Infosys Placement Papers

1. 125 small but identical cubes are put together to form a large all six faces.	cube. This large cube is now painted or
(i) How many of the smaller cubes have no face painted at all.	
(a) 27	
(b) 64	
(c) 8	
(d) 36	
(ii) How many of the smaller cubes have exactly three faces pain	ited?
(a) 98	
(b) 100	
(c) 96	
(d) 95	
(iii) How many of the smaller cubes have atleast one side painte	d?
(a) 4	
(b) 8	
(c) 9	
(d) 27	
Sol:	
Side of larger cube is 125——V3 = 5	
I) No face painted will be in the interior part of the cube.	
Interior part will be a cube of side $(5-2) = 3$.	
Hence no. of cubes with no face painted II be 33 = 27	

Ans: (a) 27

II) Cubes with 3 faces painted will be the vertices of the cube.

There will be 8 such cubes

Ans: 8 [Wrong options... 3rd options should come here]

III) Atleast 1 face painted \Rightarrow greater than or equal to 1

Cube with 1 face painted + cube with 2 side painted + cube with 3 side painted

Cube with 1 face painted will be the outermost layer of larger cube but not on the edges.

i.e. (5-2)2 = 9 cubes on 1 side

So totally $6 \times 9 = 54$ cubes

Cube with 2 face painted II be edges of the larger cube but

(5-2)=3.

Since a cube has 12 edges, totally $12 \times 3 = 36$ cubes

Cube with 3 sides painted = 8 cubes

Totally 54 + 36 + 8 = 98 cubes

Ans: 98

2. Directions: Study the following information and answer the question given below:

In a certain code, the symbols for 0 (zero) is @ and for 1 is \$. There are no other symbols for all other number greater than one. The numbers greater than 1 are to be written only by using the two symbols given above. The value of the symbol for 1 doubles itself every time it shifts one place to the left. Study the following examples:

'0' is written as @, '1' is written as #, '2' is written as #, @'3' is written as ##

'4' is written as #@@ and so on

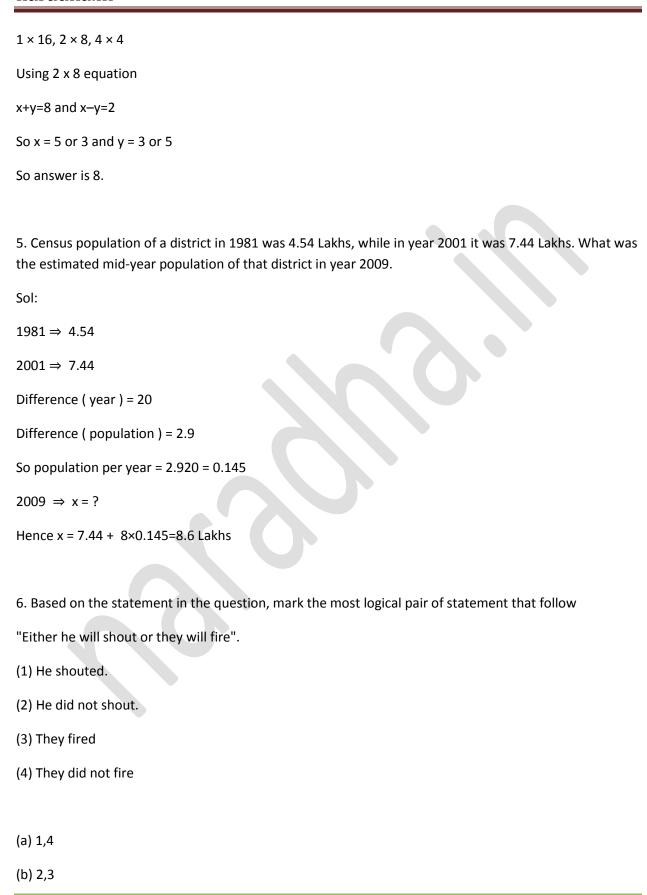
=> Which of the following represents 14?

(a) #@@@

(b) ###@ (c) ##@@ (d) ##@# Sol: Answer (b) ###@ The given pattern is nothing but binary. In binary 2 = 10; 3 = 11Thus 14 = 1110 So 14 = ###@ 3. 7528 : 5306 :: 4673 : ? a) 2367 b) 2451 c) 2531 d) 2489 Sol: Answer is 2451. As there is a difference of 2222. 7528 - 2222 = 5306. So 4673 – 2222 = 2451 4. x2-y2=16 and xy = 15 so find out x + y? Sol: x2-y2 = 16

(x+y)(x-y) = 16

So 16 comes in following table



(c) 4,1
Sol:
Either or condition is true atleast one of the condition should happen. Answer is option C because according to the given sentence.
"Either he will shout or they will fire"
One of the two must happen whether he shouting or they firing.
If one of them happens, the other will not happen.
So if he did not shout then the firing should happen, so they fired.
If they did not fire it means the first thing has happened, so he shouted.
7. Gautham passes through seven lane to reach his school. He finds that YELLOW lane is between his house and KAMA lane. The third lane from his school is APPLE lane. PEACOCK lane is immediately before the PARK lane. He passes ASH lane at the end. KAMA lane is between YELLOW lane and PEACOCK lane. The sixth lane from his house is RAO lane.
I. How many lane are there between KAMA lane and RAO lane ?
a) one
b) two
c) three
d) four
II. After passing the park lane how many lane does Gautham cross to reach the school?
a) 4
b) 3
c) 2
d) 1
III. After passing the YELLOW lane how many lane does Gautham cross to reach the school?

a) 4
b) 6
c) 2
d) 1
IV. Which lane is between PARK lane and RAO lane ?
a) YELLOW lane
b) KAMA lane
c) APPLE lane
d) PEACOCK lane
V. If the house of Gautham, each lane and his school are equidistant and he takes 2 min to pass one lane then how long will he take to reach school from his house?
a) 18 min
b) 16 min
c) 14 min
d) 12 min
Sol:
1. 3 Lanes between KAMA lane and RAO lane
2. Answer is 2 because after passing the PARK lane Gautham cross 3 lane to reach the school.
3. After passing the YELLOW lane Gautham cross 6 lane to reach the school.
4. APPLE lane
5. 16 minutes
8. Find the maximum value of n such that 50! is perfectly divisible by 2520^n .
Sol:

 $2520 = 23 \times 32 \times 5 \times 7$

Here 7 is the Highest prime So find the number of 7's in 50! only.

Number of 7's in 50! = [507] + [5072] = 7 + 1 = 8

For n(max) = 8,50! is perfectly divisible by 25208.

9. Find the no of ways in which 6 toffees can be distributed over 5 different people namely A,B,C,D,E.

Sol:

We assume that all the toffees are similar. Then Number of ways are (n+r-1)Cr-1. Here A + B + C + D + E = 6

Here r = 5, n = 6

Number of ways = 6+5-1C5-1 = 10C4 = 210.

If all the toffees are different, then each toffee can be distributed to any of the five. So total ways are 56.

10. A train covered a distance at a uniform speed .if the train had been 6 km/hr faster it would have been 4 hour less than schedule time and if the train were slower by 6 km/hr it would have been 6 hrs more.find the distance.

Sol:

Let t be the usual time taken by the train to cover the distance

Let d be the distance, s be the usual speed

Usual time taken \rightarrow d/s = t => d =t×s

ds+6 = t - 4

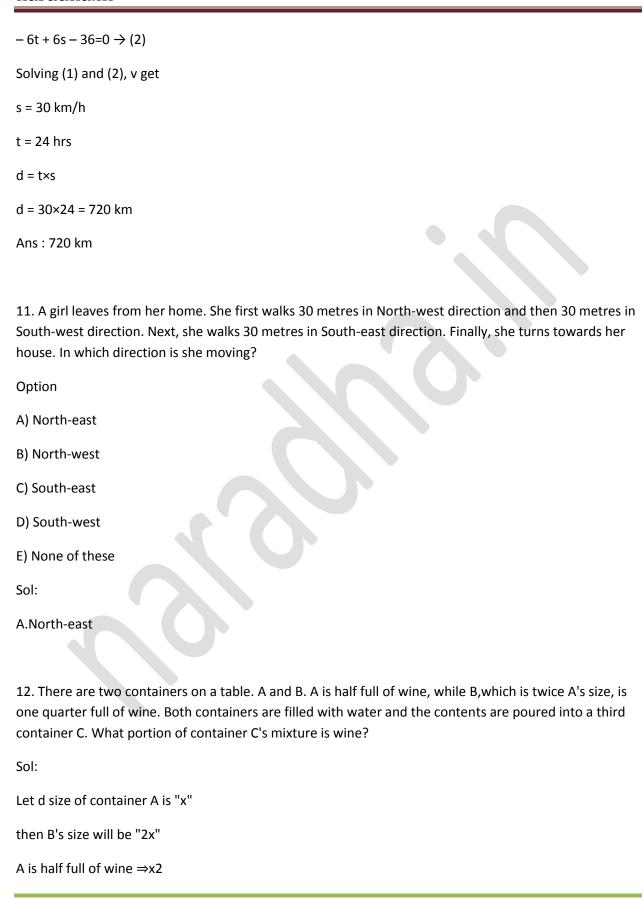
 $t \times ss + 6 = t - 4$

ts = ts + 6t - 4s - 24

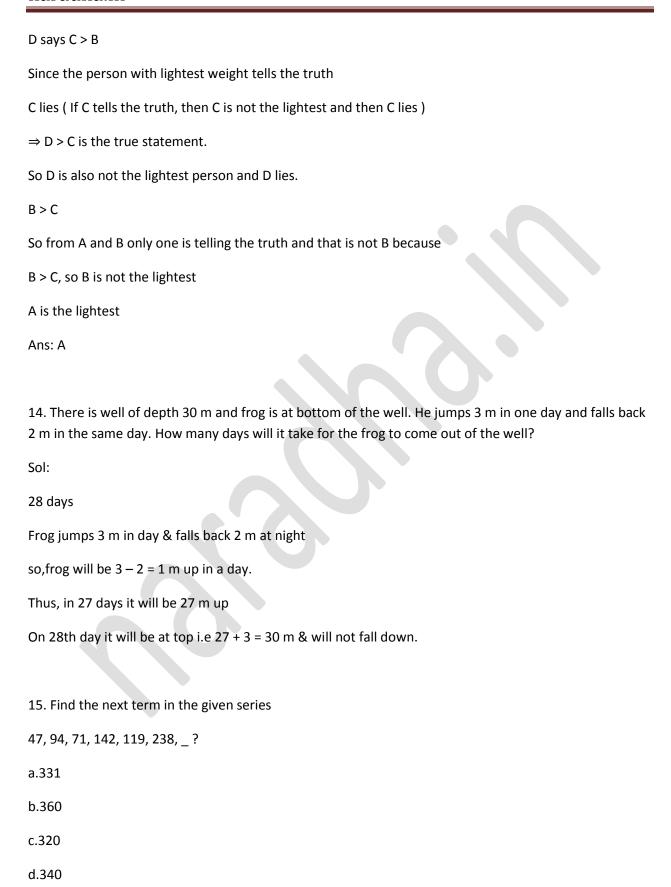
 $6t - 4s - 24 = 0 \rightarrow (1)$

d/(s-6) = t+6

ts = ts - 6t + 6s - 36



So remaining "x2" of A contains water B is quarter full of win $\Rightarrow 2x4 \Rightarrow x2$ So remaining $\Rightarrow 2x-x2=3x2$ 3x2 of B contains water Totally C has A's content + B's Content = x + 2x = 3xWine portion in C = x2 of "A" + x2 of "B" x portion of wine Water portion in C = x2 of "A" + 3x2 of "B" \Rightarrow 4x2 \Rightarrow 2x portion of water So portion of wine in C is x3x=13 portion of wine if 1/3 expressed in % 13×100 = 33.33% Ans: 33.33% of wine 13. Four persons A,B,C,D were there. All were of different weights. All Four gave a statement. Among the four statements only the person who is lightest in weight of all others gave a true statement. A Says: B is heavier than D. B Says: A is heavier than C. C Says: I am heavier than D. D Says: C is heavier than B. Find the lightest and List the persons in ascending order according to their weights? Sol: A says B > D B says A > C C says C > D



Sol: Ans: 215, 430 (47, 94) (71, 142) (119, 238) (X, Y) $47 \times 2 = 94$ 94 - 23 = 7171×2=142 142 - 23 = 119 $119 \times 2 = 238$ 238 - 23 = 215 $215 \times 2 = 430$ So the next 2 terms are 215, 430 16. A train leaves Meerut at 5 a.m. and reaches Delhi at 9 a.m. Another train leaves Delhi at 7 a.m. and reaches Meerut at 10.30 a.m. At what time do the two trains travel in order to cross each other? Sol: Let the total distance be x So the speed of 1st train is x/4 and 2nd train x/3.5In 2 hours 1st train covers half of the total distance. So remaining is only half of the total distance(ie x/2). Let t be the time taken $t\times x4+t\times x3.5=x2$ t = 1415 i.e. 56 min i.e. Total time taken= 2 hrs + 56 min Time they cross each other is 7:56 am (5+2.56) Answer 7:56 am

17. 'A' and 'B' started a business in partnership investing Rs 20000/- and Rs 15000/- respectively. After six months 'C' jointed them with Rs 20000/-. What will be B's share in the total profit of Rs 25000/- earned at the end of two years from the starting of the business?

Sol:

A:B:C =
$$(20000 \times 24)$$
: (15000×24) : (20000×18) = 4 : 3 : 3

Sol:

We know that a = 1, b = 2,, z = 26

Convert the alphabets into numbers.we get number series as follows

2, 24, 5, 21, 8

In these (2,5,8) belong to one group as they have common difference of 3

(24,21,_?)these are of one group as they have difference of -3.

So the next number is 21 - 3 = 18.

If we convert 18 into alphabet it is "r".

Since r = 18.

Sol:

We have to find the differences between the given numbers and then by applying that number with 3 we can get the result

$$5 - 3 = 2$$

See here the result is 2,then multiply it with 3

$$11 - 5 = 6$$

$$29 - 11 = 18$$

$$83 - 29 = 54$$

$$245 - 83 = 162$$

$$731 - 245 = 486$$

$$5 - 3 = 2$$

$$11 - 5 = 6 (2 \times 3)$$

$$29 - 11 = 18 (6 \times 3)$$

$$83 - 29 = 54 (18 \times 3)$$

$$245 - 83 = 162 (54 \times 3)$$

$$731 - 245 = 486 (162 \times 3)$$

20. A Jar contains 18 balls. 3 blue balls are removed from the jar and not replaced. Now the probability of getting a blue ball is 1/5 then how many blue balls jar contains initially?

Sol:

$$x/15 = 1/5$$

$$x = 3$$

3 + 3 (removed 3 blue balls) = 6