IBPS RRB Officer Scale-I Preliminary Grand Test –IRP-180827

HINTS & SOLUTIONS

ANSWER KEY

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

HINTS & SOLUTIONS

1. (2) I. $X > U$ (False) II. $Z > N$ (True)
2. (1) I. $K > B$ (True) II. $G \leq A$ (False)
3. (4) I. $T > Z$ (False) II. $X \geq V$ (False)
4. (5) I. $K \leq V$ (True) II. $E = M$ (True)
5. (4) I. $R < S$ (False) II. $N = R$ (False)

6-8. S gave presentation at last and on World hepatitis day. R gave representation on 12th. P did not give presentation on 17th and 26th, So P gave presentation on 15th. Only one person gave presentation after Q. World youth skill day is not represented on 12th.

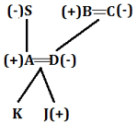
Date	Person	Event
12th	R	~~World Youth skill day~~
15th	P	
17th		
26th	Q	~~World Youth skill day~~
28th	S	World hepatitis day

More than two persons gave presentations between the date representing international Malala day and hepatitis day. T gave presentation on the date which represents World justice day.

Date	Person	Event
12th	R	International Malala day
15th	P	World youth skill day
17th	T	World justice day
26th	Q	Kargil Vijay Diwas
28th	S	World hepatitis day

6. (3) 7. (3) 8. (1)

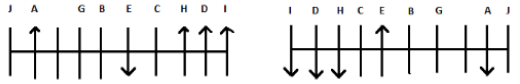
9-10.



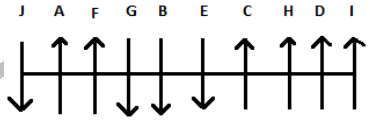
9. (3) 10. (4)

11-15. Six persons sit between A and D and none of them sits at any end of the row. Both A and D faces same direction. Two persons sit between E and D. I sits fourth to the left of E. Only one person sit between H and I. Immediate neighbors of D face same direction as D. C sits to the immediate left of H. Two persons sit between J and G. G and B are not the immediate neighbors of A. We will have two possibilities-

Case 1 Case 2



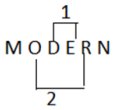
Now, persons sitting at the end face opposite directions. G and B face same direction as J. F faces north. Immediate neighbors of E face opposite direction. Since, the number of person facing south is not equal to the number of person facing north. This will eliminate case 2. So the final arrangement will be-



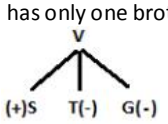
11. (2) 12. (5) 13. (4)
14. (3) 15. (4)
16. (4)
17. (5)

ELEPHANT
FKFOGBMS
BFFGKMOS
Final

18. (3)



19. (5) 20. (2)
21. (5) From both I and II, G has only one brother.

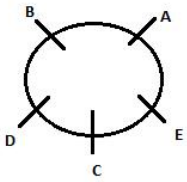


22. (2) From I, P > L > O
From II, M > N > _ > _ > _
Hence only II is sufficient to answer the question

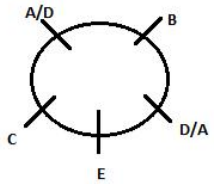
23. (5) From I and II both it is clear that 'Human' is coded as 'vo'

24. (3) From I, Position of V from top = 25 – 9 + 1 = 17th
Thus position of J from top = 17 – 4 = 13th
From II, Position of M from top = 25 -18 +1 = 8th
Thus position of J from top = 8 + 5 = 13th

25. (1) From I, D is to the immediate right of B



From II, Position of D is not confirmed.



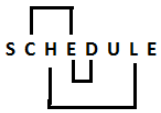
26-30. E was born in the month having least number of days. Four persons were born between C and E. . H is the youngest of them all. G was born in the month having maximum number of days. F was born immediately before G. B was born immediately after A. We will have two possibilities-

Case 1			Case 2		
Month	**11th**	**18th**	**Month**	**11th**	**18th**
Feb	E	A	Feb		E
April	B	F	April	A	B
May	G	C	May	F	G
June		H	June	C	H

Now, D is not older than B. This will eliminate case 2. So the final arrangement will be-

Month	11th	18th
Feb	E	A
April	B	F
May	G	C
June	D	H

26. (3) 27. (2) 28. (4)
29. (1) 30. (4)
31. (3)



32. (4) 33. (3)
34. (5) She can be Sameer's niece or daughter.
35. (4)
36. (5) 37. (3) * I 2 @ Q 8
38. (5) 39. (2) 40. (3)

41. (1) I. $3x^2 + 17x + 10 = 0$
$\Rightarrow 3x^2 + 15x + 2x + 10 = 0$
$\Rightarrow 3x(x + 5) + 2(x + 5) = 0$
$\Rightarrow (3x + 2)(x + 5) = 0$
$\Rightarrow x = -5, \left(-\frac{2}{3}\right)$
II. $10y^2 + 9y + 2 = 0$
$\Rightarrow 10y^2 + 5y + 4y + 2 = 0$
$\Rightarrow 5y(2y + 1) + 2(2y + 1) = 0$
$\Rightarrow (5y + 2)(2y + 1) = 0$
$\Rightarrow y = \frac{-2}{5}, -\frac{1}{2}$
$\therefore x < y$

42. (1) I. $4x^2 = 49$
$\therefore \quad x = \pm\frac{7}{2}$
II. $9y^2 - 66y + 121 = 0$
$9y^2 - 33y - 33y + 121 = 0$
$y = \frac{11}{3}, \frac{11}{3}$
$y > x$

43. (2) I. $3x^2 + 3x + 2x + 2 = 0$
$\Rightarrow 3x(x + 1) + 2(x + 1) = 0$
$\Rightarrow x = -1, \frac{-2}{3}$
II. $y^2 + 9y + 3y + 27 = 0$
$\Rightarrow y(y + 9) + 3(y + 9) = 0$
$\Rightarrow y = -3, -9$
$\therefore x > y$

44. (3) I. $x^2 - 5x - 2x + 10 = 0$
$\Rightarrow x(x - 5) - 2(x - 5) = 0$
$\Rightarrow x = 2, 5$
II. $y^2 - 9y - 5y + 45 = 0$
$\Rightarrow y(y - 9) - 5(y - 9) = 0$
$\Rightarrow y = 9, 5$
$\therefore x \leq y$

45. (2) I. $6x^2 - 49x + 99 = 0$
Or, $6x^2 - 27x - 22x + 99 = 0$
Or, $3x(2x - 9) - 11(2x - 9) = 0$
Or, $(3x - 11)(2x - 9) = 0$
$\therefore x = \frac{11}{3}, \frac{9}{2}$
II. $5y^2 + 17y + 14 = 0$
$or, 5y^2 + 10y + 7y + 14 = 0$
$or, 5y(y + 2) + 7(y + 2) = 0$
$or, (5y + 7)(y + 2) = 0$
$\therefore y = -2, -\frac{7}{5}$
Hence, x > y

46. (3) Let the monthly salary of A be Rs x
Then,
Expense on Rent and food = $x \times \frac{44}{100} = \frac{44x}{100}$ Rs.
Remaining salary = $x - \frac{44x}{100} = \frac{56x}{100}$ Rs.
Expense on books = $\frac{56x}{100} \times \frac{1}{8} = \frac{7x}{100}$ Rs.
Remaining amount = $\frac{56x}{100} - \frac{7x}{100} = \frac{49x}{100}$ Rs.
Expense on Transport and entertainment = $\frac{49x}{100} \times \frac{5}{7} = \frac{35x}{100}$ Rs
'A' Saving = $\frac{49x}{100} - \frac{35x}{100} = \frac{14x}{100}$ Rs.
B's monthly salary = $\frac{252000}{12} = Rs\ 21{,}000$
Saving of 'A' = $\frac{14x}{100} = 16\frac{2}{3}\%\ of\ 21000$
$\Rightarrow$ x = 25,000
Expenses on books = $25000 \times \frac{7}{100}$ = Rs. 1,750

47. (3) Atq,
$\frac{80}{100} \times (x - 4)x = (x + 12)\ (x - 12)$
$\Rightarrow 4x^2 - 16x = 5x^2 - 720$
$\Rightarrow x^2 + 16x - 720 = 0$
$\Rightarrow x^2 + 36x - 20x - 720 = 0$
$\Rightarrow (x + 36)\ (x - 20) = 0$
$\Rightarrow$ x = 20
Required time = $\frac{total\ work}{number\ of\ women} = \frac{16 \times 20}{24}$
$= 13\frac{1}{3}$ days

48. (3) Let the CP of second article be Rs 100
Then, CP of first article = Rs 125
Total SP of both articles = $225 \times \frac{140}{100} = Rs\ 315$
SP of cheaper (2nd) article = $100 \times \frac{125}{100} = Rs\ 125$
SP of first article = 315 – 125 = Rs 190
Required profit percent = $\frac{65}{125} \times 100 = 52\%$

49. (1) SI in 3 yrs = $\frac{15000 \times 8 \times 3}{100} = Rs\ 3600$
CI in 2 yrs = $P\left[\left(1+\frac{R}{100}\right)^n - 1\right]$
$= 15000\left[\left(1+\frac{15}{100}\right)^2 - 1\right]$
$= 15000 \times \frac{129}{400} = Rs\frac{9675}{2}$
Required amount = $\frac{9675}{2} - 3600 = Rs\frac{2475}{2} = Rs\ 1237.5$

50. (4) Speed of A in downstream = $\frac{54}{4.5}$ = 12 km/hr
Let speed of A in still water be 3x km/hr
Speed of stream = x km/hr
Upstream speed of B = $\frac{27}{5.4} = 5\ km/hr$
Atq,
4x = 12 ⇒ x = 3 km/hr
Speed of stream = 3 km/hr
∴ speed of A in still water = 12 – 3 = 9 km/hr
Speed of B in still water = 5 + 3 = 8 km/hr
Required time = $\frac{21}{(9-3)} + \frac{55}{(8+3)}$
= 3.5 + 5 = 8.5 hr

51. (2) Total number of Govt. employees in year 1995 and 2010 together
= $2,00,000 \times \frac{35}{100} + 1,10,000 \times \frac{40}{100}$
= 70,000 + 44,000
= 1,14,000
Total number of Pvt. Employees in year 2000 and 2005 together
= $1,50,000 \times \frac{28}{100} + \frac{2,20,000 \times 32}{100}$
= 42,000 + 70,400
= 1,12,400
Required ratio = $\frac{(1,14,000)}{(1,12,400)} = \frac{285}{281}$

52. (1) The number of self-employed person in year 1990 and 2000 together
= $1,25,000 \times \frac{30}{100} \times \frac{2}{5} + 1,50,000 \times \frac{40}{100} \times \frac{1}{2}$
= 15,000 + 30,000
= 45,000
The number of unemployed person in year 2005 and 2010 together
= $2,20,000 \times \frac{20}{100} \times \frac{3}{5} + 1,10,000 \times \frac{15}{100} \times \frac{7}{10}$
= 26,400 + 11,550
= 37,950
Required difference =7,050

53. (5) Number of govt. employees in year 2015
= $\frac{50}{100} \times \left(2,00,000 \times \frac{35}{100} + 1,50,000 \times \frac{32}{100}\right)$
= 59,000
Total number of Pvt. Employees, self-employed and unemployed in year 2015
= $\frac{59,000}{29.5} \times 70.5 = 1,41,000$
Required average = $\frac{1,41,000}{3}$ = 47,000

54. (4) Total number of Pvt. Employees and self-employed in year 2000
= $1,50,000 \times \frac{28}{100} + 1,50,000 \times \frac{40}{100} \times \frac{1}{2}$
= 42,000 + 30,000
= 72,000
Total number of self-employed and unemployed in year 2005 and 2010 together
= $2,20,000 \times \frac{20}{100} + 1,10,000 \times \frac{15}{100}$
= 44,000 + 16,500
= 60,500
Required% = $\frac{72000-60500}{60500} \times 100 = \frac{2300}{121} \approx 19\%$

55. (3) Required Average = $\frac{2,00,000 \times \frac{65}{100} + 1,50,000 \times \frac{72}{100} + 2,20,000 \times \frac{68}{100}}{3}$
$= \frac{1,30,000+1,08,000+1,49,600}{3}$
= 1,29,200

56. (2) Total all types of machines produced in year 1991 = 275
Total all types of machines produced in year 1993 = 385
Required percent = $\frac{275}{385} \times 100 = 71\frac{3}{7}\%$

57. (1) Total machines of type IV in all the years together = 390
Total machines of type I in all the years together = 450
Required ratio = $\frac{390}{450} = 13 : 15$

58. (2) For year 1991 = $\frac{2}{38} \times 100 = \frac{100}{19}\%$
For year 1992 = $\frac{25}{40} \times 100 = \frac{125}{2}\%$
For year 1994 = $\frac{30}{60} \times 100 = 50\%$
For year 1995 = $\frac{40}{90} \times 100 = \frac{400}{9}\%$
Answer → 1992

59. (4) Total machines produced in 1990 = 215
Total machines produced in 1995 = 445
Required average = $\frac{215+445}{2} = 330$

60. (3) Total machines produced in year 1992 and 1993 together =272+385= 657
Total machines produced in year 1991 and 1994 together =275+430= 705
Required difference = 705 – 657 = 48

61. (1) **Quantity I:**
Let mark price = 100x Rs.
So, cost price = $\frac{100x \times 75}{100}$ = 75x Rs.
Selling price = $\frac{100x \times 85}{100}$ = 85x Rs.
ATQ—
85x = 34
$x = \frac{2}{5}$
CP = 30, Rs.
MP = 40 Rs.
Total profit on selling 18 articles → (34 – 30) × 18 = Rs 72
Quantity II:
52 Rs.

62. (1) **Quantity I:**
Let present age of Satish = a yr
So, present age of Ayush =(a + 3) yr
Given ratio
$\frac{Age\ of\ Ayush\ (5\ year\ ago)}{Age\ of\ Satish\ (4\ year\ hence)} = \frac{3}{4}$
$\Rightarrow \frac{a+3-5}{a+4} = \frac{3}{4}$
$\Rightarrow 4a - 8 = 3a + 12$
⇒ a= 20 years
Quantity II:
12 years
Therefore,
Quantity II < Quantity I

63. (5) **Quantity I:** 36
Quantity II: The word 'DETAIL' has 6 letters which has 3 vowels (EAI) and 3 consonants(DTL) The 3 vowels(EAI) must occupy only the odd positions. Let's mark the positions as (1) (2) (3) (4) (5) (6). Now, the 3 vowels should only occupy the 3 positions marked as (1),(3) and (5) in any order

Hence, number of ways to arrange these vowels
$= {}^3P_3 = 3! = 3\times2\times1 = 6$

Now we have 3 consonants(DTL) which can be arranged in the remaining 3 positions in any order. Hence, number of ways to arrange these consonants = ${}^3P_3 = 3! = 3\times2\times1 = 6$

Total number of ways = number of ways to arrange the vowels × number of ways to arrange the consonants
$= 6 \times 6 = 36$
Therefore, **Quantity II = Quantity I**

64. (3) **Quantity I:**

Let number is → 10x+y

After reversing = 10y+x

ATQ,

$10x + y = 1.2(10y + x)$

$8.8x = 11y$

$\frac{x}{y} = \frac{5}{4}$

Let x be 5a and y be 4a

For value of a=1, the number is two digit

The number should be = 54

Quantity II:

$x^2 - 55x + 54 = 0$
$x^2 - 54x - x + 54 = 0$
$x(x - 54) - 1(x - 54) = 0$
$x = 54, 1$
Quantity I ≥ Quantity II

65. (1) **Quantity I:**

Let Radius of Park = r

Area = πr^2

$5544 = \pi r^2$

$\Rightarrow r = 42\ m.$

Radius of outer circle = 42 + 7 = 49

Area of circular Path = Area of Outer circle – Area of park

$= \frac{22}{7} \times 49 \times 49 - 5544 = 7546 - 5544 = 2002\ m^2$

Quantity II:

Area of rectangle = Length × breadth

= 77 × 26

= 2002 cm²

Quantity I > Quantity II

66. (4) 149, 118, 89, 66, 47, 30
−31, −29, −23, −19, −17
Prime Numbers

67. (1) 468, 596, 694, 766, 816, 848
+128, +98, +72, +50, +32
−30, −26, −22, −18

OR

468, 596, 694, 766, 816, 848
$+\frac{16^2}{2}$, $+\frac{14^2}{2}$, $+\frac{12^2}{2}$, $+\frac{10^2}{2}$, $+\frac{8^2}{2}$

68. (3) 43, 69, 104, 157, 237, 353
+26, +35, +53, +80, +116
+9, +18, +27, +36
+9, +9, +9

69. (1) 620, 605, 635, 590, 650, 575
−15, +30, −45, +60, −75

70. (1) 115, 222, 436, 864, 1720, 3432
×2−8, ×2−8, ×2−8, ×2−8, ×2−8

71. (1) Total marks obtained in math, science & English together
$= \frac{45}{100} \times 2100 = 945$
Total maximum marks $= \frac{2100}{70} \times 100 = 3000$
Required percentage $= \frac{945}{3000} \times 100 = 31.5\%$

72. (3) Required percentage $= \frac{(17+13)-(15+12)}{(15+12)} \times 100$
$= \frac{3}{27} \times 100 = 11\frac{1}{9}\%$

73. (2) Maximum marks per subject which have equal maximum marks
$= \frac{2100}{70} \times 100 \times \frac{20}{100} = 600$
Atq,
Let maximum marks for Hindi be x
$\frac{140}{100} \times x + x = 3000 - 4 \times 600$
240x = 600 × 100
x = 250
maximum marks in math & history together
= 1.4 × 250 + 600 = 950
Marks obtained in computer & Science together
$= \frac{(17+12)}{100} \times 2100 = 609$
∴ Required difference = 950 − 609 = 341

74. (1) Required ratio $= \frac{\frac{17+15}{2}}{\frac{28+18}{2}} = 8:9$

75. (5) New maximum marks $= \frac{2100}{70} \times 100 \times \frac{140}{100} = 4200$
New percentage of marks obtained $= \frac{2100}{4200} \times 100 = 50\%$
55% marks $= \frac{55}{100} \times 4200$
= 2310
Student fails by = 2310 − 2100 = 210

76. (2) $\left(\sqrt{121} - \sqrt{25}\right) + \frac{?}{100} \times 160 = 62$

$\Rightarrow \frac{?}{100} \times 160 = 62 - 6 = 56$
$\Rightarrow ? = \frac{56\times100}{160} = 35$

77. (4) $(156 - 555 \div 5) \times ? = 990$
$\Rightarrow 45 \times ? = 990$
$\Rightarrow ? = \frac{990}{45} = 22$

78. (1) $21 + ? = (120 \times 38) \div 48$
$\Rightarrow ? = 95 - 21 = 74$

79. (5) $\sqrt{(2916 \div 81) \times 17 - ?} = 24$
$\Rightarrow 612 - ? = (24)^2 = 576$
$\Rightarrow ? = 36$

80. (2) $\left(192 \times \frac{25}{100} \div 16\right) = \frac{60}{100} \times 180 - ?$
$\Rightarrow 3 = 108 - ?$
$\Rightarrow ? = 105$