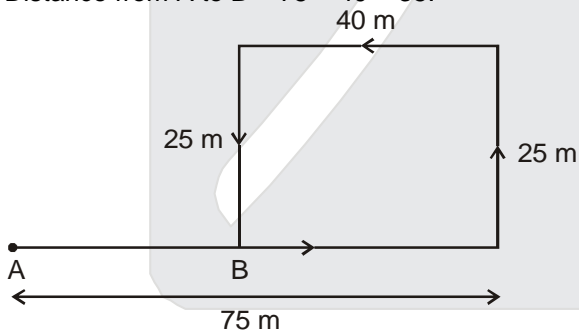


## MENTAL ABILITY TEST (MAT) HINTS & SOLUTIONS

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	3	1	2	4	4	3	2	4	2	3	3	4	1	2
Ques.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	1	1	3	1	3	2	1	3	3	3	1	2	4	2
Ques.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	3	3	4	3	1	3	1	3	3	4	1	4	4	3	4
Ques.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	4	3	2	1	3	3	2	2	3	4	1	4	3	1	4
Ques.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	4	2	1	3\4	2	4	2	1	2	4	1	2	4	1	1
Ques.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	2	2	4	1	1	4	1	2	3	4	4	2	2	2	4
Ques.	91	92	93	94	95	96	97	98	99	100					
Ans.	2	2	3	2	4	4	4	2	4	2					

4. Distance from A to B =  $75 - 40 = 35$ .



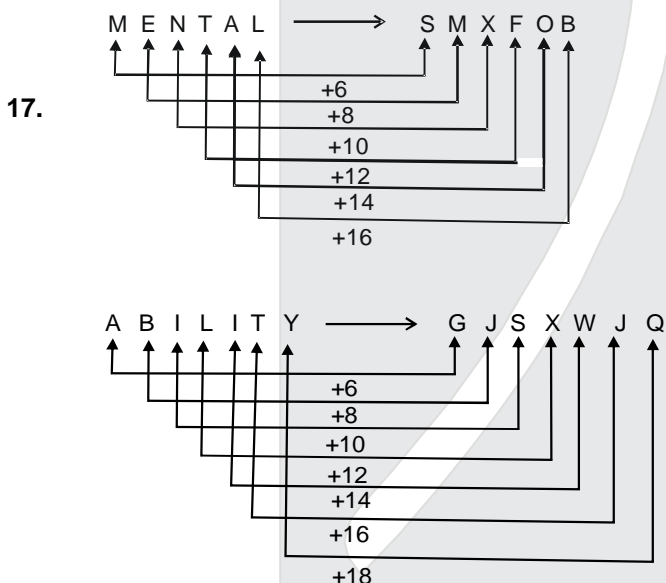
Option 2 is correct.

6. Sum of squares of all numbers – sum of numbers  
 $[(3)^2 + (2)^2 + (2)^2 + (4)^2] - [3 + 2 + 2 + 4] = 22$   
 $[(4)^2 + (3)^2 + (2)^2 + (5)^2] - [4 + 3 + 2 + 5] = 40$   
 $[(5)^2 + (4)^2 + (3)^2 + (6)^2] - [5 + 4 + 3 + 6] = 68.$   
 Option 4 is correct.
7. Number of Indian non-player students who are talented = 10.  
 Option 3 is correct.
8. Number of talented Indian who are players =  $8 + 9 = 17$ .  
 Option 2 is correct.
9. Number of talented Indians who are students =  $9 + 10 = 19$ .  
 Option 4 is correct.

10. ATP  
Number of people in B is 10 more than A  
 $\therefore x + y + 5 + 11 = y + 5 + 15 + 10 + 10$   
 $x = 24.$   
 Number of people in only B =  $x = 24.$   
 Option 2 is correct.

11. ATP  
 $x + y + 5 = 63$   
 $x + y = 58 \dots\dots\dots(i)$   
 $x + y + 5 + 11 = 2(15 + y + 5 + 10)$   
 $x + y + 16 = 60 + 2y$   
 $58 + 16 = 60 + 2y$  (from equation (i))  
 $y = 7$   
 $\therefore x + 7 = 58.$   
 $x = 51.$   
 Option 3 is correct.

15. It will be only possible when the man will travel with uniform speed equally.  
 Option 2 is correct.



Option 1 is correct.

18.

J A I S A L M E R  
 $\downarrow \downarrow \downarrow \swarrow \swarrow \swarrow \swarrow$   
 J A I L S A R M E

H Y D E R A B A D  
 $\downarrow \downarrow \downarrow \swarrow \swarrow \swarrow \swarrow$   
 H Y D A E R D B A

Option 1 is correct.

19.

A Z, G T, M N, **SH**, Y B

+6      +6      +6      +6

-6      -6      -6      -6

Option 3 is correct.

20. J 14, L 16, N 18, P 20, R 22  
 $+2$   $+2$   $+2$   $+2$   $+2$   
 $+2$   $+2$   $+2$   $+2$   $+2$   
 Option 1 is correct.

21. A C C, B D H, C E O, D F X  
 $+1$   $+1$   $+5$   $+1$   $+7$   $+1$   $+9$   
 Option 3 is correct.

22. 64, 57, 66, 55, ?, 52  
 $+2$   $+3$   
 $-2$   
 Alternate series  
 $66 + 3 = 69$   
 Option 2 is correct.

24. Clay, Bricks, Wall, Room, House  
 $\Rightarrow$  B, E, A, D, C  
 $\therefore$  Option 3 is correct.

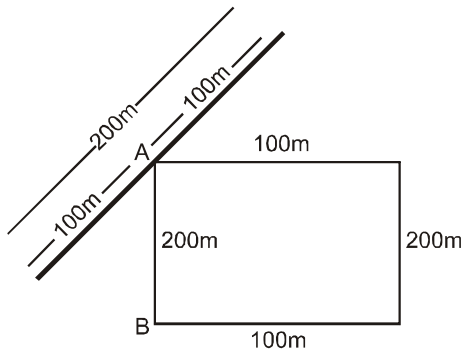
31. Time difference between 2 A.M. and 9 P.M. = 5 hours  
 Gain in 24 hours = 10 minutes  
 Gain in 1 hour =  $\frac{10}{24}$  minutes  
 Gain in 5 hours =  $\frac{10}{24} \times 5$  minutes  
 $= \frac{50}{24}$  minutes  
 $= 2$  minutes 5 sec.  
 Time in watch = 2 : 02 : 05 A.M.  
 Option 3 is correct.

36. In the given figure.  
**S** includes 4, 16.  
 And, **W** includes 15, 21.  
 $\Rightarrow$  W includes 15, 21.  
 $\Rightarrow$  Exactly two integers.  
 $\Rightarrow$  S & W only  
 $\Rightarrow$  Option 3 is correct.

37. Total number of integers in **S** = 2 (4, 16) and in **R** = 8 (3, 5, 7, 11, 13, 17, 19, 23).  
 And in **P**, there are total of 10 integers (6, 8, 10, 12, 14, 18, 20, 22, 24, 26)  
 $\Rightarrow$  P only  $\Rightarrow$  Option 1 is correct.

38. R have total of 8 integers  
 Option 3 is correct.

40.



200 m. South

Option 4 is correct.

41.

$$A : B : C = 5 : 3 : 1$$

$$A = 5x, B = 3x, C = x$$

Statement (1) A has 60 Rs more than C

$$A = 60 + 6$$

$$5x = 60 + x$$

$$x = 15$$

So B have 45 Rs.

Statement (2) Money of B 40% less than A

So, B = 60% of A

$$3x = \frac{60}{100} \times 5x$$

$$x = x$$

Which is not possible.

So statement (1) alone is sufficient and II alone is not sufficient to answer the question.

Option 1 is correct.

42.

Let the cost of one pen and one pencil be Rs. x & y.

$$\text{Statement (1)} \quad 6x + 5y = 30 \quad \dots (1)$$

Statement (2) Cost of pen and pencil is reduced by 40%. So now the cost of one pen and one pencil be 0.6x and 0.6y is respectively.

$$12 \times 0.6x + 10 \times 0.6y = 36 \quad \dots (2)$$

By equation (1) & (2)

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2} \Rightarrow \frac{6}{7.2} = \frac{5}{6} = \frac{30}{36} = \frac{5}{6}$$

Infinite many solution possible.

Option 4 is correct.

43.

(I) Ratio of income of A and B

$$A : B = 5 : 6$$

$$A = 5x, B = 6x$$

(II) The ratio of expenditure of A and B in

$$A_1 : B_1 = 3 : 4$$

$$A_1 = 3y, B_1 = 4y.$$

Savings = income – expenditure

$$\text{Savings of A} = 5x - 3y$$

$$\text{Savings of B} = 6x - 4y$$

Ratio of savings of A : B = cannot be determined

Option 4 is correct.

44. Let cost price of A =  $C_A$ , Cost price of B =  $C_B$   
 Selling price of A =  $S_A$ , Selling price of B =  $S_B$   
 S-I  $C_A = S_B$   
 S-II  $S_A - C_A = \frac{1}{5} S_A$   
 $\frac{4}{5} S_A = C_A = S_B$   
 $\frac{S_A}{S_B} = \frac{5}{4}$

Option (3) Both (I) and (II) are required.

45. S T A R = 50

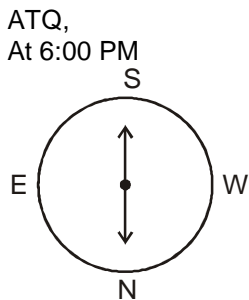
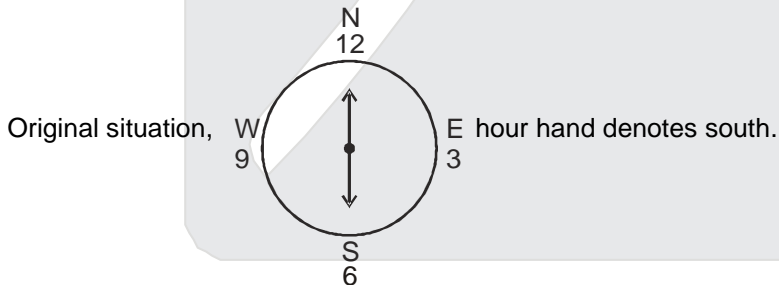
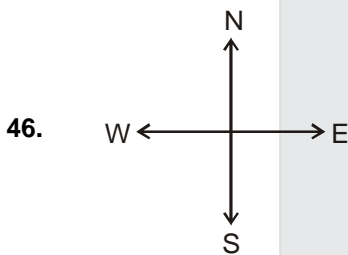
19 20 1 18

Subtracting numbers from 27, we get (27-19), (27-20), (27-1), (27-18) and now adding them, we get  $8 + 7 + 26 + 9 = 50$

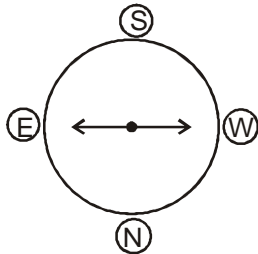
Similarly for CIRCUS we get = 65

∴ For P L A N E T  
 16 12 1 14 5 20

⇒ (27-16) + (27-12) + (27-1) + (27-14) + (27-5) + (27-20) = 94 ⇒ Option 4 is correct.

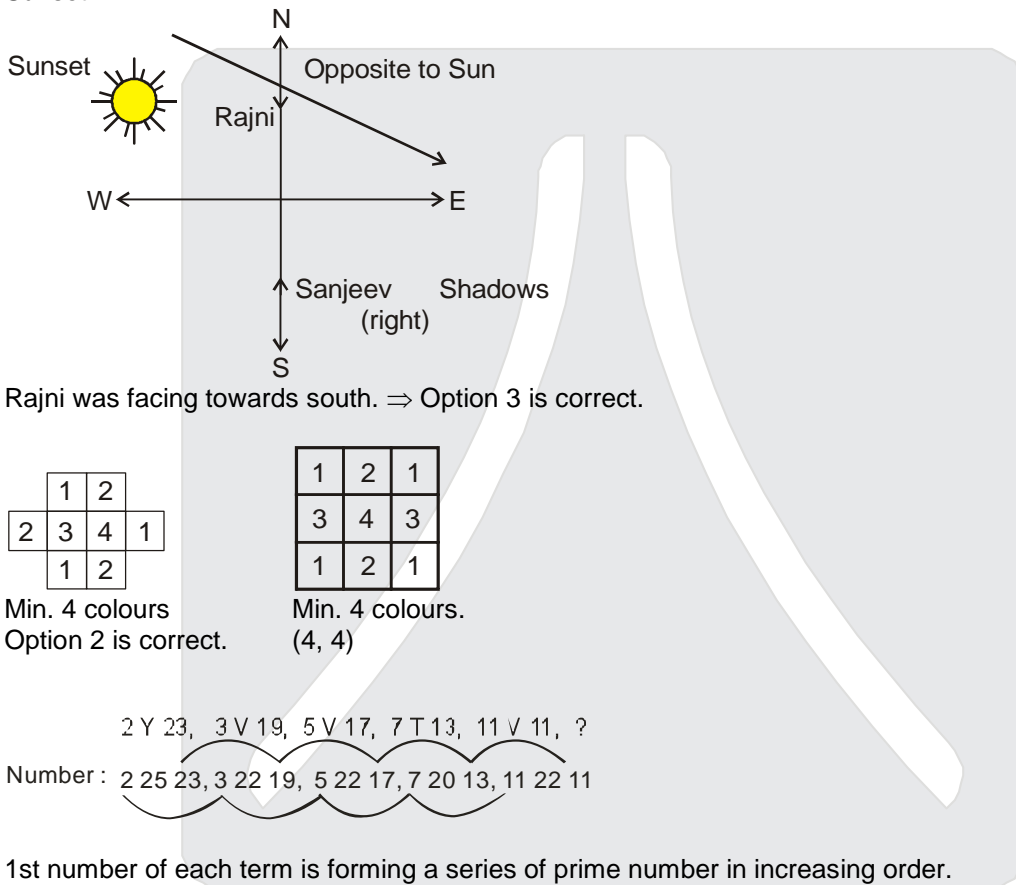


Now,  
At 9 : 15 PM



Minute hand denotes **west**. Option 4 is correct.

47. Sunset



Rajni was facing towards south.  $\Rightarrow$  Option 3 is correct.

48.



Min. 4 colours  
Option 2 is correct.



Min. 4 colours.  
(4, 4)

49.

2 Y 23, 3 V 19, 5 V 17, 7 T 13, 11 V 11, ?

Number : 2 25 23, 3 22 19, 5 22 17, 7 20 13, 11 22 11

1st number of each term is forming a series of prime number in increasing order.

$\therefore$  Next number = 13

Last number of each term is also forming a series of prime number is decreasing order.

$\therefore$  Next number = 7

And middle letter (number) = Sum of 1st & 3rd number.

$\Rightarrow$  Middle term (letter) = (13 + 7 = 20)  $\Rightarrow$  T

$\therefore$  13 T 7  $\Rightarrow$  Option 1 is correct.

50.

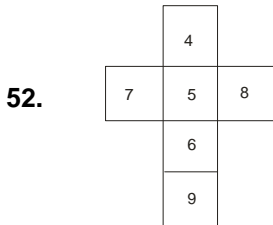
156, 182, 210, 243, 282, 306

+26 +28 +30 +42

Difference between two consecutive numbers is getting increased by 2. There fore, difference should be 32 instead by 42 & number must be 272 instead of 282.

$\Rightarrow$  Option 3 is correct.

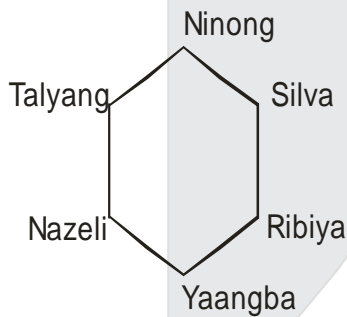
51. 6, 15, 35, ?, 143, 221  
 (2 × 3), (3 × 5), (5 × 7), ?, (11 × 13), (13 × 17)  
 This is a series of multiplication of consecutive prime number.  
 ⇒ Missing number = 7 × 11 = 77  
 Option 3 is correct.



$(4)^2 + (6)^2 = 16 + 36 = 52$   
 $(5)^2 + (9)^2 = 25 + 81 = 106$   
 $(7)^2 + (8)^2 = 49 + 64 = 113$   
 Option 2 is correct.

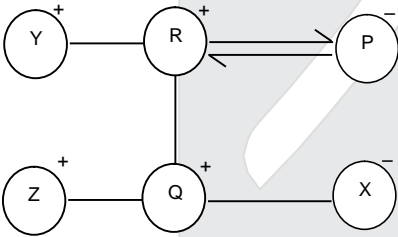
53. a n t / t a n / a n t / t a n / a n t / t a n  
 Option 2 is correct.

54 – 57.



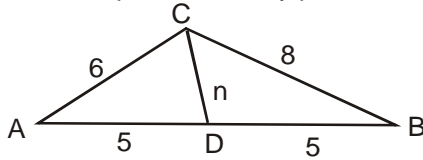
54. Talyang is sitting opposite to Ribiya. Option 3 is correct.  
 55. Silva is sitting between Ribiya and Ninong. Option 4 is correct.  
 56. Nazeli is sitting Talyang and Yaangba. Option 1 is correct.  
 57. Silva is sitting on the left of Ninong. Option 4 is correct.

- 59.
- $5+4=9$   
 $5 \times 4 = 20$
- $3+8=11$   
 $3 \times 8 = 24$
- $9+4=13$   
 $9 \times 4 = 36$
- Option 1 is correct.

60.  $E + H = M$   
 $N + A = O$   
 $I + D = M$   
 Option 4 is correct.
61. Sum of all numbers in a given box is equal to the position of alphabets in the series.  
 $6 + 4 + 4 = 14 = N$   
 $4 + 7 + 1 = 12 = L$   
 $5 + 6 + 10 = 21 = U$   
 So,  $1 + 2 + 14 = 17 = Q$   
 Option 4 is correct.
62.  $10 \times 5 + 5 \times 3 + 10 \times 3$   
 $50 + 15 + 30 = 95$
- $6 \times 3 + 6 \times 2 + 3 \times 2$   
 $18 + 12 + 6 = 36$
- $M \times 4 + M \times 8 + 4 \times 8 = 68$   
 $M = 3$   
 Option 2 is correct.
63. Sum of numbers on the side is 50 . Option 1 is correct.
64. According to manushi, chitra's birthday is after July 10 but before July 17.  
 i.e., July 11 to July 16  
 According to Vishakha birthday is between 15 July and 27 July  
 i.e., July 15 to July 27.  
 $\therefore$  Possible dates are July 15 and July 16  
 i.e., Tuesday and Wednesday  
 Option 3/4 is correct.
65. 
- Q, X, Z represents all the children of P.  
 Option 2 is correct.
66. Clock was at right time on 1<sup>st</sup> march morning.  
 It was  $\frac{1}{2}$  min fast at dusk (evening)  
 And  $\frac{1}{3}$  min loose at dawn (morning)  
 So in one day it was  $\frac{1}{6}$  min fast.  
 $\therefore$  5 min fast in 30 days.  
 $1^{\text{st}} + 30 \rightarrow$  On 31<sup>st</sup> march it was 5 min fast.  
 Option 4 is correct.



67. So mid – point of the my potenou & in equal distent from all the verticer so x should be = 5.



$$AD = BD = CD = x = 5$$

Option 2 is correct.

68.  $m + n = o + p$  .....(1)  
 $m + q = p + n$  .....(2)

$$2p < m + q$$

$$\Rightarrow 2p < p + n$$

$$\Rightarrow n < p$$

Also,

$$2m > o + n$$

$$m + n > o + n$$

From (4)

$$m < o$$

$$\text{But } m + n > o + n.$$

$$\Rightarrow m > n.$$

Putting in (2)

$$\Rightarrow p > q$$

$$o > m > n > p > q$$

Option 1 is correct.

73.  $6 + 4 + 5 = 15$   
 $6 + 5 + 3 = 14$   
 $6 + 3 + 4 = 13$   
 $6 + 4 + 2 = 12$   
 $4 + 2 + 5 = 11$   
 $(4 + 5 + 1) = 10$

Option 4 is correct.

75. + and  $\div$ , 64 and 96  
 $\Rightarrow (64 + 128) \div 96 \Rightarrow 192 \div 96 = 2.$

Option 1 is correct.

76.  $\% \Rightarrow = ,$   
 $? \Rightarrow >$   
 $\therefore 6x = 5y$  .....(i)  
 $E \# \Rightarrow <$   
 $E 2y > 3z$   
 $\Rightarrow y > \frac{3}{2}z$  .....(ii)

Putting 'y' from (ii) in (i), we get

$$6x > 5 \left( \frac{3}{2} \right) z. \Rightarrow 12x > 15z \Rightarrow 4x > 5z$$

$$\Rightarrow 4x > 5z \Rightarrow \text{Option 2 is correct.}$$

77.  $Q \rightarrow (+), J \rightarrow (\times), T \rightarrow (-), K \rightarrow (\div)$   
 $30 \div 2 + 3 \times 6 - 5$   
 $15 + 18 - 5$   
 $33 - 5 = 28.$   
 Option 2 is correct.

80.  $3 \times 8 \div 4 + 2 - 5 = (7 + 12 - 1 - 6)$   
 $3 = (18 \div 6)$   
 $3 = (18 \div 6)$   
 Option 1 is correct.

82. Counting the number of triangle we will have 18 rectangles. Option 1 is correct.

83. P      E      A      C      E  
 ↓      ↓      ↓      ↓      ↓  
 1#    3@    6@    4\$    4#  
 Option 2 is correct.

85. 

5	3		
2	8	1	7
6	4		

  
 B = 3, D = 8, E = 1, F = 7, G = 6  
 Option 4 is correct.

86. Let no of supervisors is x  
 then A.T.P.  
 $50 \times 2 + 45 \times 4 + 8 \times 4 + 2 \times x = (50 + 45 + 8 + x) + 224$   
 $100 + 180 + 32 + 2x = x + 327$   
 $x = 327 - 312$   
 $x = 15$   
 Option 4 is correct.

87. 

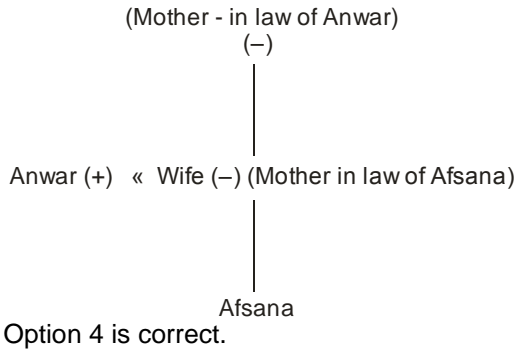
Busy bees	→	Cpu ↑ Capital	Cff ↑ small
Busy Crow	→	Cpu ↑ small	hup ↑ small
Bright Crows	→	CSJ ↑ capital	HVP ↑ capital

  
 Busy crows are cleaves  
 From options → 3 & 4 → Eliminated because code for "Busy" is either "CPU" or "Cff"  
 Similarly option → 1 → Eliminated because code for crows is either "CPU & "HVP"  
 Option 2 is correct.

89. One digit number (1 to 9) =  $9 \times 1 = 9$   
 Two digit number (10 to 99) =  $90 \times 2 = 180$   
 Three digit number (100 to 199) =  $100 \times 3 = 300$   
 Total = 489  
 Option 2 is correct.



95.



96.

$$\text{Average speed} = \frac{\text{total distance covered}}{\text{total time taken}}$$

$$= \frac{60 \times 1 + 80 \times 2 + 100 \times 1 + 40 \times 1}{5}$$

$$= \frac{60 + 160 + 100 + 40}{5} = \frac{360}{5} = 72 \text{ km/hr.}$$

Option 4 is correct.

97

Let total number of students = x  
ATQ

$$\Rightarrow \frac{23}{100} \times x = 1150 \quad \Rightarrow x = 5000 \text{ students}$$

$$\text{Book reading} = \frac{9}{100} \times 5000 = 450 \text{ students}$$

Option 4 is correct.

98.

Total students = 5000 (already proved in above question). Option 2 is correct.

99.

Total number of boys = 27300  
Total number of girls = 24700  
In school F number of girls = 21% of 24700

$$= \frac{21}{100} \times 24700$$

$$= 21 \times 247 \quad \dots\dots\dots(i)$$

In school F number of boys = 14% of 27300

$$= \frac{14}{100} \times 27300 \quad \dots\dots\dots(ii)$$

Ratio of girls to boys in school F

$$\Rightarrow 21 \times 247 : 14 \times 273 \quad \Rightarrow \quad 19 : 14.$$

Option 4 is correct.

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में लगातार दूसरे वर्ष देश भर में  
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**AIR - 2 (ST)**  
**JATINI MEENA**  
Roll No. 17107811

### Result at Resonance

Total Students Qualified for JEE (Advanced)

**12614**

Classroom: 9425 | DLP+ELP: 3189

Total Students selected in JEE (Main)

**22557**

Classroom: 17751 | DLP+ELP: 4806

### ResoNET Dates

**27<sup>th</sup> MAY & 10<sup>th</sup> JUN 2018**

Test Timings: 9 AM to 12 Noon

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