Infosys Latest Placement Questions: Quant - 3

1. 4, 6, 10, 14, 22, 26, 34, 38, 46, _ ? what is next term in the series.

Sol:

Divide each number by 2. Then we get 2, 3, 5, 7, 11, 13, ..., 23. This is a prime number series. So next number will be 2 x 29 = 58

2. y, _?, q, m, i

1. w

2. u

3. t

4. l

Sol:

Difference of 3 is in between two alphabets

i + 3 = m (j,k,l)

m + 3 = q (n,o,p)

q + 3 = u (r,s,t)

u is the answer.

3. What is the next number in the series 3,7,13,19....

Sol:

Prime numbers from 3 on wards are 3, 5, 7, 11, 13, 17, 19, 23, 29 . . .

Write alternate primes numbers starting from 3.

3, 7, 13, 19, 29

Answer is 29

4. Data Sufficiency Question:

Is w a Whole number?

Statement 1: 3w is an Odd number.

Statemet 2: 2w is an Even number

Sol:

Statement 2 is enough to solve this

3w is Odd means w may be Odd or Fraction like 5/3 we can not guess what w is from the first statement.

2w is Even.

So must and should w either Odd r Even

i.e which is whole number.

No Fraction will give Even output.

5. Joe's age, Joe's sister's age and Joe's fathers age sums up to a century. When son is as old as his father, Joe's sister will be twice as old as now. When Joe is as old as his father then his father is twice as old as when his sister was as old as her father. Age of her father ?

Sol:

Joe + sister + father = 100

After x years let us consider Joe's age is equal to his father

Joe + x = father

Therefore,

sister + x = 2 x sister

⇒ sister = x

Joe + sister = father

Therefore,

2 × father = 100

Hence, Father = 50

6. The sum of series represented as

$1/(1 \times 5) + 1/(5 \times 9) + 1/(9 \times 13) + ---- + 1/(221 \times 225)$ is

a) 28/221

b) 56/221

c) 56/225

d) None of these

Sol:

$$\frac{1}{1 \times 5} + \frac{1}{5 \times 9} + \frac{1}{9 \times 13} + ---- \frac{1}{221 \times 225}$$

$$= \frac{1}{4} \times [\frac{(5-1)}{1 \times 5} + \frac{(9-5)}{5 \times 9} + \frac{(13-9)}{9 \times 13} + ---- \frac{(225-221)}{221 \times 225}]$$

$$= \frac{1}{4} \times [(1-\frac{1}{5}) + (\frac{1}{5}-\frac{1}{9}) + (\frac{1}{9}-\frac{1}{13}) + \ldots (\frac{1}{221}-\frac{1}{225})]$$

$$= \frac{1}{4} \times (1-\frac{1}{225})$$

$$= \frac{1}{4} \times \frac{224}{225}$$

$$= \frac{56}{225}$$

7. What are the next three terms in the series 3, 6, 7, 12, 13, 18, 19, 24, _ _ _?

Sol:

This is a mixed series. 6, 12, 18, 24, ... form a series. Adding 1 to 6, 12, 18, forms another series. So next three terms are 25, 30, 31.

8. What is the next number in the series. a, b, d, h, _?

Sol:

a = 1

b = 2

d = 4

h = 8

This is a 2^n series starting with n = 0, 1, 2, ...

2^4 = 16 which is p.

Ans = p

9. Find the letter that comes in the place of " - "

 b, _, d, d, e, d, f, g, d.

Sol:

[b c] d [d e] d [f g] d [h i] d....

The series follow above manner. Answer will be c.

10. The number of zeros at the end of the product of all prime numbers between 1 and 1111 is?

Sol:

Prime numbers between 1 & 1111 are 2,3,5,7,11,....

There is no other prime no. ending with 5 as unit digit, except one '5'

2 x 5 = 10 gives only one zero in the product of all prime numbers

So, number of zeros at the end of the product = 1

11. A train goes from stations A to B. One day there is a technical problem at the very beginning of the journey & hence the train travels at 3/5 of it's original speed and so it arrives 2 hours late. Had the problem occurred after 50 miles had been covered, the train would have arrived 40 min earlier(i.e., only 120-40 = 80 min late). What is the distance between the 2 stations?

Sol:

For 1 mile the train is late by 40 / 50 min or 4/5 minutes. Or it is late by 1 minute for every 5/4 miles. For 120 minutes late it has to travel 120 x 5/4 = 150 miles.

12. Due to some defect in our elevator, I was climbing down the staircase. I'd climbed down just 7 steps when I saw a man on the ground floor. Continuing to walk down, I greeted the man and I was surprised to see that when I was yet to get down 4 steps to reach the ground floor, the man had already finished climbing the staircase. He perhaps climbed up 2 steps for every 1 of mine. How many steps did the staircase have?

Sol:

Let us consider x be the number of steps

7 + x + 4 = 2x

As old man takes 2 steps for every one steps he takes and he has to complete 4 steps,

So x = 11 and total steps = 2x = 22

39. A card board of size 34 × 14 has to be attached to a wooden box and a total of 35 pins are to be used on the each side of the card box. find the total number of pins used.

Sol:

Total 35 pins are there and 4 sides of card board.

So 35 x 4 = 140

Now in the rectangle 4 vertices have 4 pins which is common to the sides.

So 140 – 4 = 136.

13. In the Garbar Jhala, Ahmadabad a shopkeeper first raises the price of Jewellery by x% then he decreases the new price by x%. After one such up down cycle, the price of a Jewellery decreased by Rs. 21025. After a second updown cycle the jewellery was sold for Rs. 484416. What was the original price of the jewellery.

Sol:

Let the original price be "p":

I cycle:

Up by x% means new price is $p + \frac{px}{100}$

Down by x% on current price means new price is $(p + \frac{px}{100}) - (p + \frac{px}{100}) \times \frac{x}{100}$

Price after one up down cycle is (p – 21025)

Thus, $(p + \frac{px}{100}) - (p + \frac{px}{100}) \times \frac{x}{100}$ = $(p – 21025) = p'$ - - - - - (1)

II cycle:

Up by x% means new price is $p' + \frac{p'x}{100}$

Down by x% on current price means new price is

$(p' + \frac{p'x}{100}) - (p' + \frac{p'x}{100}) \times \frac{x}{100}$

Price after second up down cycle is 484416.

Thus, $(p' + \frac{p'x}{100}) - (p' + \frac{p'x}{100}) \times \frac{x}{100}$ = 484416 - - - - - - - (2)

Putting value of p' = p – 20125 in equation (2) and dividing (1) & (2) to eliminate x.

We get a quadratic equation in p:

$p^2 - 526466p - (21025)^2 = 0$

The equation has real roots in the form 525625, 841.

14. Three football teams are there. Given below is the group table. Fill in the x's

P - Played

W - Won

L - Lost

D - Draw

Sol:

P W L D F A

A 2 2 0 0 7 1

B 2 0 1 1 2 4

C 2 0 1 1 3 7

Total goals for = Total goals against

$1 + 4 + 7 = 3 + 2 + x$

$x = 7$

A has played two and won 2 therefore lost = 0, draw = 0

B has played 2 but one is draw as A has 0 draw, it should be against C i.e C draw = 1

C played 2 draw = 1 therefore lost = 1 because A has won both matches played against them.

So we can conclude that each team has played a match with every other team.

15. A dog takes 4 leaps for every 5 leaps of hare but 3 leaps of dog is equal to 4 leaps of hare compare speed?

Sol:

Dog and hare speeds according to the number of leaps = 4 : 5

But their leap lengths are in the ratio = 4 : 3 (3 x D = 4 x H)

Multiplying number of leaps and leap lengths we get their speeds as = 4 x 4 : 5 x 3 = 16 : 15

Answer = 16 : 15

16. A bird keeper has got P pigeons, M mynas and S sparrows. The keeper goes for lunch leaving his assistant to watch the birds. Suppose p = 10, m = 5, s = 8 when the bird keeper comes back, the assistant informs the x birds have escaped. The bird keeper exclaims: "Oh no! All my sparrows are gone."

How many birds flew away?

When the bird keeper comes back, the assistant told him that x birds have escaped. The keeper realized that atleast 2 sparrows have escaped.

What is minimum no of birds that can escape?

Sol:

This question can be solved using the pigeonhole principle.

I guess the answer for the first question is 23 (10 + 5 + 8).

Since if all the birds are escaped, then only he can be sure that all sparrows are gone.

And for the second one, answer is 17 (10 p + 5 m + 2 s).

If 17 birds escaped then best case such that least number of sparrows escaped will be like 10 pigeon, 5 myna and

2 sparrows escaped.

17. 3,4,7,10,13,16,19,22, . . . Find 10th term in series

Sol:

3

3×1 = 3 + 1 = 4

3×2 = 6 + 1 = 7

3×3 = 9 + 1 = 10

3×4 = 12 + 1 = 13

3×5 = 15 + 1 = 16

3×6 = 18 + 1 = 19

3×7 = 21 + 1 = 22

3×8 = 24 + 1 = 25

3×9 = 27 + 1 = 28

10th term = 28

18. a,d,i,p,? what is next term

a) q

b) r

c) s

d) t

Sol:

a = 1×1

d = 2×2

i = 3×3

p = 4×4

Next will be

5×5 = 25 = Y

19. Marbles are to be distributed. Ann gets 1,Mary gets 2, Rose gets 3 and Lisa gets 4. John Brown gets as much as his sister.Tim Smith gets 2 times as much as his sister. Neil Johnson gets 3 times as much as his sister. Sam Paul gets 4 times as much as his sister.Find the surnames of Ann,Mary,Rose and Lisa ?

Sol:

Ann's brother is Neil John ($1 \times 3 = 3$).

Mary 's brother Sam paul ($2 \times 4 = 8$).

Rose's brother John Brown ($3 \times 1 = 3$).

Lisa's Brother is Tim Smith (4 \times 2 = 8$).

1 + 2 + 3 + 4 + 3 + 8 + 3 + 8 = 32

20. A shop has 4 shelf, 3 wardrobes, 2 chairs and 7 tables for sell. You have to buy

a. 1 shelf

b. 1 wardrobe

c. either 1 chair or 1 table

How many selection can be made?

Sol:

The way to answer this question

$$^4C_1 \times {}^3C_1 \times {}^2C_1 + {}^4C_1 \times {}^3C_1 \times {}^7C_1 \quad = 108$$