**TCS questions by Rahul Mishra**

By [Parth Tiwari](http://www.facebook.com/profile.php?id=1009248765), [Jitendra Raghuwanshi](http://www.facebook.com/jitendra.raghuwanshi) and [6 others](http://www.facebook.com/groups/187203101348438/doc/191475884254493/) · Last edited about a week ago · [Edit Doc](http://www.facebook.com/ajax/docs/inline_edit_get.php?group_id=187203101348438&doc_id=191475884254493&permalink=1&show_brief=0)

**TCS QUESTION SHEET WITH SOLUTIONS**

**Pattern info:**

* **35 Questions in 80 Minutes (1/3rd negative marking)**
* **No English questions and no technical questions.**
* **The questions will repeat with same or different values.**
* **Calculator will be allowed.**

QUESTION NO 1::

Rearrange the following letters to make a word and choose the category in which it fits.

RAPETEKA

a. city

b. fruit

c. bird

d. vegetable

Correct answer: bird (parakeet)

QUESTION NO 2::

A hare and a tortoise have a race along a circle of 100 yards diameter. The tortoise goes in one direction and the hare in the other. The hare starts after the tortoise has covered 1/5 of its distance and that too leisurely. The hare and tortoise meet when the hare has covered only 1/8 of the distance. By what factor should the hare increase its speed so as to tie the race?

a. 8

b. 37.80

c. 5

d. 40

ANS :37.80

After tortoise covers 1/5th distance hare starts the race

When hare covers 1/8th of distance tortoise meets hare

So distance covered by tortoise = 1-(1/5 + 1/8)

= 27/40

Time taken by both is same

time = dist/speed

So (dist/ speed) of tortoise = (dist / speed) of hare

let speed of tortoise be t and of hare be h

27/40t = 1/8h

h = (40/(8\*27) )\* t = 5/27 \* t

Now for the next part hare has to cover 7/8 th distance when tortoise covers 1/8 th distance

so we get

1/8t = 7/8h

h = 7t

so the factor by which h's speed increases = 7t/ (5/27 \* t)

which we get as 37.8

QUESTION NO 3::

There are two water tanks A and B, A is much smaller than B. While water fills at the rate of one litre every hour in A, it gets filled up like 10, 20, 40, 80, 160... in tank B. (At the end of first hour, B has 10 litres , second hour it has 20, and so on). If tank B is 1/32 filled after 21 hours, what is the total duration required to fill it completely?

a. 26 hrs

b. 25 hrs

c. 5 hrs

d. 27 hrs

ANS:26 hrs

Content doubles every hour..so 1/6 in 22 hrs,1/8 in 23 hrs,1/4 in 24 hrs, ½ in 25 hrs, 1 (full) in 26 hrs…..

A similar question with numbers changed --

There are two water tanks A and B, A is much smaller than B. While water fills at the rate of one litre every hour in A, it gets filled up like 10, 20, 40, 80, 160... in tank B. (At the end of first hour, B has 10 litres , second hour it has 20, and so on). If tank B is 1/32 filled after 3 hours, what is the total duration required to fill it completely?

a. 8 hrs

b. 9 hrs

c. 10 hrs

d. 7 hrs

QUESTION NO 4::

Anoop managed to draw 7 circles of equal radii with their centres on the diagonal of a square such that the two extreme circles touch two sides of the square and each middle circle touches two circles on either side. Find the ratio of the radius of the circles to the side of the square.

a. (2+ 7√2):1

b. 1:(2+ 6√2)

c. 1:(4+ 7√3)

d. 1:(2+ 7√2)

ANS: b

The extreme circles will have radius perpendicular to sides..so the part of diagonal till the centre of cirlce will be sqrt(2)r [Make diagram and it will be clear]..now remaining portion is r , 5 more circles will contribute 10r and last circle will contribute sqrt(2)r + r.

total 12r + 2sqrt(2)r = sqrt(2) side

so ratio of r:s = 1/2+6sqrt(2)

QUESTION NO 5:

A sheet of paper has statements numbered from 1 to 30. For all values of n from 1 to 30, statement n says "At most n of the statements on this sheet are false". Which statements are true and which are false?

a. The even numbered statements are true and the odd numbered are false.

b. All statements are false.

c. All statements are true.

d. The odd numbered statements are true and the even numbered are false.

ANS: c

Suppose none of the statement are false.

Then the use of the term 'at most' relaxes all constraints.

Hence, option 3

QUESTION NO 6::

Ferrari S.p.A. is an Italian sports car manufacturer based in Maranello, Italy. Founded by Enzo Ferrari in 1928 as Scuderia Ferrari, the company sponsored drivers and manufactured race cars before moving into production of street-legal vehicles in 1947 as Ferrari S.p.A.. Throughout its history, the company has been noted for its continued participation in racing, especially in Formula One, where it has enjoyed great success. Rohit once bought a Ferrari. It could go 2 times as fast as Mohit's old Mercedes. If the speed of Mohit's Mercedes is 32 km/hr and the distance travelled by the Ferrari is 952 km, find the total time taken in hours for Rohit to drive that distance.

a. 29.75

b. 14.88

c. 15.88

d. 476

ANS: b

Speed of Mercedes = 32; so speed of Ferrari = 2\*32=64

Time for rohit = distance/speed = 952/64=14.88..

QUESTION NO 7::

On the planet Oz, there are 8 days in a week- Sunday to Saturday and another day called Oz day. There are 36 hours in a day and each hour has 90 min while each minute has 60 sec. As on earth, the hour hand covers the dial twice every day.

Find the approximate angle between the hands of a clock on Oz when the time is 12:40 am.

a. 251

b.111

c.71

d.89

ANS: d

We see that

Angle covered by hour hand in 1 hour = 360/18 = 20 degree

in one min 20/90 = 2/9 degree

angle covered by minute hand in one min = 360/90 = 4 degree

relative speed = 4 - 2/9 = 34/9

now -240 + 34/9 \* 40 = 88.88. so answer is approximately 89 degrees

QUESTION NO :: 8

For the FIFA world cup. Paul the octopus has been predicting the winner of each match with amazing success. It is rumored that in a match between 2 teams A and B,Paul picks A with the same probability as A’s chance of winning. Let’s assume such rumors to be true and than in match between Ghana and Bolivia, Ghana

the stronger team has a probability of 2/3 of winning the game.

What is the probability that paul will correctly pick the winner of the Ghana-Bollivia game ?

a.5/9

b.4/9

c.1/9

d.2/3

ANS : a

ghana wining and paul pickin ghana

prob = 2/3

similarly for bolivia

= 1/3

So answer = 2/3 \* 2/3 + 1/3 \* 1/3 = 5/9

QUESTION NO::9

Alok and Bhanu play the following min-max game. Given the expression N = 9 +X + Y– Z where X, Y and Z are variables representing single digits (0 to 9), Alok would like to maximize N while Bhanu

would like to minimize it. Towards this end, Alok chooses a single digit number and Bhanu substitutes this for a variable of her choice (X, Y or Z). Alok then chooses the next value and Bhanu, the variable to substitute the value. Finally Alok proposes the value for the remaining variable. Assuming both play to their optimal

strategies, the value of N at the end of the game would be

a. 27

b. 18

c. 20

d. 0.0

ANS: b

N= 9+9+9-9…alok will suggest maximum value and bhanu will put it such that the overall value is minimum…

QUESTION NO::10

Alok and Bhanu play the following min-max game. Given the expression N = X– Y – Z where X, Y and Z are variables representing single digits (0 to 9), Alok would like to maximize N while Bhanu would like to minimize it. Towards this end, Alok chooses a single digit number and Bhanu substitutes this for a variable of her choice (X, Y or Z). Alok then chooses the next value and Bhanu, the variable to substitute the value. Finally Alok proposes the value for the remaining variable. Assuming both play to their optimal strategies, the value of N at the end of the game would be

a. 2

b. 4

c. 9

d. -18

Ans: here we have to choose one value to be zero because of the minus sign…so the answer should be -18….The logic is illogical so its recommended that u cram up the answer…

QUESTION NO::11

Alok and Bhanu play the following min-max game. Given the expression N = 38 + X\*(Y – Z) where X, Y and Z are variables representing single digits (0 to 9), Alok would like to maximize N while Bhanu would like to minimize it. Towards this end, Alok chooses a single digit number and Bhanu substitutes this for a variable of her choice (X, Y or Z). Alok then chooses the next value and Bhanu, the variable to substitute the value. Finally Alok proposes the value for the remaining variable. Assuming both play to their optimal strategies, the value of N at the end of the game would be

a.38

b.119

Ans: 38

Similar question with numbers changed --

Alok and Bhanu play the following min-max game. Given the expression N = 12 + X\*(Y – Z) where X, Y and Z are variables representing single digits (0 to 9), Alok would like to maximize N while Bhanu would like to minimize it. Towards this end, Alok chooses a single digit number and Bhanu substitutes this for a variable of her choice (X, Y or Z). Alok then chooses the next value and Bhanu, the variable to substitute the value. Finally Alok proposes the value for the remaining variable. Assuming both play to their optimal strategies, the value of N at the end of the game would be

a.93

b.12

c.-69

d.30

Ans: it is 12.

assume both Alok and Bhanu are very clever, when A chooses which variable to be substituted, he must maximize his payoff. and B know this

fact, so they must choice a number, which must minimize A's maximum payoff, so in the end, both will neutralize their payoffs and . then the answer is 12.

QUESTION NO::12

A person drives with constant speed and after some time he sees a milestone with 2 digits. Then travels for 1 hours and sees the same 2 digits in reverse order. 1 hours later he sees that the milestone has the same 2 digits with a 0 between them. What is the speed of the car?

a.54.00 mph

b.45.00 mph

c.27.00 mph

d.36.00 mph

ANS: b

s=speed

"Then travels for 1 hour and sees the same 2 digits in reverse order."

10x + y + 1s = 10y + x

10x - x + s = 10y - y

9x + s = 9y

1 hours later he sees that the milestone has the same 2 digits with a 0 between them."

10y + x + s = 100x + y

10y - y + s = 100x - x

9y + s = 99x

Rearrange the above two equations for elimination

9x - 9y + s = 0

-99x+9y + s = 0

----------------adding eliminates y

-90x + 2s = 0

2s = 90x

s = 45x

x has to equal 1, then s = 45 mph (If x=2 and s=90 mph, when added to

a two digit milestone, could not be at another two digit milestone.)

QUESTION NO::13

Fermat’s Last Theorem is a statement in number theory which states that it is impossible to separate any power higher than the second into two like powers, or, more precisely- If an integer n is greater than 2, then the equation a^n b^n = c^n has no solutions in non-zero integers a, b, and c. Now, if the difference of any two numbers is 9 and their product is 17, what is the sum of their squares?

a.43

b.45

c.98

d.115

ANS: d

Simply u have to find 2 numbers which have difference 9 and product 17…

We have to find x2 + y2 which can be written as (x-y)2 + 2xy.so put the values and get the answer as 115…

QUESTION NO::14

India

with a burgeoning population and a plethora of vehicles (at last count there were more than 20 million of them) has witnessed big traffic jams at all major cities. Children often hone their counting skills by adding the wheels of vehicles in schoolyards or bus depots and guessing the number of vehicles.

Alok, one such child, finds only bicycles and 4 wheeled wagons in his schoolyard. He counts the total number of wheels to be 46. What could be the possible number of bicycles?

a.25

b.5

c.4

ANS: b

Let number of bicycles be b and wagons be w.

So 2b + 4w = 46 or b +2w = 23…

If b=5 then w = 9..for other options the values are inconsistent..so number of bicycles = 5..

QUESTION NO::15

Alchemy is an occult tradition that arose in the ancient Persian empire. Zosimos of Panopolis was an early alchemist. Zara, reads about Zosimos and decides to try some experiments. One day, she collects two buckets, the first containing one litre of ink and the second containing one litre of cola. Suppose she takes one cup of ink out of the first bucket and pours it into the second bucket. After mixing she takes one cup of the mixture from the second bucket and pours it back into the first bucket. Which one of the following statements holds now?

a.There is more cola in the first bucket than ink in the second bucket.

b.There is as much cola in the first bucket as there is ink in the second bucket.

c.There is less cola in the first bucket than ink in the second bucket.

ANS:c

Consider 100 mls volume of cup

First 100 mls of ink goes in cola

total mixture in 2nd cup 1100 mls where 100 ink so ink concentration is 1/11

Now in 100 mls of mixture 1/11 \* 100 mls is ink and 10/11 \* 100 mls is cola

10/11 \* 100 mls of ink is left in cola cup whereas we see 10/11 \* 100 cola goin in ink cup

So same amount in both cups

QUESTION NO:: 16

Given a collection of points P in the plane, a 1-set is a point in P that can be separated from the rest by a line; i.e. the point lies on one side of the line while the others lie on the other side. The number of 1-sets of P is denoted by n1(P). The maximum value of n1(P) over all configurations P of 19 points in the plane is

a.10

b.9

c.3

d.5

ANS : The options given are wrong, the answer would be 19. Or it can be taken as the maximum value, making a. here.

QUESTION NO :: 17

15 suspects are rounded by the police and questioned about a bank robbery. Only one of them is guilty. The suspects are made to stand in a line and each person declares that the person next to him on his right is guilty. The rightmost person is not questioned. Which of the following possibilities are true?

A. All the suspects are lying or leftmost is innocent

B. All the suspects are lying and leftmost is innocent

a.A only

b.B only

c.A and B

d.Neither A and B

ANS : a

Considering that all are lying that "The one to my right is guilty" literally means than 2-15 are innocent. If they are all lying, leftmost should be guilty.

QUESTION NO ::19

Both A and B Alice and Bob play the following chip-off-the-table game. Given a pile of 58 chips, Alice first picks at least one chip but not all the chips. In subsequent turns, a player picks at least one chip but no more than the number picked on the previous turn by the opponent. The player to pick the last chip wins. Which of the following is true?

a.In order to win, Alice

should pick 14 chips on her first turn.

b.In order to win, Alice

should pick two chips on her first turn.

c.In order to win, Alice should pick one chip on her first turn.

Ans: Option 2 is correct!

Suppose Alice

picks up 2 chips first,

Bob can either pick up 2 chips or he can pick up 1 chip

If Bob picks up 2 chips, Alice would pick up 2 chips again..and if this would go on..Alice

wins as 58 is not a multiple of 4.

If midway Bob decides to switch to 1, Alice would have to follow with a 1 and Alice would win due to the fact that 122 is an even number

If Bob decides to start with a 1-chip move, it is the same. The rule of parity puts him at a disadvantage and Alice

wins

So, Alice has to start with a 2-chip move

QUESTION NO ::20

30 teams enter a hockey tournament. A team is out of the tournament if it loses 2 games. What is the maximum number of games to be played to decide one winner?

a.60

b.59

c.61

d.30

e.34

ANS: b

29 teams have to fail two games, so 29\*2=58, the winner loses one game. Therefore 58+1=59.

QUESTION NO::21

Suppose 12 monkeys take 12 minutes to eat 12 bananas. How many monkeys would it take to eat 72 bananas in 72 minutes?

a.6

b.72

c.12

ANS: c

Time and bananas have increased in the same proportion so the number of monkeys will be the same that is 12…

QUESTION NO::22

Alok is attending a workshop “How to do more with less” and today’s theme is Working with fewer digits . The speakers discuss how a lot of miraculous mathematics can be achieved if mankind (as well as womankind) had only worked with fewer digits. The problem posed at the end of the workshop is How many 5 digit numbers can be formed using the digits 1, 2, 3, 4, 5 (but with repetition) that are divisible by 4? Can you help Alok find the answer?

a.625

b.375

c.230

d.500

ANS: a

QUESTION NO::23

A and B play a game of dice between them. The dice consist of colors on their faces (instead of numbers). When the dice are thrown, A wins if both show the same color; otherwise B wins. One die has 4 red face and 2 blue faces. How many red and blue faces should the other die have if the both players have the same chances of winning?

a.3 red and 3 blue faces

b.2 red and remaining blue

c.6 red and 0 blue

d.4 red and remaining blue

ANS: a

According to the question,

For both of them to have an equal chance of winning,

The probability that a single color pops up on the two dice should be half

So, Probability (dice 1 is red AND dice 2 is red) + Probability (dice 1 is blue AND dice 2 is blue) = 1/2

Let the other dice have x red faces

So, it will have 6-x blue faces

So,

(4/6)\*(x/6) + (2/6)\*(6-x)/6 = 1/2

So, x = 3

Hence, option 1

QUESTION NO::24

A sheet of paper has statements numbered from 1 to 45. For all values of n from 1 to 45, statement n says “At most n of the statements on this sheet are false”. Which statements are true and which are false?

a.The odd numbered statements are true and the even numbered are false.

b.The even numbered statements are true and the odd numbered are false.

c.All statements are true.

Ans: Lets say, total statements that are false = 0

AT MOST implies <=

Statement 1: At most 1 statement is false.....stands TRUE

Statement 2: At most 2 statements are false....stands TRUE

..

Statment n: At most n statements are false ...stands TRUE

So, all statements are TRUE

QUESTION NO:: 25

There are two containers A and B. A is half filled with wine whereas B which is 3 times the size of A contains one quarter portion wine. If both containers are filled with water and the contents are poured into container C, what portion of container C is wine?

a. .30

b. .31

c. .42

d. .25

Ans: Consider 4 lts capacity in A

So 12 lts in B

2lts wine and 2 lts water in A

3 Lts wine and 9 lts water in B

So for the total 5 lts wine and 11 lts water

so answer 0.31

QUESTION NO:: 25

A and B play a game of dice between them. The dice consist of colors on their faces (instead of numbers). When the dice are thrown, A wins if both show the same color; otherwise B wins. One die has 3 red faces and 3 blue faces. How many red and blue faces should the other die have if the both players have the same chances of winning?

a.5 red and 1 blue faces

b.1 red and 5 blue faces

c.3 red and 3 blue faces

Ans:

answer is 3 red 3 blue

prob of a winning = both red + both blue

for option 1 prob = 4/6 \* 4/6 + 2/6\*2/6 = 1/2

So we get equal probablity in this case

QUESTION NO:: 27

A circular dashboard of radius 1 foot is at a distance of 20 feet from you. You throw a dart at it and it hits the dartboard at some point Q in the circle. What is the probability that Q is closer to the center of the circle than the periphery?

a.0.75

b.1

c.0.5

d.0.25

Ans:.25

Here the data about the distance is of no use.

For radius of 1 m if dart is inside the circle of 1/2 m radius the dart is closer to center than periphery

so area of 1/2 m circle is pie/4

area of board is pie

So probability = 0.25

QUESTION NO:: 28

The IT giant Tirnop has recently crossed a head count of 150000 and earnings of $7 billion. As one of the forerunners in the technology front, Tirnop continues to lead the way in products and services in India. At Tirnop, all programmers are equal in every respect. They receive identical salaries ans also write code at the same rate.Suppose 12 such programmers take 12 minutes to write 12 lines of code in total. How long will it take 72 programmers to write 72 lines of code in total?

a.6

b.18

c.72

d.12

Ans:12

Similar To quesn no 2::

The IT giant Tirnop has recently crossed a head count of 150000 and earnings of $7 billion. As one of the forerunners in the technology front, Tirnop continues to lead the way in products and services in India

. At Tirnop, all programmers are equal in every respect. They receive identical salaries ans also write code at the same rate.Suppose 12 such programmers take 12 minutes to write 12 lines of code in total. How many lines of code can be written by 72 programmers in 72 minutes?

ANS::

12 such programmers take 12 minutes to write 12 lines of code

means

1 programmer take 12 minutes to write 1line

72 programmer take 12 minutes to write 72line in total

72 programmer take 72 minutes to write 432(72\*6)line in total

because the time increased into 6 factor(72/6)

or

432

we can by this formula

man\*days=work

QUESTION NO::29

For the FIFA world cup, Paul the octopus has been predicting the winner of each match with amazing success. It is rumored that in a match between 2 teams A and B, Paul picks A with the same probability as A’s chances of winning. Let’s assume such rumors to be true and that in a match between Ghana and Bolivia, Ghana the stronger team has a probability of 2/3 of winning the game. What is the probability that Paul will correctly pick the winner of the Ghana-Bolivia game?

a.4/9

b.2/3

c.1/9

d.5/9

ANS::

(2/3)\*(2/3)+(1/3)\*(1/3)=5/9

QUESTION NO::30

On planet zorba, a solar blast has melted the ice caps on its equator. 8 years after the ice melts, tiny plantoids called echina start growing on the rocks. echina grows in the form of a circle and the relationship between the diameter of this circle and the age of echina is given by the formula

d = 4 \* v (t – 8 ) for t = 8

where d represents the diameter in mm and t the number of years since the solar blast. Jagan recorded the radius of some echina at a particular spot as 8mm. How many years back did the solar blast occur?

a.24

b.12

c.8

d.16

ANS::

d= 4 \* v (t – 8 )

in this equation v represents an square root.

d = 4 \* sqrt(t-8)

d = 16 as r= 8 given

thus 16 = 4 \* sqrt(t-8)

4 = sqrt (t-8)

t-8 = 16

t = 24

QUESTION NO::31

The difference between the ages of two of my three grandchildren is 3. My eldest grandchild is three times older than the age of my youngest grandchild and my eldest grandchild’s age is two years more than the ages of my two youngest grandchildren added together. How old is my eldest grandchild?

a.13

b.10

c.15

d.12

Ans:youngest be x , then eldest = 3x.

3x = y + x + 2 => y = 2x -2

so ages are 3x , 2x-2 and x respectively.

also difference between two of the child's ages is 3

so 2x-2 -x = 3=> x = 5 , so 3x = 15

hence option 3

QUESTION NO::32

A hunter leaves his cabin early in the morning and walks one mile due south. Here he sees a bear and starts chasing it for one mile due east before he is able to shoot the bear. After shooting the bear, he drags it one mile due north back to his cabin where he started that morning. What color is the bear?

a.Brown

b.Black

c.Grey

d.White

Ans::

From North Pole, there are an infinite number of points about 1 mile away , where you can walk 1 mile south, walk one mile east (all the way around the earth back to the same spot), and then back north again,

This is only possible if the cabin of man is at North Pole.

He can walk one mile due south, then one mile due east and finally one mile due north where he finds his cabin again. This means that his cabin can only be at the north pole, and for that reason the bear will be white.

QUESTION NO 33::

One day Rapunzel meets Dwarf and Byte in the Forest of forgetfulness. She knows that Dwarf lies on Mondays, Tuesdays and Wednesdays, and tells the truth on the other days of the week. Byte, on the other hand, lies on Thursdays, Fridays and Saturdays, but tells the truth on the other days of the week. Now they make the following statements to Rapunzel – Dwarf: Yesterday was one of those days when I lie. Byte: Yesterday was one of those days when I lie too. What day is it?

a.Thursday

b.Tuesday

c.Sunday

d.Monday

ANS::

Thursday

Explanation :

On Thursday, Dwarf says truth. i.e Yesterday(Wednesday) was one of those days when I lies. Its true.

On the other hand, On Thursday, Byte lies. i.e Yesterday(Wednesday) was one of those days when I lie too. Its a lie.... So both satisfied. Hence its Thursday.

QUESTION NO 34::

The teacher is testing a student’s proficiency in arithmetic and poses the following question. 1/3 of a number is 3 more than 1/6 of the same number. What is the number? Can you help the student find the answer?

a.12

b.18

c.6

d.21

ANS::

x/3=3+x/6

so,x=18

QUESTION NO 35::

A greengrocer was selling apple at a penny each, chickoos at 2 for a penny and peanuts at 3 for a penny. A father spent 7p and got the same amount of each type of fruit for each of his three children. What did each child get?

a.1 apple, 1 chickoo, 1 peanut

b.1 apple, 2 chickoos, 2 peanuts

c.1 apple, 2 chickoos, 1 peanut

d.1 apple, 3 chickoos, 2 peanuts

ANS::

Go from options

1 apple , 2 chickoos , 1 peanut :::::::::::: 3 children are there so he have to buy 3 apples for dat 3 penny’s. similarly for 2 chickoos each child he have to buy 6 chickoos for dat 3 penny’s and 1 peanut for each child he have to buy 3 peanuts for that 1 penny. So total 7

QUESTION NO:: 36

Here 10 programers, type 10 lines with in 10 minutes then 60lines can type within 60 minutes. How many programmers are needed?

a. 16

b. 6

c. 10

d. 60

ANS::

c.10

QUESTION NO::37

The citizens of planet nigiet are 8 fingered and have thus developed their decimal system in base 8. A certain street in nigiet contains 1000 (in base 8) buildings numbered 1 to 1000. How many 3s are used in numbering these buildings?

a. 54

b. 64

c. 265

d. 192

ANS: d

Consider 3 in one's place. The possible numbers are

3,13,23....,73

103,113...,173

.

.

.

703,713...773

i.e 8\*8=64 times.

Similarly consider 10's place

70,71,71...77

170,171,...177

.

.

.

770,771...777

Again 8\*8=64

Now to hundred's place

700,701...707

.

.

.

770,771,...777

Again 8\*8=64

so total 64+64+64=192

Note: Here the base is 8 and the answer comes 3\*8\*8..If the base is 6 the answer is 3\*6\*6…so general formula for base n = 3\*n\*n…

QUESTION NO::38

Given a collection of points P in the plane, a 1-set is a point in P that can be separated from the rest by a line, .i.e the point lies on one side of the line while the others lie on the other side. The number of 1-sets of P is denoted by n1(P). The minimum value of n1(P) over all configurations P of 5 points in the plane in general position(.i.e no three points in P lie on a line) is

a.3

b.5

c. 2

d.1

ANS: b

Arrange the points in a circle

Number of 1 sets will be equal to the number of points…

QUESTION NO::39

A Hare and a tortoise have a racing along a circle of 100 yards diameter. The tortoise goes in one direction and the Hare in the other. The hare starts after the tortoise has covered 1/5 of its distance and that too leisurely. A hare and a tortoise have a race along a circle of 100 yards diameter. The tortoise goes in one direction and the. The hare and tortoise meet when the hare has covered only 1/8 of the distance. By what factor should the hare increase its speed so as to tie the race?

a. 37.80

b.8

c. 40

d. 5

QUESTION NO::40

Alice and Bob play the following coins-on-a-stack game. 20 coins are stacked one above the other. One of them is a special (gold) coin and the rest are ordinary coins. The goal is to bring the gold coin to the top by repeatedly moving the topmost coin to another position in the stack. Alice starts and the players take turns. A turn consists of moving the coin on the top to a position i below the top coin (0 = i = 20). We will call this an i-move (thus a 0-move implies doing nothing). The proviso is that an i-move cannot be repeated; for example once a player makes a 2-move, on subsequent turns neither player can make a 2-move. If the gold coin happens to be on top when it's a player's turn then the player wins the game. Initially, the gold coinis the third coin from the top. Then

a. In order to win, Alice

's first move should be a 1-move.

b. In order to win, Alice

's first move should be a 0-move.

c. In order to win, Alice

's first move can be a 0-move or a 1-move.

d. Alice has no winning strategy.

ANS: a

Consider the situation of a 1-move

---C---

---C---

---G---

C represents the normal coin and G the gold coin. So Alice makes a 1-move, which does not have any effect on the arrangement. Next Bob has to make a 0-move or 2-move. If he makes a 0-move, there is no change and if he make a 2-move, the G goes up by one step. If Bob makes a 2-move, then Alice can do a 0-move and win the game.

A's first move should always be 1 as suppose if A moves 0 then b moves 2

whatever A moves it will lose.

But A never loses if it starts with 1

QUESTION NO::41

36 people {a1, a2, ..., a36} meet and shake hands in a circular fashion. In other words, there are totally 36 handshakes involving the pairs, {a1, a2}, {a2, a3}, ..., {a35, a36}, {a36, a1}. Then size of the smallest set of people such that the rest have shaken hands with at least one person in the set is

a.12

b.11

c.13

d.18

ANS::

d.12

Understand the question, we have to find the minimum set, so that all other people shake hand to the selected set of people. Let me take an example of 6 people. {a1,a2,a3,a4,a5,a6} Now if we include a minimum set {a2,a5} all other people are shaking hands with them. So if its 2 for 6(1/3rd) then its 36/3=12

QUESTION NO::42

After the typist writes 12 letters and addresses 12 envelopes, she inserts the letters randomly into the envelopes (1 letter per envelope). What is the probability that exactly 1 letter is inserted in an improper envelope?

a.1/12

b.0

c.12/212

d.11/12

ANS:::

b) Becoz atleast two letter will be inserted in the improper envelop number

QUESTION NO::43

There is a toy train that can make 10 musical sounds. It makes 2 musical sounds after being defective. What is the probability that same musical sound would be produced 5 times consecutively?

Ans: probability for 1 sound out of 2 = ½

5 times the same tone means ½\*1/2\*1/2 \* ½ \*1/2 =1/32

For the second tone again it is 1/32..

So required probability = 1/32+1/32 =1/16..

QUESTION NO::44

By using 1,2,3,4,5, how many 2 digit no. can be formed which is divisible by 4, repetition of no. is allowed?

Ans: we can have only these 2 digit numbers divisible by 4…

12,32,24,44,52…so answer is 5….

QUESTION NO: 45

A hollow cube of size 5cm is taken, with a thickness of 1cm. It is made of smaller cubes of size 1 cm. If 4 faces of the outer surface of the cube are painted, totally how many faces of the smaller cubes remain unpainted?

a.488

b.500

c.900

d.800

ANS: a

Number of cubes of the solid cube = 5\*5\*5=125

Number of cubes of the inner cube to make it hollow = 3\*3\*3=27

Therefore total number of cubes= 125-27=98

98 cubes have a total of 98\*6=588 faces.

Now 4 outer surfaces are painted and each face has 5\*5 smaller faces. Therefore a total of 5\*5\*4=100 faces are painted.

Therefore unpainted faces= 588-100=488

QUESTION NO: 46

Planet Fourfi resides in 4-Dimensional space and thus the currency used by its residents are 3-dimensional objects. The rupee notes are cubical in shape while their coins are spherical. However the coin minting machinery lays out some stipulations on the size of the coins.

* The diameter of the coins should be at least 64mm and not exceed 512 mm.
* Given a coin, the diameter of the next larger coin is at least 50% greater.
* The diameter of the coin must always be an integer.

You are asked to design a set of coins of different diameters with these requirements and your goal is to design as many coins as possible. How many coins can you design?

a.5

b.8

c.6

d.9

ANS : c

Lets start from 64

64 ---1

64+32=96 ---2

96+48=144 ---3

144+72=216--4

216+108=324---5

324+162= 486--6

486+243>512

QUESTION NO: 47

The pacelength P is the distance between the rear of the two consecutive footprints. For men, the formula, n/P=144 gives an approximate relationship between n and P where n=number of steps per minute and P=pacelength in meters. Bernard knows his pacelength is 164cm. The formula applies to Bernard's walking. Calculate Bernard's walking speed in kmph.

a.11.39

b.8.78

c.23.62

d.236.16

Ans: distance covered in a minute = 144\* 1.64m = 236.16m

Option (d)

QUESTION NO:48

There are two boxes, one containing 10 red balls and the other containing 10 green balls. You are allowed to move the balls between the boxes so that when you choose a box at random and a ball at random from the chosen box, the probability of getting a red ball is maximized. This maximum probability is

a.14/19

b.37/38

c.1/2

d.3/4

ANS: c

Take one red ball in 1st bag and put the remaining nine red ball with 10 green ball in other bag.

prob of red ball inn ist bag=1/2

prob of red in other bag=(1/2)\*(9/19)

the req prob=p(A)+p(B)

=1/2+9/38

=28/38

**=**14/19 (ths is the maximum wala case)

QUESTION NO 49::

A man is standing in front of a painting of a man, and he tells us the following: Brothers and sisters have I none, but this man’s father is my father’s son. Who is on the painting?

a.His son

b.His grandfather

c.His father

d.He himself

ANS: a

Draw the family tree and u can easily get the answer….

QUESTION NO :: 50

Given 3 lines in the plane such that the points of intersection form a triangle with sides of length 20, 20 and 30, the number of points equidistant from all the 3 lines is

a.4

b.1

c.3

ANS: b

The Incentre

Only one point can be equidistant in any case..

QUESTION NO:: 51

A lady has fine gloves and hats in her closet- 18 blue, 32 red, and 25 yellow. The lights are out and it is totally dark. In spite of the darkness, she can make out the difference between a hat and a glove. She takes out an item out of the closet only if she is sure that if it is a glove. How many gloves must she take out to make sure she has a pair of each color?

a.50

b.8

c.60

d.42

ANS: 60

There can be lots of logic for this, but approach the simplest one so that we approach to one of the solutions. Suppose the lady first picks 32 Red gloves, and then 24 Yellow gloves. The next pair she pics will be one Yellow and One Blue which does not make a pair. The next two will be blue gloves. So she make a total of 32+24+1+1+2 = 60 picks.

General formula is highest value + middle value + 2

QUESTION NO :: 52

A sheet of paper has statements numbered from 1 to 70. For all values of n from 1 to 70.Statement n says ' At least n of the statements on this sheet are false.

‘Which statements are true and which are false?

a. The even numbered statements are true and the odd numbered are false.

b. The odd numbered statements are true and the even numbered are false.

c. The first 35 statements are true and the last 35 are false.

d. The first 35 statements are false and the last 35 are false.

ANS: c

option 1 & 2 can be easily eliminated

Option 4 is eliminated as if 'Atleast 35 statements are false ' is false 'Atleast 36 statements are false' cannot be true

So answer is option 3

QUESTION NO:: 53

Ramu & Sangeeta went for biological analysis to a island which is 34km from their place. They travelled in a boat which went at a speed of 2m/s. when they are in half a distance in the boat sangeeta note there are 7 leg & 8 leg octopuses under the water. Ramu counted the total number of legs of octopuses and got 54. Sangeetha instantly said I know how many 7 legged octopuses are there under the water. They both reached the island after 20 min they left . How many seven leged octopuses does sangeetha calculate?

a. 4

b. 5

c. 6

d. 7

ANS: The options provided are wrong. The answer is 2.

7(X)+8(Y)=54 -- X : no of 7 legged octopus. Y: no of 8 legged octopus. Try substituting values of X and you have to get an integer value for Y.

QUESTION NO:: 54

There are 14 spots. Each spot has 8 seats. 28 people seated in all the spots. No similar number people sat in any spot. How many spots left with no people at all.

a. 5

b. 6

c. 7

d. 8

ANS: c

Same logic as explained in Qn. 58

QUESTION NO:: 55

Susan made a block with small cubes of 8 cubic cm volume to make a block 3 small cubes long, 9 small cubes wide and 5 small cubes deep. She realizes that she has used more small cubes than she really needed. She realized that she could have glued a fewer number of cubes together to lock like a block with same dimensions, if it were made hollow. What is the minimum number of cubes that she needs to make the block?

a. 114

b. 135

c. 21

d. 71

ANS: a

Total number of cubes required to make the solid cube = 3\*9\*5

To make it hollow, we can remove an inner cube, which has 1\*7\*3 cubes.

So total number of cubes= 3\*9\*5-1\*7\*3=114

QUESTION NO:: 56

In the year 2002, Britain

was reported to have had 4.3m closed – circuit television (CCTV)

cameras – one for every 14 people in the country . This scrutiny is supposed to deter and detect crime. In one criminal case, the police interrogates two suspects . The ratio between the ages of the two suspects is 6:5 and the sum of their ages is 6:5 and the sum of their ages is 55 years. After how many years will the ratio be 8:7.?

a. 11

b. 6

c. 10

d. 5

Ans:

let ages be 6x and 5x.

now 6x+5x = 55

so x = 5 and ages are 30 and 25.

after 10 years ages will be 40 and 35 , hence ratio 8:7

hence option 3

QUESTION NO::57

Francois Pachet , a researcher at Sony Computer Science laboratories is also a jazz musician. He decided to build a robot able to improvise like a pro. Named Continuator, the robot can duet with a live musician in real- time. It listens to a musical phrase and then computes a complementary phrase with the same playing style. If the cost of making the robot is divided between materials , labour and overheads in the ratio of 4:6:2.If the materials cost $108. the cost of the robot is

a. $270

b. $324

c. $216

d. $ 648

ANS: b.

4 is 1/3rd of 12(4+6+2). So you have the answer as 108\*3.

QUESTION NO:: 58

In the reading room of a library, there are23 reading spots. Each reading spot consists of a round table with 9 chairs placed around it. There are some readers such that in each occupied reading spot there are different numbers of readers. If in all there are 36 readers, how many reading spots do not have even a single reader?

a. 8

b. None

c. 16

d 15

ANS: d

The posts should have different numbers -- 1+2+3+4+5+6+7+8=36

Therefore 8 Posts are filled, implies 23-8=15 Unfilled.

QUESTION NO 59:

Six friends decide to share a big cake. Since all of them like the cake, they begin quarreling who gets to first cut and have a piece of the cake. One friend suggests that they have a blindfold friend choose from well shuffled set of cards numbered one to six. You check and find that this method works as it should simulating a fair throw of a die. You check by performing multiple simultaneous trials of picking the cards blindfold and throwing a die. You note that the number shown by the method of picking up a card and throwing a real world die, sums to a number between 2 and 12. Which total would be likely to appear more often – 8,9 or 10?

a) 8 b)All are equally likely c) 9 d)10

***Ans:*** For getting 8 on 2 throws of die (rest f info is bakwas) we need 2,6 or 6,2 or 3,5 or 5,3 or 4,4

So 5/36 = probability of getting sum 8.

For 9 we have 6,3 or 3,6 or 5,4 or 4,5 so 4/36

Similarly going For 10 we have 3/36.

So 8 has higher probability and is more often.

QUESTION NO 60:

Middle – earth is a fictional land inhabited by Hobbits, Elves, dwarves and men. The Hobbits and the Elves are peaceful creatures who prefer slow, silent lives and appreciate nature and art. The dwarves and the men engage in physical games. The game is as follows . A tournol is one where out of the two teams that play a match, the one that loses get eliminated. The matches are played in different rounds where in every round , half of the teams get eliminated from the tournament. If there are 8 rounds played in a knock-out tournol how many matches were played?

a) 257 b)256 c)72 d)255

***Ans:*** Ths is like a knock out tournament.

8 rounds means total *2 power 8* matches = 256

QUESTION NO 61:

Spores of a fungus, called late blight, grow and spread infection rapidly. These pathogens were responsible for the Irish potato famine of the mid-19th century. These seem to have attacked the tomato crops in England this year. The tomato crops have reduced and the price of the crop has risen up . The price has already gone up to $45 a box from $27 a box a month ago. How much more would a vegetable vendor need to pay to buy 27 boxes this month over what he would have paid last month?

a) $27 b) $ 18 c) $45 d) $ 486

Ans: Cost of 27 boxes initially = 45 \* 27; Cost of 27 boxes finally = 27\*27

So difference = 18 \* 27 = 486

QUESTION NO 62:

A sheet of paper has statements numbered from 1 to 70. For all values of n from 1 to 70. Statement n says ' At least n of the statements on this sheet are false. ' Which statements are true and which are false?

a) The even numbered statements are true and the odd numbered are false. b) The odd numbered statements are true and the even numbered are false.

c) The first 35 statements are true and the last 35 are false. d) The first 35 statements are false and the last 35 are false.

***Ans:*** Suppose the first 35 statements are true!

Statement 1: At least 1 statement is false [TRUE]

Statement 2: At least 2 statements are false [TRUE]

...

Statement 35: At least 35 statements are false [TRUE]

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

Statement 36: At least 36 statements are false [FALSE]

.. Statement 40: At least 40 statements are false [FALSE]

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

AT LEAST puts the minimum tag on the statements. So, if the first 35 statements are true and the rest are false, everything fits. ***In such ATLEAST TYPE questions first n/2 are true and rest n/2***

***are false for any value of n.***

QUESTION NO. 63:

A research lab in Chennai requires 100 mice and 75 sterilized cages for a certain set of laboratory experiments . To identify the mice, the lab has prepared labels with numbers 1 to 100 , by combining tags numbered 0 to 9. The SPCA requires that the tags be made of toxin-free material and that the temperature of the cages be maintained at 27 degree Celsius. Also , not more than 2 mice can be caged together and each cage must be at least 2 sq.ft in area. The 5 experiments to be conducted by lab are to be thoroughly documented and performed only after a round of approval by authorities. The approval procedure takes around 48 hours. How many times is the tag numbered '4' used by the lab in numbering these mice?

a) 9 b)19 c)20 d)21

***Ans:*** Here all the info is bakwaas. Do not relate this question with the “***Poisoned cans and mice***

***to test***”Question. We need to find how many times 4 comes from 1 to 100.

4 is used once each in 4, 14, 24….94 except 44 and 11 times from 40 to 49.Total 20.

QUESTION NO 64:

Alok and Bhanu play the following coins in a circle game. 99 coins are arranged in a circle with each coin touching two other coin. Two of the coins are special and the rest are ordinary. Alok starts and the players take turns removing an ordinary coin of their choice from the circle and bringing the other coins closer until they again form a (smaller) circle. The goal is to bring the special coins adjacent to each other and the first player to do so wins the game. Initially the special coins are separated by two ordinary coins O1 and O2. Which of the following is true ?

a) In order to win, Alok should remove O1 on his first turn.

b) In order to win, Alok should remove one of the coins different from O1 and O2 on his first turn.

c) In order to win, Alok should remove O2 on his first turn.

d) Alok has no winning strategy.

Ans: Option1 is not the answer as if Alok removes o1 Bhanu can remove o2 and win the game

Option3 is not the answer as i Alok removes o2 Bhanu can remove o1 and win

Option2 is the answer as if alok removes any of the other 95 coins bhanu has to remove one of the remaining 94 as if he removes o1 or o2 he will lose. So 94 coins can be removed between the

two and when alok removes the 95th coin he wins the game as the two special coins touch each other.

QUESTION NO 65:

Paul the octopus who has been forecasting the outcome of FIFA world cup matches with tremendous accuracy has now been invited to predict ICC world cup matches in 2011. We willassume that the world cup contenders have been divided into 2 groups of 9 teams each. Each team in a group plays the other teams in the group. The top two teams from each group enter the semi finals ( after which the winner is decided by knockout). However, Paul has a soft spot for India and when India plays any team, Paul always backs India. Alas, his predictions on matches involving India are right only 2 out of 3 times. In order to qualify for the semi finals, it is sufficient for India to win 7 of its group matches. What is the probability that India will win the ICC world cup?

a) (2/3)^10

b) (2/3)^9 + 8/3 \* (2/3)^9

c) 8/3 \* (2/3)^9

d) (2/3)^10 + 8/3\*(2/3)^9

***Ans:*** Either India wins all matches. probability = (2/3)^10.

Or India loses one of its qualifying round matches, which can be with any amongst the 8 other teams. Probability = 8\* (2/3)^9 \* 1/3. So, option d is the correct answer.

QUESTION NO 66:

Entry ticket to an exhibition ranges from 1p to 31p. You need to provide exact change at the counter. You have 31p coin. In how many parts will you divide 31p so that you will provide the exact change required and carry as less coins as possible?

Ans: divide 31 like 1 + 2+ 4+ 8 + 16…which means 5 is the answer…..All the values are powers of 2….

***If the ticket range was from 1 to 63 p then split as 1 + 2+ 4 + 8 + 16 + 32..so 6 cases….this question can be asked with values which are 1 less than a power of 2….***

QUESTION NO 67:

Leena cut small cubes of 10 cm dimension each. She joined it to make a cuboid of length 100 cm, width 50 cm and depth 50 cm. How many more cubes does she need to make a perfect cube?

a) 500 b) 250 c) 750 d) 650

Ans: for perfect cube we want 100\*100\*100, but we have 100\*50\*50….So required number = (100\*100\*100 – 100\*50\*50 )/10\*10\*10 = 750…

QUESTION NO 68:

if there are 30 cans out of them one is poisoned if a person tastes very little hewill die within 14 hours so if there are mice to test and 24 hours ,how many mices are required to find the poisoned can?

Ans: 6

Have 6 mice for testing,

Give each mice contents from 5 cans each

5 5 5 5 5 5

After 14 hours, one of the mice will die

So, we will know which 5 cans must have the poison

Then , take the contents of these 5 cans and give to the remaining 5 mice each.

We will know in due time which can is poisoned.

QUESTION NO 69:

There are some questions like (209 \* 209) + (209 \* 144) power 2 etc…..

Please solve these questions using calcu,ators……