to cross the platform
$= \frac{450+180}{54 \times \frac{5}{18}} = \frac{630}{15} = 42$ sec

50. (2)
Let initial quantity of water = 8x liter
So initial quantity of milk = 5x liter
ATQ,
$\frac{5x+6}{8x} = \frac{7}{8} \Rightarrow x = 3$
So initial quantity of mixture = (5 + 8) × 3 = 39 liter

51. (2)
$\frac{318 \times 48}{?\times 12} = 14^2 + 3^3 - 12.8 \times 5$
$\Rightarrow \frac{(318\times 4)}{?} = 196 + 27 - 64$
$? = \frac{318\times 4}{159} = 8$

52. (4)
$? = 8 + \frac{7}{10} - 6 - \frac{3}{5} - 3 - \frac{4}{5} + 4 + \frac{4}{5}$
$= (8 - 6 - 3 + 4) + \left(\frac{7}{10} - \frac{3}{5} - \frac{4}{5} + \frac{4}{5}\right)$
$= (3) + \left(\frac{7-6-8+8}{10}\right)$
$= 3\frac{1}{10}$

53. (1)
$\sqrt{?} = -18^2 + 526 + 344 - 532$
$\sqrt{?} = -324 + 870 - 532$
$\sqrt{?} = 14$
$? = 196$

54. (5)
$\frac{55}{100} \times 540 + \frac{1}{3} \times 183 + \sqrt{?} = 361$
$\sqrt{?} = 361 - 297 - 61$
$\sqrt{?} = 3$
$? = 9$

55. (1)
$? = 17 \times 6 - 75 - 34 + 23$
$? = 102 - 75 - 34 + 23$
$? = 16$

56. (5)
22, 146, 209, 235, 242, 242
$+(5^3-1)$, $+(4^3-1)$, $+(3^3-1)$, $+(2^3-1)$, $+(1^3-1)$

57. (3)
28, 92, 124, 140, 148, 152
+64, +32, +16, +8, +4

58. (2)
81, 1412, 2141, 2484, 2609, 2636
$+11^3$, $+9^3$, $+7^3$, $+5^3$, $+3^3$

59. (1)
3, 7, 22, 89, 446, 2677
×2+1, ×3+1, ×4+1, ×5+1, ×6+1

60. (2)
25, 41, 257, 321, 1321, 1465
$+4^2$, $+6^3$, $+8^2$, $+10^3$, $+12^2$

61. (1)
Let total work = 36 units
One hour's work of A = $\frac{36}{12} = 3$ units
One hour's work of B = $\frac{-36}{18} = -2$ units
(∵ B is emptying pipe)
∴ Remaining work after 3 hours
= 36 – (3 × 3 – 2 × 3)
= 33 units
∴Total time required to fill the tank
$= 3 + \frac{33}{3} = 14$ hours

62. (3)
Required time = LCM of (24, 32, 56)
= 672 min
= 11.2 hours

63. (2)
Let total distance = d
∴ Average speed = $\frac{d}{\frac{d}{24}+\frac{d}{48}}$
= 16 km/h

64. (4)
CP of 16 pencils = $\frac{9}{12} \times 16 = Rs.\ 12$
SP of 16 pencils = $\frac{12}{12} \times 16 = Rs\ 16$
∴ Required profit percentage
$= \frac{16-12}{12} \times 100 = 33\frac{1}{3}\%$

65. (3)
Let total number of deer and ostriches are x and y respectively.
∴ x + y = 480 ...(i)
And,
4x + 2y = 1040
⇒ 2x + y = 520 ...(ii)
Solving equation (i) and (ii) respectively.
x = 40 and y = 440

66. (4)
Required percentage
$= \frac{\frac{1}{8}[250+550+700] \times 1000}{\frac{1}{8}[250+450] \times 1000} \times 100$
$= \frac{500\times 2}{700} \times 100$
$= \frac{1000}{7}\%$

67. (1)
No. of project handled by company A in August = $1000 \times \frac{(300+600)}{2} \times \frac{10}{9}$
= 500 thousand
Required difference = $\frac{450+700}{2} - 500$
= 575 – 500 = 75 thousand

68. (4) No. of project handled by company A in January = $250 \times \frac{4}{5} = 200$ thousand
No. of project handled by company B in January = $600 \times \frac{5}{4} = 750$
Required sum= $750 + 200 = 950$

69. (1) Required percentage
$$= \frac{\frac{1}{2}[700+600] - \frac{1}{2}[550+450]}{\frac{1}{2}[550+450]} \times 100$$
$$= \frac{(650-500)}{500} \times 100$$
$= 30\%$

70. (5) Required ratio $= \frac{\frac{1}{2}[550+450+600]}{\frac{1}{2}[300+550]}$
$= 64 : 51$

71. (2) $\frac{?}{4} \times \frac{3}{5} \times \frac{24}{25} \times 625 = 3125 \times 54$
$\Rightarrow ? = \frac{3125 \times 54}{90}$
$\Rightarrow ? = 1875$

72. (1) $? = 13456 - 11342$
$\Rightarrow ? = 2114$

73. (4) $4^? \times (4^5) = 4^4 \times 4^5$
$\Rightarrow 4^? = 4^4$
$\Rightarrow ? = 4$

74. (5) $? = 396 + 224 - 64$
$\Rightarrow ? = 556$

75. (4) $? = 32 + 28 - 9$
$? = 51$

76. (1) No. of bricks required $= \frac{600 \times 500 \times 50 \times 95\%}{25 \times 12.5 \times 7.5} = 6080$

77. (2)

Room 1	Room 2
3B, 4G, 5R	2B, 1G, 3R

P (Green Bag to work) = P $\left(\frac{\text{Green bag}}{\text{Room 1}}\right)$ or P $\left(\frac{\text{Green bag}}{\text{Room 2}}\right)$
$$= \frac{1}{2} \times \frac{4}{3+4+5} + \frac{1}{2} \times \frac{1}{2+1+3} = \frac{1}{4}$$

78. (1) Let initially A and B have x and y respectively

	A	B
Initially	(x)	(y)
case I	$(x+400)$	$(y-400)$
case II	$(x-200)$	$(y+200)$

According to question
Case I
$x + 400 = (y - 400)\frac{125}{100}$
$4x + 1600 = 5y - 2000$
$4x - 5y = -3600$ .....(i)
Case II
$\frac{7}{2}(x - 200) = y + 200$
$7x - 1400 = 2y + 400$
$7x - 2y = 1800$ .....(ii)
From eqn. (i) and (ii)
$x = 600, y = 1200$
B have Rs. 1200

79. (2) P = 6000
Ist year,
A = $6000\left[1 + \frac{10}{100}\right] = 6600$
Balance after 1st payment = 6600 – 2000 = 4600
2nd year,
P = 4600
A = $4600\left[1 + \frac{10}{100}\right] = 5060$
Balance after 2nd payment = 5060 – 2000 = 3060
3rd year, $\frac{3060 \times 10 \times 1}{100}$ = Rs. 3366 to be paid in 3rd year

80. (5) $\frac{M}{D} = \frac{5}{X}$ (Given) .....(i)
Parineeta's present age = 33 – 9 = 24 yrs.
∴ Manisha's present age = 25 yr = M
Also,
Dipali's age – 25 = 10
D = 35
From (i)
$\frac{25}{35} = \frac{5}{X} \Rightarrow X = 7$