



**Grand Test – SPP 180535**



$$\Rightarrow \frac{-2}{x^2} = \frac{-6}{x} \Rightarrow \frac{2}{x} = 6 \Rightarrow x = \frac{2}{6}$$

$$\Rightarrow x = \frac{2}{6} = \frac{1}{3} = 0.333$$

$$\text{II. } y^2 = 16.95 - 9.68 - 5.64 = 1.63$$

$$y = \sqrt{1.63} \approx \pm 1.27$$

Therefore can't be established.

33. (1) I.  $x^3 = \frac{32+1331}{6} = \frac{1363}{6} = 227$

II.  $4y^3 - 5y^3 = -\frac{589}{4}$

$$\Rightarrow y^3 = \frac{589}{4} = 147$$

34. (2) I.  $12x^2 + 11x + 12 - 10x^2 - 22x = 0$

$$\Rightarrow 2x^2 + 11x + 12 = 0$$

$$\Rightarrow 2x^2 - 8x - 3x + 12 = 0$$

$$\Rightarrow 2x(x-4) - 3(x-4) = 0$$

$$\Rightarrow (x-4)(2x-3) = 0$$

$$\Rightarrow x = 4 \text{ or } \frac{3}{2}$$

II.  $13y^2 - 18y + 3 - 9y^2 + 10y = 0$

$$\Rightarrow 4y^2 - 8y + 3 = 0$$

$$\Rightarrow 4y^2 - 6y - 2y + 3 = 0$$

$$\Rightarrow 2y(2y-3) - 1(2y-3) = 0$$

$$\Rightarrow (2y-1)(2y-3) = 0$$

$$\Rightarrow y = \frac{1}{2} \text{ or } \frac{3}{2}$$

35. (5) I.  $\frac{x^{7/5}}{9} = \frac{169}{x^{3/5}}$

$$\Rightarrow x^{7/5} \times x^{3/5} = 9 \times 169$$

$$\Rightarrow x^{7/5+3/5} = 9 \times 169$$

$$\Rightarrow x^2 = 9 \times 169$$

$$\Rightarrow x = 3 \times 13 = 39$$

II.  $y^4 \times y^4 \times 7 = \frac{273}{y^2}$

$$\Rightarrow y^4 \times y^4 \times 7 = \frac{273}{y^2}$$

$$\Rightarrow y^{4+4+2} = \frac{273}{7} \Rightarrow y = 39$$

36. (1)  $? = 1775 \times 25 \div \left(\frac{3}{8} \text{ of } 160\right)$

$$= 1775 \times 25 \div (3 \times 20)$$

$$= 1775 \times 25 \div 60$$

$$= \frac{1775 \times 25}{60} = 740$$

37. (2)  $? = 22496 \div 25 \div 12$

$$= 22500 \div 25 \div 12$$

$$= \frac{22500}{25 \times 12} = 75$$

38. (3)  $11989 - 27.95 \times 14.98 \times 11.05 - ? = 2800$

$$\Rightarrow 12000 - 28 \times 15 \times 11 - ? = 2800$$

$$\Rightarrow 12000 - 4620 - ? = 2800$$

$$\Rightarrow 7380 - ? = 2800$$

$$\Rightarrow ? = 7380 - 2800 = 4580$$

39. (4)  $? = 75.06\% \text{ of } 359.65 \times 139.89 \text{ of } \frac{4}{7} \div 7.99$

$$= \left(\frac{360 \times 75}{100}\right) \times \left(\frac{4}{7} \times 140\right) \div 8 = 270 \times 80 \div 8 = 2700$$

40. (1) Speed of car Q =  $\frac{\text{Distance}}{\text{Time}} = \frac{154}{\frac{11}{2}} = \frac{154 \times 2}{11} = 28 \text{ kmph}$

Speed of car S =  $\frac{248}{\frac{62}{9}} = \frac{248 \times 9}{62} = 36 \text{ kmph}$

If both cars meet after t hours from 7 a.m., then

$$28 \times t + 36(t-1) = 348$$

$$\Rightarrow 28t + 36t - 36 = 348$$

$$\Rightarrow 64t = 348 + 36 = 384$$

$$\Rightarrow t = \frac{384}{64} = 6 \text{ hours}$$

Hence, both cars will meet at 1 p.m.

41. (2) Distance between destinations II and III = speed  $\times$  Time

$$= 56 \times \frac{47}{14} = 188 \text{ km}$$

Distance between destinations III and IV

$$= 42 \times \frac{27}{7} = 162 \text{ km}$$

Distance between destinations IV and V =  $62 \times 3 = 186 \text{ km}$

$\therefore$  Total distance between destination I and destination VIII

$$= 234 + 188 + 162 + 186 + 154 + 212 + 248 = 1384 \text{ km}$$

Speed of car R =  $\frac{\text{distance}}{\text{Time}}$

$$= \frac{212}{\frac{278}{173}} = \frac{212}{\frac{424}{173}} = \frac{212 \times 173}{424}$$

$$= 86.5 \text{ kmph}$$

$$\therefore \text{Required time} = \frac{1384}{86.5}$$

$$= 16 \text{ hours}$$

42. (3) Distance between destinations II and V =  $(188 + 162 + 186) \text{ km} = 536 \text{ km}$

Distance between destinations IV and VII =  $186 + 154 + 212 = 552 \text{ km}$

$$\text{Required percentage} = \frac{(552-536)}{552} \times 100 = 3\%$$

43. (4) Time taken between destinations II and III

$$= \frac{188}{47} = 4 \text{ hours}$$

Time taken between destinations III and IV =  $\frac{162}{27} = 6 \text{ hours}$

$\therefore$  Average speed

$$= \frac{\text{Total distance}}{\text{total time}}$$

$$= \left(\frac{188+162}{4+6}\right) \text{ kmph}$$

$$= \frac{350}{10} = 35 \text{ kmph}$$

44. (1) Distance between destinations I and V

$$= 234 + 188 + 162 + 186 = 770 \text{ km}$$

If both cars meet after t hours, then

$$48t + 62t = 770$$

$$\Rightarrow 110t = 770$$

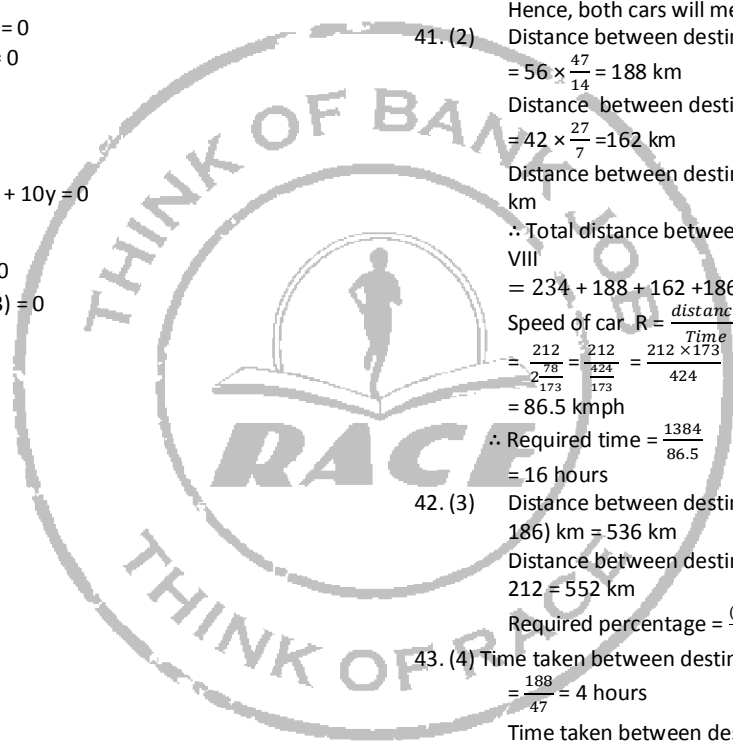
$$\Rightarrow t = \frac{770}{110} = 7 \text{ hours}$$

Hence, both cars will meet at 10 a.m.

45. (1) Number of women doing work in 10 hours =  $M_1$

$$\therefore M_1 D_1 = M_2 D_2$$

$$\Rightarrow M_1 \times 10 = 9 \times \frac{80}{3} = 240$$



$$\Rightarrow M_1 = \frac{240}{10} = 24$$

$$\therefore \text{Number of men doing the work in 10 days} = \frac{24}{2} = 12$$

46. (4) Let the initial quantity of mixture be x litres.

$$\therefore \text{Water} = 0.15x \text{ litres}$$

$$\text{Milk} = 0.85x \text{ litres}$$

In 30 litres of mixture,

$$\text{Water} = \frac{30 \times 15}{100} = 4.5 \text{ litres}$$

$$\text{Milk} = 30 - 4.5 = 25.5 \text{ litres}$$

According to the question,

$$\frac{0.85x - 25.5}{0.15x - 4.5 + 2.1} = \frac{17}{4}$$

$$\Rightarrow \frac{0.85x - 25.5}{0.15x - 2.4} = \frac{17}{4}$$

$$\Rightarrow 3.4x - 102 = 2.55x - 40.8$$

$$\Rightarrow 3.4x - 2.55x = 102 - 40.8$$

$$\Rightarrow 0.85x = 61.2$$

$$\Rightarrow x = \frac{61.2}{0.85} = 72 \text{ litres}$$

47. (1) S.I. for 2 years =  $\frac{P \times R \times T}{100}$

$$= \frac{2000 \times 15 \times 2}{100} = \text{Rs. } 600$$

$$\therefore \text{Amount} = \text{Rs. } (2000 + 600) = \text{Rs. } 2600$$

Let the additional money be Rs. x.

According to the question,

$$\text{C.I.} = P \left[ \left( 1 + \frac{R}{100} \right)^T - 1 \right]$$

$$\Rightarrow 1507 = (2600 + x) \left[ \left( 1 + \frac{20}{100} \right)^2 - 1 \right]$$

$$\Rightarrow 1507 = (2600 + x) \left[ \left( 1 + \frac{1}{5} \right)^2 - 1 \right]$$

$$\Rightarrow 1507 = (2600 + x) \left( \frac{36}{25} - 1 \right)$$

$$\Rightarrow 1507 = (2600 + x) \left( \frac{36 - 25}{25} \right)$$

$$\Rightarrow 1507 = (2600 + x) \left( \frac{11}{25} \right)$$

$$\Rightarrow 2600 + x = \frac{1507 \times 25}{11} = 3425$$

$$x = 3425 - 2600 = \text{Rs. } 825$$

48. (1) Actual C.P. of 12 guavas = Rs. (12 x 28) = Rs. 336

$$\text{Discount} = \text{Rs. } (336 - 325) = \text{Rs. } 11$$

$\therefore$  Discount per cent

$$= \frac{11}{336} \times 100 = 3.3\%$$

49. (5) According to the question,

Amount received by a clerk

$$\text{Rs.} = \left( \frac{7}{8} \times 32000 \right) = \text{Rs. } 28000$$

$$\therefore \text{Total profit} = \text{Rs. } (83 \times 32000 + 115 \times 28000) \\ = \text{Rs. } 5876000$$

50. (2) In January 2013,

$$\text{Male visitors} = \frac{120 \times 5}{12} = 50 \text{ thousands,}$$

Female visitors = 70 thousands Of 20 years or below age group, Female visitors

$$= 120 \times \frac{65}{100} \times \frac{60}{100} = 46.8 \text{ thousands}$$

$$\text{Male visitors} = 120 \times \frac{65}{100} \times \frac{40}{100} = 31.2 \text{ thousands}$$

Of above 20 years age group. Male visitors = 50 - 31.2 = 18.8 thousands

Female visitors = 70 - 46.8 = 23.2 thousands

Difference = 23.2 - 18.8

= 4.4 thousands = 4400

51. (5) Total number of visitors taking all months together = 55 + 75 + 65 + 126 + 120 = 441 thousands

$$\therefore \text{Required percent} = \frac{65}{441} \times 100 = 14.74$$

52. (1) Required ratio =  $75 \times \frac{2}{5} : 126 \times \frac{4}{7}$

$$= 30 : 72 = 5 : 12$$

53. (1) Male visitors in September and October

$$= \left( 55 \times \frac{4}{11} + 75 \times \frac{3}{5} \right) \text{ thousands}$$

$$= (20 + 45) \text{ thousands} = 65 \text{ thousands}$$

Male visitors in November and December

$$= \left( \frac{65 \times 5}{8} + 126 \times \frac{3}{7} \right) \text{ thousands}$$

$$= 40625 + 54000 = 94625$$

$$\text{Difference} = 94625 - 65000 = 29625$$

54. (5) Visitors of 20 years or less than 20 years age group :

September  $\Rightarrow \frac{55 \times 40}{100} = 22 \text{ thousands}$

October  $\Rightarrow \frac{75 \times 52}{100} = 39 \text{ thousands}$

November  $\Rightarrow \frac{65 \times 55}{100} = 35.75 \text{ thousands}$

December  $\Rightarrow \frac{126 \times 60}{100} = 75.6 \text{ thousands}$

January  $\Rightarrow \frac{126 \times 65}{100} = 81.3 \text{ thousands}$

$$\text{Average} = \left( \frac{22 + 39 + 35.75 + 75.6 + 81.3}{5} \right) \text{ thousands}$$

$$= \frac{250.35}{5} \text{ thousands}$$

$$= 50.07 \text{ thousands}$$

$$= 50070$$

55. (1) The pattern is :

$$11 \times 0.5 - 0.5 = 5.5 - 0.5 = 5$$

$$5 \times 1 - 1 = 4$$

$$4 \times 1.5 - 1.5 = 6 - 1.5 = 4.5$$

$$4.5 \times 2 - 2 = 9 - 2 = 7$$

Similarly,

$$a = 15 \times 0.5 - 0.5$$

$$= 7.5 - 0.5 = 7$$

$$b = 7 \times 1 - 1 = \boxed{6}$$

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56. (5) The pattern is :

$$\begin{aligned} 9 \times 2 &= 18 \\ 18 \times 3 &= 54 \\ 54 \times 4 &= 216 \\ 216 \times 5 &= 1080 \\ 1080 \times 6 &= 6480 \end{aligned}$$

Similarly,

$$\begin{aligned} a &= 7 \times 2 = 14 \\ b &= 14 \times 3 = 42 \\ c &= 42 \times 4 = \boxed{168} \end{aligned}$$

57. (5) The pattern is :

$$\begin{aligned} 5 \times 6 + 1^2 &= 30 + 1 = 31 \\ 31 \times 5 + 2^2 &= 155 + 4 = 159 \\ 159 \times 4 + 3^2 &= 636 + 9 = 645 \end{aligned}$$

Similarly,

$$\begin{aligned} a &= 3 \times 6 + 1^2 = 18 + 1 = 19 \\ b &= 19 \times 5 + 2^2 = 95 + 4 = 99 \\ c &= 99 \times 4 + 3^2 = 396 + 9 = 405 \end{aligned}$$

58. (2) The pattern is :

$$\begin{aligned} 7 \times 1 + 6 &= 7 + 6 = 13 \\ 13 \times 2 + 5 &= 26 + 5 = 31 \\ 31 \times 3 + 4 &= 93 + 4 = 97 \\ 97 \times 4 + 3 &= 388 + 3 = 391 \end{aligned}$$

Similarly,

$$\begin{aligned} a &= 13 \times 1 + 6 = 19 \\ b &= 19 \times 2 + 5 = 38 + 5 = 43 \\ c &= 43 \times 3 + 4 = 129 + 4 = 133 \\ d &= 133 \times 4 + 3 = 532 + 3 = \boxed{535} \end{aligned}$$

59. (2) The pattern is :

$$\begin{aligned} 8 \times 1 - 1 &= 8 - 1 = 7 \\ 7 \times 2 - 2 &= 14 - 2 = 12 \\ 12 \times 3 - 3 &= 36 - 3 = 33 \\ 33 \times 4 - 4 &= 132 - 4 = 128 \end{aligned}$$

Similarly,

$$\begin{aligned} a &= 6 \times 1 - 1 = 5 \\ b &= 5 \times 2 - 2 = 10 - 2 = 8 \\ c &= 8 \times 3 - 3 = 24 - 3 = \boxed{21} \end{aligned}$$

60. (4) The pattern is :

$$\begin{aligned} 15 \times 1 - 1^3 &= 15 - 1 = 14 \\ 14 \times 2 - 2^3 &= 28 - 8 = 20 \\ 20 \times 3 - 3^3 &= 60 - 27 = 33 \\ 33 \times 4 - 4^3 &= 132 - 64 = 68 \end{aligned}$$

Similarly,

$$\begin{aligned} a &= 21 \times 1 - 1^3 = 21 - 1 = 20 \\ b &= 20 \times 2 - 2^3 = 40 - 8 = 32 \\ c &= 32 \times 3 - 3^3 = 96 - 27 = \boxed{69} \end{aligned}$$

61. (2) Let the population of village be x.

$$\text{Population of higher economic class} = \frac{30x}{100} = \frac{3x}{10}$$

Population of lower economic class = 6860

∴ Population of middle economic class

$$= \frac{3}{2} \times 6860 = 10290$$

∴ Population of middle and lower economic class = 6860 + 10290 = 17150

$$\therefore \left( x - \frac{3x}{10} \right) = \frac{7x}{10} = 17150$$

$$\Rightarrow x = \frac{17150 \times 10}{7} = 24500$$

62. (4) Part of tank filled by A and B in 1 hour =  $\frac{1}{5} - \frac{1}{8}$

$$= \frac{8-5}{40} = \frac{3}{40}$$

∴ Time taken in filling the tank completely =  $\frac{40}{3}$  hours

∴ Time taken in filling the  $\frac{2}{5}$  th part of tank

$$= \frac{40}{3} \times \frac{2}{5} = \frac{16}{3} = 5\frac{1}{3} \text{ hours}$$

63. (2) Breadth of rectangle = x metre (let)

∴ Length = (x + 5) metre

$$\therefore 2(x + 5 + x) = 86$$

$$\Rightarrow 2x + 5 = 43$$

$$\Rightarrow 2x = 43 - 5 = 38$$

$$\Rightarrow x = 19 \text{ metre} = \text{breadth} = \text{base}$$

∴ Length = 19 + 5 = 24 metre = height

∴ Area of triangle =  $\frac{1}{2} \times \text{base} \times \text{height}$

$$= \frac{1}{2} \times 24 \times 19 = 228 \text{ sq. metre}$$

64. (5) Let  $\angle A = x^\circ$

∴  $\angle B = x + 26$

$$\angle C = \frac{x+26}{2} = \frac{x}{2} + 13$$

$$\angle D = \frac{x}{2} + 3$$

$$\therefore x + x + 26 + \frac{x}{2} + 13 + \frac{x}{2} + 3 + x + x + 26 + 2 - x + 13 + 3 = 360^\circ$$

$$\Rightarrow 3x = 360 - 42 = 318^\circ$$

$$\Rightarrow x = \frac{318}{3} = 106^\circ$$

65. (5) Required ratio = 6 : 4 = 3 : 2

(66 – 71):

After careful analysis of the given input and various steps of rearrangement, it is evident that two elements (numbers or words) are rearranged in each step. In the first step the lowest number moves to the extreme right position while the second lowest number moves to the extreme left position. In the second step. The first word in alphabetical order moves to the extreme right position while the second word in alphabetical order moves to the extreme left position. These two steps are continued alternately to complete the rearrangement.

**Input:** parenting 16 36 and raising 44 children 21 is 89 very 95 demanding 72 job 65

**Step I:** 21 parenting 36 and raising 44 children is 89 very 95 demanding 72 job 65 16

**Step II:** children 21 parenting 36 raising 44 children is 89 very 95 demanding 72 job 65 16 and

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**Step III:** 44 children 21 parenting raising is 89 very 95 demanding 72 job 65 16 and 36

**Step IV:** is 44 children 21 parenting raising 89 very 95 72 job 65 16 and 36 demanding

**Step V:** 72 is 44 children 21 parenting raising 89 very 95 job 16 and 36 demanding 65

**Step VI:** parenting 72 is 44 children 21 raising 89 very 95 16 and 36 demanding 65 job

**Step VII:** 95 parenting 72 is 44 children 21 raising very 16 and 36 demanding 65 job 89

**Step VIII:** very 95 parenting 72 is 44 children 21 16 and 36 demanding 65 job 89 raising

- 66. (2) '95 job 16 and' appear in the same order in the Step V.
- 67. (4) The position of '72' from the right end in the Step IV is seventh.
- 68. (1) 10<sup>th</sup> from the left end in the Step III ⇒ demanding 5<sup>th</sup> to the left of 'demanding' ⇒ raising
- 69. (2) Eight steps would be required to complete the given arrangement.
- 70. (5) '36' is exactly between 'parenting' and 'raising' in the Step II.
- 71. (3) Third last step means Step VI. Option (3) is Step VI.
- 72. (4)  $A > L = T < R \leq H > K$

**Conclusions**

- I.  $H > L$  : True
- II.  $K > T$  : Not True

- 73. (4)  $F \leq C \leq V = Z < X = U$

**Conclusions**

- I.  $V < U$  : True
- II.  $Z < F$  : Not True

- 74. (2)  $R = S \geq Y \geq M < W > O$

**Conclusions**

- I.  $Y < M$  : Not True
- II.  $O > S$  : Not True

- 75. (5)  $P > Q$

- $P < R$
- $R \geq O$
- $O \leq R > P > Q$

**Conclusions**

- I.  $Q > R$  : Not True
- II.  $Q < R$  : True

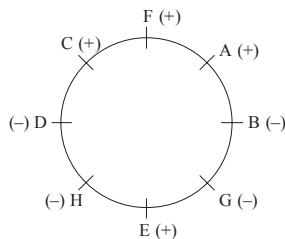
- 76. (5)  $P \leq Q$

- $T = R > P \leq Q$

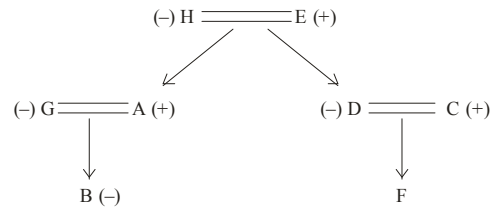
**Conclusions**

- I.  $T \leq Q$  : Not True
- II.  $T > P$  : True

77 – 81.



**Family Tree Diagram**

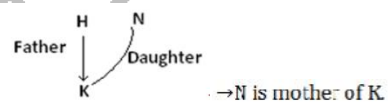


- 77. (3) Son-in-law
- 78. (2) Third to the left
- 79. (4) G D B H
- 80. (4) B's father
- 81. (3) Three

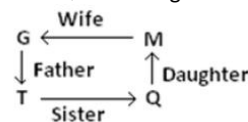
(82 – 86):

Floor Number	Person	Company
8	O	Nokia
7	T	Godrej
6	M	Wipro
5	P	Infosys
4	R	Samsung
3	N	HCL
2	S	Accenture
1	Q	TCS

- 82. (3) R works in Samsung.
- 83. (2) T lives on floor numbered 7.
- 84. (4) S works in Accenture.
- 85. (5) M lives immediately above and R lives immediately below P.
- 86. (1) R lives on floor numbered 4 and  $4 + 4 = 8$   
N lives on floor numbered 3 and  $3 + 3 = 6$   
T lives on floor numbered 7 and  $7 - 3 = 4$   
S lives on floor numbered 2 and  $2 + 3 = 5$   
M lives on floor numbered 6 and  $6 - 3 = 3$
- 87. (2) Indian economy is in a poor shape basically due to improper mobilization of man-power.
- 88. (1) A country's economic standard can be best adjusted by per capital income.
- 89. (3)  $H \times K \rightarrow H$  is the father of K;  $k \div H \rightarrow K$  is daughter of N



- 90. (2)  $F \div R \rightarrow F$  is the daughter of R;  $R \times H \rightarrow R$  is the father of H.  
 $H - L \rightarrow H$  is husband of L  $\rightarrow H$  is brother of F
- 91. (5)  $G \times T \rightarrow G$  is the father of T;  $T + Q \rightarrow T$  is the sister of Q.  
 $Q \div M \rightarrow Q$  is the daughter of M



- 92. (3) From statement I
- |    |    |    |    |   |
|----|----|----|----|---|
| 20 | 17 | 15 | 12 | 9 |
| C  | A  | E  | B  | D |
- Clearly, D is the youngest.
- From statement II
- |    |    |    |    |   |
|----|----|----|----|---|
| 20 | 17 | 15 | 12 | 9 |
| C  | A  | E  | B  | D |
- Clearly, D is the youngest.

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93. (5) From statement I  
always **try to** → succeed 0 **4** 9 **8**

**try to** is essential → 5 **8** 1 **4**

From statement II

**to** succeed is **essential** → 9 1 **5** **8**

only **essential to** try → 4 **8** **5** 3

From both the statements

always **try** **to** **succeed** → 0 **4** **9** **8**

**to** **try** **is** **essential** → **5** **8** **1** **4**

**to** **succeed** **is** **essential** → **9** **1** **5** **8**

only **essential to** **try** → **4** **8** **5** 3

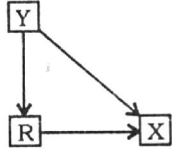
94. (4) From statement I  
Ninad's father is the grandfather of Sheela's son.  
It means Ninad is the sibling of Sheela.

From statement II

Sheela has one brother and two sisters.

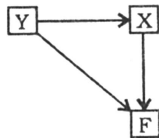
There is no information about Ninad.

95. (1) From statement I

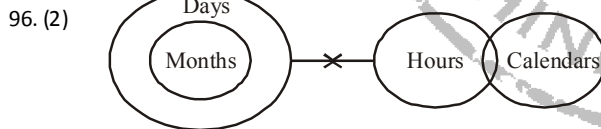


Village 'X' is in the southeast direction of Village 'Y'.

From statement II

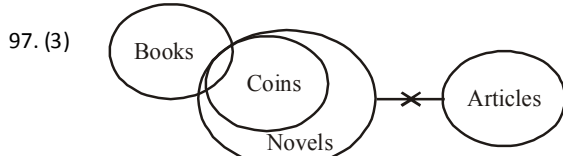


Village 'X' is in the east direction of Village 'Y'.



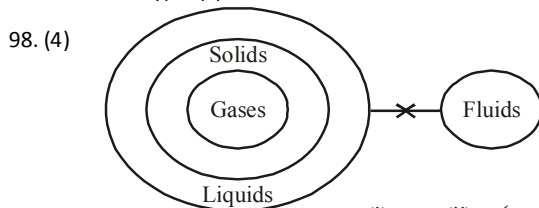
(i) ✓ (ii) ✗

Only (i) follows



(i) ✓ (ii) ✓

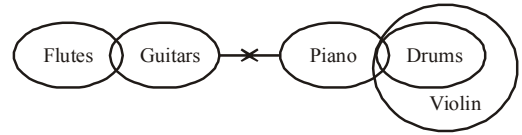
Both (i) & (ii) follows.



(i) ✗ (ii) ✓

Only (ii) follows.

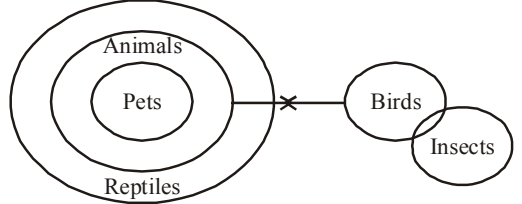
99. (5)



(i) ✗ (ii) ✗ (iii) ✗ (iv) ✗ (v) ✓

Only (v) follows.

100. (5)



(i) ✗ (ii) ✗ (iii) ✓ (iv) ✓ (v) ✗

Only (iii) & (iv) follows.