Infosys Placement paper

Infosys Written Test : 95 minutes; 65 Questions

This written test is divided into 3 sections. The important topics for each of these sections is given as follows:

Quant: permutations & combinations, number series, crypto math's, analytical puzzles, alligations and mixtures, probability etc.

Reasoning: data sufficiency, data (pie / bar / tables / chart), syllogisms, blood relations, statement reasoning etc.

Verbal: one long RC, one short RC, basic grammar, such as : fill in the blanks, antonyms + synonyms, sentence correction, theme detection etc.

After this, it was the time for the online test.

Just 2 rounds were there:

1. Aptitude ( Reasoning + Quantitative + Verbal Ability ).

2. Personal Interview (Technical + HR).

In Reasoning, there were 15 questions. You really need to brush up your skills in topics like Data interpretation , data sufficiency, syllogism and number series to clear this section. Level of questions-not very easy, not too difficult. Just relax your mind and start solving. Indiabix would be enough. Time limit for this section was 25 minutes. But believe me, time constraint is not going to create any problem in this section.

Regarding aptitude, there will be 10 questions. 5 questions will be easy, you will hardly take 10 min to solve those 5. But the rest 5 are going to create little problem. Those will be little complex and you really need to have some good approach to solve them. You are definitely not going to face much problems if you have solved these chapters multiple times from R.S Aggarwal-Permutations and combinations, probability, Numbers, Profit-loss, Time-distance . Well, this is the best book you can find in market. 1 or 2 complex problems from cryptarithmetic will be there, just google it now, it is really an easy one. Time limit for this section-35 min.

Coming to verbal ability, here they are not only checking your knowledge in English but your patience as well. This section is going to be little tough as compared to the above two. You really need to have a good knowledge of Basic English grammar that you have studied in your school days, because at present it would be difficult for you to pick up "Wren-n-Martin" and start studying tense, voice, narration etc.(You may try if you have time and patience.) In this section you will get 40 questions which include 2 paragraphs, sentence correction, spotting errors, jumbled sentences based on basic grammar. No synonyms and antonyms were asked. Indiabix will be good for practice. Time limit for this section-35 min

INFOSYS PLACEMENT PAPERS -

INTERVIEW QUESTIONS:

1. Nine individuals - Z, Y, X, W, V, U, T, S and R - are the only

candidates, who can serve on three committees-- A, B and C,

and each candidate should serve on exactly one of the

committees.

committee: A should consist of exactly one member more than

committee B. It is possible that there are no members of

committee C.

Among Z, Y and X none can serve on committee A.

Among W, V and U none can serve on committee G.

Among T, S and R none can serve on committee C.

In case T and Z are the individuals serving on committee B,

how many of the nine individuals should serve on committee C?

A.3 B.4 C.5 D.6 E.7

Answer: B

2. Of the nine individuals, the largest number that can serve

together on committee C is

A.9 B.8 C.7 D.6 E.5

Answer: D

3. In case R is the only individual serving on committee B,

which among the following should serve on committee A?

A.V and U B.V and T C.U and S D.T and S

Answer: D

4. In case any of the nine individuals serves on committee C,

which among the following should be the candidate to serve on

committee A?

A.Z B.Y C.W D.T

Answer: C

5. In case T, S and X are the only individuals serving on

committee B, the members of committee C should be:

A.Z and Y B.Z and W C.Y and V D.Y and U

Answer: A

6. If SAVOURY is coded as OVUARSY then how will RADIATE be

coded?

A.AIDARET B.IDARA TE C.ARIADTE D.IDAATRE

Answer: D

7. If MAPLE is coded as VOKZN then how will CAMEL be coded?

A.OVNZF B.OUNZX C.OVNZX D.XZNVO

Answer: C

8. If CRY is coded as MRYC then how will GET be coded?

A.MTEG B.MGET C.MEGT D.METG

Answer: D

9. If Sand is coded as Brick, Brick as House, House as Temple,

Temple as Palace then where do you worship?

A.Palace B.Temple C.Brick D.House

Answer: A

10. If BURNER is coded as CASOIS then how will ALIMENT be

coded?

A.BKJLFMU B.EKOLIMS C.EMONIOU D.BRJSFTU

Answer: C

11. How many such letter-pairs are there in the word SERVANT

having the same no. of letters left between them in the word as

they have in the series?

A.2 B.3 C.4 D.5

Answer: A

12. How many such letter-pairs are there in the word MONKEY

having same no. of letters left between them as they have in

the series?

A.3 B.4 C.1 D.5

Answer: C

13. How many such letter-pairs are there in the word

SMUGGLER having same no. of letters left between them as

they have in the series?

A.2 B.3 C.4 D.1

Answer: A

14. How many such letter-pairs are there in the word

BONAFIDE having same number of letters left between them as

they have in the series?

A.2 B.3 C.4 D.1 E.None of these

Answer: E

15. How many such letter-pairs are there in the word

FRONTIER having same no. of letters left between them as they

have in the series?

A.2 B.4 C.1 D.3

Answer: A

16. Statements :

Some soldiers are famous

Some soldiers are intelligent

Conclusions :

I. Some soldiers are either famous or intelligent

II. Some soldiers are neither famous nor intelligent

A.if only conclusion I follows B.if only conclusion II

follows C.if either I or II follows D.if neither I or II follows

Answer: D

17. Statements :

All boys are honest

Sachin is honest

Conclusions :

I. Sachin is a boy

II. All honest persons are boys

A.if only conclusion I follows B.if only conclusion II

follows C.if either I or II follows D.if neither I or II follows

Answer: D

18. Statements :

Some nurses are nuns

Madhu is a nun

Conclusions :

I. Some nuns are nurses

II. Some nurses are not nuns

A.if only conclusion I follows B.if only conclusion II

follows C.if either I or II follows D.if neither I or II follows

Answer: D

19. Statements :

All windows are doors

No door is wall

Conclusions :

I. No window is wall

II. No wall is door

A.if only conclusion I follows B.if only conclusion II

follows C.if either I or II follows D.if neither I or II follows

Answer: A

20. Statements :

All poles are guns

Some boats are not poles

Conclusions :

I. All guns are boats

II. Some boats are not guns

A.if only conclusion I follows B.if only conclusion II

follows C.if either I or II follows D.if neither I or II follows

Answer: D

21. In a certain code language ”˜pik da pa’ means ”˜where are

you’; ”˜da na ja’ means ”˜you may come’ and ”˜na ka sa’

means ”˜he may go’, which of the following means ”˜come’ in

that code language ?

A.da B.ja C.na D.none of these

Answer: B

22. Father of Nation Mahatma Gandhi died on 30th January

1948. What was the day on which he died?

A.Tuesday B.wednessday C.Thursday D.Friday

Answer: D

Explanation:

Up to 1600 AD we have 0 odd days, up to 1900 AD we have 1 odd

day. Now for in 47 years we have 11 leap years and 36 normal years.

Odd days from 1901 to 1947 = 11 x 2 +36 x1 = 22 + 36 =58 odd

days = 8 weeks + 2 odd days Total odd days up to 31st December

1947 = 1 + 2 = 3 odd days 30 days of January

contain only 4 weeks + 2 odd days So 30th January 1948 has

total 5 odd days Day on 30th January 1948 = Friday.

23. What should come next in the following number series ?

9 8 9 8 7 9 8 7 6 9 8 7 6 5 9 8 7 6 5 4 9 8 7 6 5

A.3 B.4 C.2 D.1

Answer: B

24. Meeta correctly remembers that her father’s birthday is

after 8th July but before 12th July. Her brother correctly

remembers that their father’s birthday is after 10th July but

before 15th July. On which day of July was definitely their

father’s birthday ?

A.10th B.11th C.10th or 11th D.Cannot be

determined

Answer: B

25. Four of the following five are alike in a certain way and so

form a group. Which is the one that does not belong to that

group ? (a) Radish (b) Orange (c) Pear (d) Mango

A.Radish B.Orange C.Pear D.Mango E.apple

Answer: A

26. There are 6 boys Amit, Banhid, Dhruv, Chand, Harsh and

Gaurav. They want to go out with 6 girls - Nidhi, Parul, Kruti,

Naseem, Sujata and Radhika, not necessarily in the same

order. The pairs want to visit movie, beach, park and play; and

two of them want to go to circus. They like different

eatables; pavbhaji, chaat, bhel and pani-puri. Pavbhaji and

chaat are each preferred by two pairs. Following information is

given:

- Amit and Chand visit circus, but don't like pav-bhaji or panipuri.

- Gaurav can't go with Sujata and Parul, as both of them don't

like chaat, but Gaurav does.

- Naseem and Kruti want to go to movie and park

respectively.

- Dhruv goes with Radhika to beach, but does not chaat or

pani-puri.

- Banhid goes to a movie and eats pav-bhaji. Radhika does

not like bhel.

- Harsh cannot go with Nidhi or Parul and he does not go to

a park.

If Amit goes with Nidhi, then who goes with Chand

A.Parul B.Naseem C.Kruti D.none of these

Answer: A

27. Who among the following visits the park?

A.Harsh B.Banhid C.Gaurav D.Dhruv

Answer: C

28. Who must go to a play?

A.Nidhi B.Sujata C.Parul D.Kruti

Answer: B

29. Dhruv must eat

A.Chaat B.Pav-bhaji C.Pani-puri D.none of these

Answer: B

30. Kruti must eat

A.Pani-puri B.Chaat C.Bhel D.Pav-bhaji

Answer: B

1. What is the 8th term in the series 1, 4, 9, 18, 35, 68, . . .

Sol:

1, 4, 9, 18, 35, 68, . . .

The pattern is

1 = 21 – 1

4 = 22 – 0

9 = 23 + 1

18 = 24 + 2

35 = 25 + 3

68 = 26 + 4

So 8th term is 28 + 6 = 262

2. USA + USSR = PEACE ; P + E + A + C + E = ?

Sol: 3 Digit number + 4 digit number = 5 digit number. So P is 1 and U is 9, E is 0.   
Now S repeated three times, A repeated 2 times. Just give values for S. We can easily get the following table.

USA = 932

USSR = 9338

PEACE = 10270

P + E + A + C + E = 1 + 0 + 2 + 7 + 0 = 10

3. In a cycle race there are 5 persons named as J, K, L, M, N participated for 5 positions so that in how many number of ways can M make always before N?

Sol:

Say M came first. The remaining 4 positions can be filled in 4! = 24 ways.

Now M came in second. N can finish the race in 3rd, 4th or 5th position. So total ways are 3 x 3! = 18.

M came in third. N can finish the race in 2 positions. 2 x 3! = 12.

M came in second. N can finish in only one way. 1 x 3! = 6

Total ways are 24 + 18 + 12 + 6 = 60.

Shortcut:

Total ways of finishing the race = 5! = 120. Of which, M comes before N in half of the races, N comes before M in half of the races. So 120 / 2 = 60.

4. If POINT + ZERO = ENERGY, then E + N + E + R + G + Y = ?

Sol:

4 digit number + 5 digit number = 6 digit number. So E = 1, P = 9, N = 0

Observe R + 0 = G. But R = G not possible. 1 + R = G possible. So R and G are consecutive. G > R.

1 + I = R, So I and R are consecutive. R > I. i.e., G > R > I. and G, R, I are consecutive. Now O + T should give carry over and O + Z also give carry over. So O is bigger number. Now take values for G, R, I as 8, 7, 6 or 7, 6, 5 etc. and do trial and error.

POINT = 98504, ZERO = 3168 and ENERGY = 101672.

So E + N + E + R + G + Y = 1 + 0 + 1 + 6 + 7 +2 = 17

5. There are 1000 junior and 800 senior students in a class. And there are 60 sibling pairs where each pair has 1 junior and 1 senior.1 student is chosen from senior and 1 from junior randomly.What is the probability that the two selected students are from a sibling pair?

Sol:

Junior student = 1000

Senior student = 800

60 sibling pair = 2 x 60 = 120 student

Probability that 1 student chosen from senior = 800

Probability that 1 student chosen from junior = 1000

Therefore,1 student chosen from senior and 1 student chosen from junior

n(s) = 800 x 1000 = 800000

Two selected student are from a sibling pair

n(E) = 120C2 = 7140

Therefore

P(E) = n(E)/n(S) = 7140⁄800000

6. SEND + MORE = MONEY. Then what is the value of M + O + N + E + Y ?

Sol:

Observe the diagram. M = 1. S + 1 = a two digit number. So S = 1 and O cannot be 1 but 0. Also E and N are consecutive. Do trial and error.

SEND = 9567, MORE = 1085, MONEY = 10652

SO M + O + N + E + Y = 1 + 0 + 6 + 5 + 2 = 14

7. A person went to shop and asked for change for 1.15 paise. But he said that he could not only give change for one rupee but also for 50p, 25p, 10p and 5p. What were the coins he had ?

Sol:

50 p : 1 coin, 25 p : 2 coins, 10 p: 1 coin, 5 p : 1 coin, Total: 1.15 p

8. 1, 1, 2, 3, 6, 7, 10, 11, ?

Sol:

The given pattern is (Prime number - consecutive numbers starting with 1).

1 = 2 – 1

1 = 3 – 2

2 = 5 – 3

3 = 7 – 4

6 = 11 – 5

7 = 13 – 6

10 = 17 – 7

11 = 19 – 8

14 = 23 – 9

1. A Lorry starts from Banglore to Mysore At 6.00 a.m, 7.00 a.m, 8.00 a.m.....10 p.m. Similarly another Lorry on another side starts from Mysore to Banglore at 6.00 a.m, 7.00 a.m, 8.00 a.m.....10.00 p.m. A Lorry takes 9 hours to travel from Banglore to Mysore and vice versa.

(I) A Lorry which has started At 6.00 a.m will cross how many Lorries.

(II) A Lorry which has started At 6.00 p.m will cross how many Lorries.

Sol:

I. The Lorry reaches Mysore by 3 PM so it meets all the Lorries which starts after 6 a.m and before 3 p.m. So 9 lorries. Also the Lorry which starts at night 10 p.m on the previous day at Mysore reaches Bangalore in morning 7 a.m. So it also meets that Lorry. So the Lorry which starts at 6:00 am will cross 10 Lorries.

II. The lorry which has started at 6 p.m reaches destination by 3 a.m. Lorries which start at the opposite destination at 10 am reaches its destination at 7 pm. So all the lorries which starts at 10 am to 10 pm meets this lorry . So in total 13.

2. GOOD is coded as 164 then BAD coded as 21.if ugly coded as 260 then JUMP?

Sol:

Coding = Sum of position of alphabets x Number of letters in the given word

GOOD = (7 + 15 + 15 + 4 ) x 4 = 164

BAD = (2 + 1 + 4) x 3 = 21

UGLY = (21 + 7 + 12 + 25) x 4 = 260

So, JUMP = (10 + 21 + 13 + 16) x 4 = 240

3. If Ever + Since = Darwin then D + a + r + w + i + n is ?

Sol: Tough one as it has 10 variables in total. 4 digit number + 5 digit number = 6 digit number. So left most digit in the answer be 1. and S = 9, a = 0. Now we have to use trial and error method.

Here E appeared 3 times, I, R, N two times each. Now E + I or E + I + 1 is a two digit number with carry over. What could be the value of E and I here. 8 and 7 are possible. But from the second column, 8 + C = 7 or 17 not possible. Similarly with 7 and 6. If E = 5, then the remaining value can be filled like above.

5653 + 97825 = 103478

Answer is 23

4. There are 16 hockey teams. find :

(1) Number of matches played when each team plays with each other twice.

(2) Number of matches played when each team plays each other once.

(3) Number of matches when knockout of 16 team is to be played

Sol:

1. Number of ways that each team played once with other team =

16

C

2

16C2. To play with each team twice = 16 x 15 = 240

2.

16

C

2

16C2 = 120

3. Total 4 rounds will be played. Total number of matches required = 8 + 4 + 2 + 1 = 15

5. 15 tennis players take part in a tournament. Every player plays twice with each of his opponents. How many games are to be played?

A. 190

B. 200

C. 210

D. 220

E. 225

Sol:

Formula:

15

C

2

15C2 x 2. So 15 x (15 - 1) = 15 x 14 = 210

6. 1, 11, 21, 1211, 111221, 312211, . . . . . what is the next term in the series?

Sol:

We can understand it by writing in words

One

One time 1 that is = 11

Then two times 1 that is = 21

Then one time 2 and one time 1 that is = 1211

Then one time one, one time two and two time 1 that is = 111221

And last term is three time 1, two time 2, and one time 1 that is = 312211

So our next term will be one time 3 one time 1 two time 2 and two time 1

13112221 and so on

7. How many five digit numbers are there such that two left most digits are even and remaining are odd.

Sol:

N = 4 x 5 x 5 x 5 x 5 = 2375

Where

4 cases of first digit {2,4,6,8}

5 cases of second digit {0,2,4,6,8}

5 cases of third digit {1,3,5,7,9}

5 cases of fourth digit {1,3,5,7,9}

5 cases of fifth digit {1,3,5,7,9}

8. 13\_46\_8\_180\_210\_75 = 64 . Use + and – in the empty places to make the equation holds good. Take m = number of + and n = number of – . Find m – n?

Sol:

13 – 46 – 8 – 180 + 210 + 75 = 64

m = 3

n = 4

m – n = – 1

10. If a refrigerator contains 12 cans such that 7 blue cans and 5 red cans. In how many ways can we remove 8 cans so that atleast 1 blue can and 1 red can remains in the refrigerator.

Sol:

Possible ways of keeping atleast 1 blue and 1 red ball are drawing cans like (6,2) (5,3) (4,4)

(6,2)

⇒

⇒

7

C

6

×

5

C

2

7C6×5C2

⇒

⇒ 710 = 70

(5,3)

⇒

⇒

7

C

5

×

5

C

3

7C5×5C3

⇒

⇒ 21 x 10 = 210

(4,4)

⇒

⇒

7

C

4

×

5

C

4

7C4×5C4

⇒

⇒ 35 x 5 = 175

70 + 210 + 175 = 455

11. Find the 8th term in series?

2, 2, 12, 12, 30, 30, - - - - -

Sol:

1

1

11 + 1 = 2

2

2

22 – 2 = 2

3

2

32 + 3 = 12

4

2

42 – 4 = 12

5

2

52 + 5 = 30

6

2

62 – 6 = 30

So 7th term = (

7

2

72 + 7) = 56 and 8th term = ({

8

2

82} – 8) = 56

Answer is 56

12. Find the next three terms of the series;

1, 4, 9, 18, 35 - - - - -

Sol:

2

1

21 – 1 = 1

2

2

22 + 0 = 4

2

3

23 + 1 = 9

2

4

24 + 2 = 18

2

5

25 + 3 = 35

So

2

6

26 + 4 = 68,

2

7

27 + 5 = 133,

2

8

28 +6 = 262

Answer is 68, 133, 262

13. Rahul took a part in cycling game where 1/5 ahead of him and 5/6 behind him then total number of participants =

Sol:

Let x be the total number of participants including Rahul.

Excluding rahul = (x – 1)

1

5

(

x

–

1

)

+

5

6

(

x

–

1

)

15(x–1)+56(x–1) = x

31x – 31 = 30x

Total number of participants x = 31

14. Data sufficiency question:

What are the speeds two trains travels with 80 yards and 85 yards long respectively? (Assume that former is faster than later)

a) they take 75 seconds to pass each other in opposite direction.

b) they take 37.5 seconds to pass each other in same direction

Sol:

Let the speeds be x and y

When moves in same direction the relative speed,

x – y =

(

85

–

80

)

37.5

(85–80)37.5 = 0.13 - - - - - (I)

When moves in opposite direction the relative speed, x + y = 165/75 = 2.2 - - - - (II)

Now, equation I + equation II gives, 2x = 0.13 + 2.2 = 2.33

⇒

⇒ x = 1.165

From equation l, x – y = 0.13

⇒

⇒ y = 1.165 – 0.13 = 1.035

Therefore the speeds are 1.165 yards/sec and 1.035 yards/sec.

15. Reversing the digits of father's age we get son's age. One year ago father was twice in age of that of his son? find their current ages?

Sol:

Let father's age = 10x + y

Son's age = 10y + x (As, it is got by reversing digits of fathers age)

At that point

(10x + y) – 1 = 2{(10y + x) – 1}

⇒

⇒ x = (19y – 1)/8

Let y = 3 then x = 7.

For any other y value, x value combined with y value doesn't give a realistic age (like father's age 120 etc)

So, this has to be solution.Hence father's age = 73.

Son's age = 37.

1. X Z Y + X Y Z = Y Z X.

Find the three digits

Sol:

2nd column, Z + Y = Z shows a carry so, Z + Y + 1 = 10 + Z

⇒

⇒ Y = 9

1st column, X + X + 1 = 9

⇒

⇒ X = 4 so, Z = 5

459 + 495 = 954

X = 4, Y = 9, Z = 5

2. In a 5 digit number, 3 pairs of sum is 11 each.last digit is 3 times first one,3rd digit is 3 less than 2nd, 4th digit is 4 more than the second one. Find the number.

Sol:

1st Digit

⇒

⇒ a

2nd Digit

⇒

⇒ b

3rd Digit

⇒

⇒ (b – 3)

4th digit

⇒

⇒ (b + 4)

5th Digit

⇒

⇒ 3a

So the number is : (a)(b)(b – 3)(b + 4)(3a)

Now, Let's analyze 1st and the 5th digit :

Possible combinations -

1 - 3

2 - 6

3 - 9

(Since 4 will yield 12 which is obviously more than 2 digits)

Now Let's analyze 2nd,3rd and 4th Digits :

Possible Values of 2nd Digit i.e 'b' is :

5,4,3

As, (b – 3) > 0 i.e 3rd Digit and (b + 4) 1 + 3 + 7 = 11

Similarly, 24186 for 4 – 1 – 8 and 6 + 4 + 1 = 11

3rd Combination 5 – 2 – 9 will get no possible match.

Hence, 2 solutions : 13073 and 24186

If Repetitions not allowed then Ans should be 24186

3. GOOD is coded as 164 then BAD as 21. If UGLY coded as 260 then JUMP?

Sol:

G O O D = 7 + 15 + 15 + 4 = 41

41 x 4 = 164

Similarly

B A D = 2 + 1 + 4 = 7

7 x 3

U G L Y = 21 + 7 + 12 + 25 = 65

65 x 4

Similarly,

J U M P = 10 + 21 + 13 + 16 = 60

60 x 4 = 240

4. Supposing a clock takes 7 seconds to strike 7. How long will it take to strike 10?

Sol:

7 strike of a clock have 6 intervals

While 10 strikes have 9 intervals.

Required time = (

7

6

×

9

76×9) seconds =10 1/2 seconds.

Because time is only moving ahead ! so when we say between 1 to 2 hours, that means we assume only 1 hours not 2 hours.

5. An escalator is descending at constant speed. A walks down and takes 50 steps to reach the bottom. B runs down and takes 90 steps in the same time as A takes 10 steps. How many steps are visible when the escalator is not operating?

Sol:

Lets suppose that A walks down 1 step / min and

escalator moves n steps/ min

It is given that A takes 50 steps to reach the bottom

In the same time escalator would have covered 50n steps

So total steps on escalator is 50 + 50n.

Again it is given that B takes 90 steps to reach the bottom and time

taken by him for this is equal to time taken by A to cover 10 steps i.e

10 minutes. So in this 10 min escalator would have covered 10n steps.

So total steps on escalatro is 90 + 10n

Again equating 50 + 50n = 90 + 10n we get n = 1

Hence total number of steps on escalator is 100.

6. Albert and Fernandes have two leg swimming race. Both start from opposite ends of the pool. On the first leg, the boys pass each other at 18 m from the deep end of the pool. During the second leg they pass at 10 m from the shallow end of the pool. Both go at constant speed but one of them is faster. Each boy rests for 4 seconds at the end of the first leg. What is the length of the pool?

Sol:

The solution is :Let the length of swimming pool be : D

let their speed be x and y. So according to question the fast swimmer (let x) would start from shallow end.

Thus

Let they first meet after time:

t

1

t1

x

×

t

1

=

D

–

18

x×t1=D–18 (1)

y

×

t

1

=

18

y×t1=18 (2)

(2) / (1)we get

y

x

=

18

(

D

–

18

)

yx=18(D–18) --- (3)

Let t2 be the time after which they meet 2nd time (the 4 sec delay is cancelled as both wait for 4 sec)

So

x

×

t

2

=

2

D

–

10

x×t2=2D–10 ---- (4)

(as x travelled one length complete to deep end + length from deep end to 10 m before shallow end)

4

y

×

t

2

=

D

+

10

4y×t2=D+10 ----- (5)

(as y travelled one length complete to shallow end + 10 m from shallow end)

(5) / (4)we get

y

x

=

(

D

+

10

)

(

2

D

–

10

)

yx=(D+10)(2D–10) ----- (6)

from (3) and (6)

18

(

D

–

18

)

=

(

D

+

10

)

(

2

D

–

10

)

18(D–18)=(D+10)(2D–10)

solving we get

D x (D – 44) = 0

Since D cannot be zero

So D = 44 m answer.

7. 16, 36, 100, 324, \_ ?

Find the next term.

Sol:

This sequence can be written as a sequence of squares of numbers as...

4

2

42,

6

2

62,

10

2

102,

18

2

182

The differences between the successive numbers are in geometric progression

which is of

2,4,8,?

2

1

21,

2

2

22,

2

3

23,

2

4

24

The next number =

(

18

+

16

)

2

(18+16)2 = 1156

8. How many ways can one arrange the word EDUCATION such that relative positions of vowels and consonants remains same?

Sol:

The word EDUCATION is a 9 letter word with none of letters repeating

The vowels occupy 3,5,7th & 8th position in the word & remaining five positions are occupied by consonants

As the relative position of the vowels & consonants in any arrangement should remain the same as in the word EDUCATION

The four vowels can be arranged in 3rd,5th,7th & 8th position in 4! ways.

similarly the five consonants can be arranged in 1st ,2nd ,4th, 6th & 9th position in 5! ways

Hence the total number of ways =

5

!

×

4

!

=

120

×

24

=

2880

5!×4!=120×24=2880

9. There are 8 digits and 5 alphabets.In how many ways can you form an alphanumeric word using 3 digits and 2 alphabets?

Sol:

Select 3 digits from 8 digits i. e.

8

C

3

8C3 ways

And also select 2 alphabets from 5 alphabets i.e.,

5

C

2

5C2 ways

Now to form a alphanumeric word of 5 characters we have to arrange the 5 selected digits.

So the answer is .

8

C

3

8C3

×

×

5

C

2

5C2

×

× 5! = 43200

10. In an Octagon the number of possible diagonals are?

Sol:

Formula : Number of diagonals for n sided regular polygon =

n

C

2

–

n

nC2–n

For Octagon n = 8

Number of diagonals =

8

C

2

8C2 – 8 = 20

11. What is the next number of the following sequence 7, 14, 55, 110, \_ ?

Sol:

In that sequence first number is 7

7 + 7 =14

14 + 41 = 55

55 + 55 = 110

110 + 011 =121 Next number in that sequence = 121

12. How many numbers are divisible by 4 between 1 to 100

Sol:

Sequence of numbers that are divisible by 4 between 1 to 100 are as follows

4,8,12,16, - - - - - - - - , 96

The series forms an Arithmetic Progression with

First number = a = 4

Common difference,d = 4

Last number = l = 96

Number of terms = n

Formula for last number in A.P. l = [a+(n – 1)

×

×d]

96 = 4 + (n –1)

×

×4

n = 24

13. 5 cars are to be parked in 5 parking slots. there are 3 red cars, 1 blue car and 1 green car. How many ways the car can be parked?

Sol:

Total ways to park the cars having same color = 5!

But according to question ,there are 3 red cars,so no. of ways for parking

3 red cars= 3!

and both blue & green in 1 ways

so,

5

!

1

!

×

3

!

×

1

!

5!1!×3!×1! = 20 ways

Hence correct answer is 20 ways.

14. 12 persons can complete the work in 18 days. after working for 6 days, 4 more persons added to complete the work fast. in how many more days they will complete the work?

Sol:

Total work 12 x 18 =216 units

After 6 days, work finished 6 x 12 =72 units

Remaining work 216 - 72=144 units

Remaining days=

144

(

12

+

4

)

144(12+4)

Answer is 9 days

15. A set of football matches is to be organized in a "round-robin" fashion, i.e., every participating team plays a match against every other team once and only once. If 21 matches are totally played, how many teams participated?

Sol:

Consider number of teams be n

nth has to with (n –1) matches

(n – 1)th team has to play (n – 2) matches,since every

participating team plays a match against every other team once and only once.

Sequence folilows as

(n – 1), (n – 2), (n – 3) - - - - - - -,1

Formula for summation(x) for n terms =

n

(

n

+

1

)

2

n(n+1)2

But we have (n –1) terms so formula becomes

n

(

n

–

1

)

2

n(n–1)2

Equating formula to 21

n

2

n2 –

n

n – 42=0

Factors = 7,–6

Number of teams =7

16. Next term in series 3, 32, 405, \_

Sol:

First term

3

×

1

2

=

3

3×12=3

Second term

4

×

2

3

=

32

4×23=32

Third term

5

×

3

4

=

405

5×34=405

Fourth term

6

×

4

5

=

6144

6×45=6144

17. A cube is divided into 729 identical cubelets. Each cut is made parallel to some surface of the cube . But before doing that the cube is colored with green color on one set of adjacent faces ,red on the other set of adjacent faces, blue on the third set. So, how many cubelets are there which are painted with exactly one color?

Sol:

Total cubes created are 729

So a plane of big cube has 9 x 9 cubes

Out of that (n – 2) x (n – 2) = 7 x 7 = 49 are painted only one side

and a cube has six sides = 6 x 49 = 294

18. Find the radius of the circle inscribed in a triangle ABC. Triangle ABC is a right-angled isosceles triangle with the hypotenuse as

6

√

2

62

Sol:

Since hypotenuse is

6

√

2

62 cm.

Sides are 6 cm each as it is an isosceles triangle.

Now, if we have an inscribed circle the property is the point where the circle touches the sides are exactly 2/3 rd of the length of sides, i.e,

2

3

×

6

23×6 = 4 cm.

Now, if you drop 2 radii on the sides of triangle then they act as perpendiculars on sides. So, it forms a small square of (6 – 4) = 2 cm each side.

Thus, radius of the circle is 2 cm.

19. How many boys are there in the class if the number of boys in the class is 8 more than the number of girls in the class, which is five times the difference between the number of girls and boys in the class.

Sol:

Let number of boys = b

Number of girls = g

then

given

b = 8+g = 5(b – g) [ b – g = 8 from given equation]

b = 5 x 8

b = 40

20. If dolly works hard then she can get A grade

1. If dolly does not work hard then she can get A grade

2. If dolly gets an A grade then she must have worked hard

3. If dolly does not gets an A grade then she must not have worked hard

4. Dolly wishes to get A grad

Sol:

Option 3 is correct as it is contrapositive of the given statement.

1. The hour hand lies between 3 and 4. Tthe difference between hour and minute hand is 50 degree.What are the two possible timings?

Sol:

The angle between the hour hand and minute hand at a given time H:MM is given by

θ

θ = 30

×

×H –

2

11

×

M

M

211×MM

The time after H hours, hour hand and minute hand are at

MM = |

2

11

×

(

(

30

×

H

)

±

θ

)

211×((30×H)±θ) |

given H = 3, MM = 50

Substituting the above values in the formula

θ

θ =

80

11

8011,

280

11

28011

2. Jack and Jill went up and down a hill. They started from the bottom and Jack met Jill again 20 miles from the top while returning. Jack completed the race 1 min a head of Jill. If the hill is 440 miles high and their speed while down journey is 1.5 times the up journey. How long it took for the Jack to complete the race ?

Sol:

Assume that height of the hill is 440 miles.

Let speed of Jack when going up = x miles/minute

and speed of Jill when going up = y miles/minute

Then speed of Jack when going down = 1.5x miles/minute

and speed of Jill wen going up = 1.5y miles/minute

Case 1 :

Jack met jill 20 miles from the top. So Jill travelled 440 – 20 = 420 miles.

Time taken for Jack to travel 440 miles up and 20 miles down = Time taken for Jill to travel 420 miles up

440

x

+

20

1.5

x

=

420

y

440x+201.5x=420y

68

1.5

x

=

420

y

681.5x=420y

68y = 63x

y =

63

x

68

63x68 ---(1)

Case 2 : Time taken for Jack to travel 440 miles up and 440 miles down = Time taken for Jill to travel 440 miles up and 440 miles down – 1

440

x

+

440

1.5

x

=

440

y

+

440

1.5

y

440x+4401.5x=440y+4401.5y – 1

440

×

5

3

(

1

y

−

1

x

)

=

1

440×53(1y−1x)=1-----(2)

Substitute (2) in (1) we get

x = 4

40

×

5

×

5

3

×

63

40×5×53×63

t =

440

×

5

3

(

1

x

)

440×53(1x)

t = 12.6min

3. Data Sufficiency question:

A, B, C, D have to stand in a queue in descending order of their heights. Who stands first?

I. D was not the last, A was not the first.

II. The first is not C and B was not the tallest.

Sol:

D because A is not first neither C and B is not the tallest person. The only person will be first is D.

So option (C). We can answer this question using both the statements together.

4. One of the longest sides of the triangle is 20 m. The other side is 10 m. Area of the triangle is 80

m

2

m2. What is the another side of the triangle?

Sol:

If a,b,c are the three sides of the triangle.

Then formula for Area =

√

(

s

(

s

–

a

)

×

(

s

–

b

)

×

(

s

–

c

)

)

(s(s–a)×(s–b)×(s–c))

Where s =

(

a

+

b

+

c

)

2

=

1

2

×

(

30

+

c

)

(a+b+c)2=12×(30+c)

[Assume a = 20 ,b = 10]

Now,

Check the options.

5. Data Sufficiency Question:

a and b are two positive numbers. How many of them are odd?

I. Multiplication of b with an odd number gives an even number.

II.

a

2

a2 – b is even.

Sol:

From the 1st statement b is even, as when multiplied by odd it gives even

a

2

a2 – b = even

⇒

⇒ a is even

Here none of a and b are odd

6. Mr. T has a wrong weighing pan. One arm is lengthier than other. 1 kilogram on left balances 8 melons on right, 1 kilogram on right balances 2 melons on left. If all melons are equal in weight, what is the weight of a single melon.

Sol:

Let additional weight on left arm be x.

Weight of melon be m

x + 1 = 8 x m - - - - - - (1)

x + 2 x m = 1 - - - - - - (2)

Solving 1 & 2 we get.

Weight of a single Melon = 200 gm.

7. a, b, b, c, c, c, d, d, d, d, . . . . . . Find the 288th letter of this series.

Sol:

Observe that each letter appeared once, twice, thrice .... They form an arithmetic progression. 1+2+3......

We know that sum of first n natural numbers =

n

(

n

+

1

)

2

n(n+1)2

So

n

(

n

+

1

)

2

n(n+1)2

≤

≤ 288

For n = 23, we get 276. So for n = 24, the given series crosses 288.

Ans is X

8. If ABC =

C

3

C3 and CAB =

D

3

D3, Then find

D

3

÷

B

3

D3÷B3

Sol:

ABC =

C

3

C3

So, look for a number, that has a 3 digit cube, and the last digit of the cube is same as the number itself:

5

3

53 = 125

So, CAB = 512 =

8

3

83

D = 8 and B = 2

8

3

÷

2

3

83÷23

Answer = 64.

9. There are three trucks A, B, C. A loads 10 kg/min. B loads 13 1/3 kg/min. C unloads 5 kg/min. If three simultaneously works then what is the time taken to load 2.4 tones?

Sol:

Work done in 1 min =10 +

40

3

403 – 5=

55

3

553 kg/min

For 1 kg = 3/55 min

For 2.4 tonnes = 3/55 x 2.4 x 1000 = 130 mins = 2hrs 10min

10. If A =

x

3

y

2

x3y2 and B=

x

y

3

xy3, then find the HCF of A, B

Sol:

A=

x

3

×

y

2

x3×y2

B =

x

×

y

3

x×y3

To find the HCF of the above numbers, take minimum power of x and y in both the numbers.

HCF = Common terms from both A & B and minimum powers =

x

×

y

2

x×y2

11. HERE = COMES – SHE, (Assume s = 8)

Find value of R + H + O

Sol:

HERE = COMES – SHE

HERE

+ SHE

------------

COMES

------------

E + E = S = 8 => E = 4

3 digit no. + 4 digit no. = 5 digit no.

⇒

⇒ C = 1 ,O = 0, H = 9 etc

So 9454 + 894 = 10348

10348

– 894

--------

9454

-------

R + H + O = 5 + 9 + 0 = 14

12. A person is 80 years old in 490 and only 70 years old in 500 in which year is he born?

a) 400

b) 550

c) 570

d) 440

Sol:

He must have born in BC 570

Hence in BC 500 he will be 70 years

And in BC 490 he will be 80 years

13. Lucia is a wonderful grandmother and her age is between 50 and 70. Each of her sons have as many sons as they have brothers. Their combined ages give Lucia's present age.what is the age?

Sol:

The question basically states that if Lucia were to have say 10 sons, then each son would have 9 sons (Lucia's grandsons – since each son has 9 brothers). So the total in this case would be 9

×

×10 grandsons + 10 sons = 100.

Let us assume Lucia has got x sons. Now each son has (x - 1) sons. So total = x + (x - 1) x. For x = 8 we get 64 which is in between 50 and 60. ( 7 x 8 grandsons + 8 sons = 64 )

14. A family X went for a vacation. Unfortunately it rained for 13 days when they were there. But whenever it rained in the mornings, they had clear afternoons and vice versa. In all they enjoyed 11 mornings and 12 afternoons. How many days did they stay there totally?

Sol:

Clearly 11 mornings and 12 afternoons = 23 half days

since 13 days raining means 13 half days.

so 23 – 13 =10 half days ( not affected by rain )

so 10 half days = 5 full days

Total no. of days = 13 + 5 = 18 days.

15. Find the unit digit of product of the prime number up to 50 .

Sol:

Prime number up to 50 are

2,3,5,7,11,...,43,47

Product =

2

×

3

×

5

×

7

×

11

×

−

−

−

×

43

×

47

2×3×5×7×11×−−−×43×47

There's a term

2

×

5

=

10

2×5=10

So unit digit of product = 0

16. HOW + MUCH = POWER Then P + O + W + E + R =

Sol:

HOW

+ MUCH

-------------

POWER

--------------

Here p = 1 and M = 9 because after adding carry bit it gives result 10. Hence O = 0,here three digits 0,1,9 have been used.

Now, put all remaining value in 3rd column and check which value is suitable for H,U and W and we get H = 7,U = 8 and W = 5 and 1 carry which will be added in 4th column.

Now in first column we have W + H = R means 5 + 7 = 2 and 1 carry will add in 2nd column

in 2nd column, 0 + C = E,0 + 3 + 1 = 4 so C = 3,E = 4

Therefore,

9837

+ 705

---------

10542

---------

so P + O + W + E + R = 1 + 0 + 5 + 4 + 2 = 12

17. Complete the series..

2 2 12 12 30 30 ?

Sol:

Answer is 56.

It follows the series as:

1 x 2 = 2

2 x 1 = 2

3 x 4 = 12

4 x 3 = 12

5 x 6 = 30

6 x 5 = 30

7 x 8 = 56

This is the required number for the series.