



Vedantu
presents

Technothlon



the international school championship
.....Inspiring Young minds!

PAPER THEME



JUNIOR SQUAD

Team Details

Name of the participants

Time: **2hrs 30min**
Maximum marks: **91**
Minimum marks: **-28**

1. _____

2. _____

Roll No.: _____

School Name: _____

INSTRUCTIONS

(Please read this section carefully)

General Instructions

1. Fill the Team Details in the space provided, before attempting the paper.
2. Verify that the question paper contains 28 pages and 20 Questions.
3. All the answers must be marked in the OMR sheet provided.
4. The question paper can be taken back home.
5. No queries regarding the correctness of the questions shall be entertained.
6. Blank papers, clip boards, log tables, slide rulers, calculators, cellular phones, pagers and any other electronic gadgets are not allowed.
7. No additional sheets will be provided for rough work.

Selection Criteria and Result

1. The ranking will be based on the total marks obtained in all the sections.
2. The result will be declared on or before August 8, 2017 on our website technothlon.techniche.org. To check your result, login with roll number and pass word provided in your admit card.
3. The top 50 teams will be invited to IIT Guwahati for the Mains and will be awarded Gold certificates. The next 200 will be awarded Silver certificates.

OMR Instructions

1. DO NOT TAMPER WITH THE OMR.
2. Darken the bubbles properly with BLACK ball point pen only.
3. Fill all the details in the OMR sheet properly.
4. Follow the correct method as shown in the figure to fill in the OMR Sheet.

Wrong	
1.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3.	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4.	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Correct	
1.	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

Instructions for Integer Type Questions

For integer type questions, write the answer in the boxes provided and darken the corresponding boxes. For example, if the answer is 27, shade 2 in the first column, and 7 in the second column. If you get a single digit answer, darken 0 in the first column and your answer in the second column. For example, if the answer is 7, darken 0 in the first column and 7 in the second column.

MARKING SCHEME

(Please read this section carefully)

Power Scheme :

For consecutive correct questions you will be awarded $2, 2^2, 2^3$ and so on and for every consecutive incorrect question you will be awarded $-2^0, -2^1, -2^2, -2^3$ and so on.

E.g. Solving 5 questions,

For all correct they get $2+4+8+16+32 = 62$

For all incorrect they get $-1-2-4-8-16 = -31$

For RRWRR they get $2+4-1+2+4 = 11$

For RRRWR They get $2+4+8-1+2 = 15$

And so on.

All or Nothing :

Unless and until you answer all the questions of the section correctly, you cannot score in that section i.e., if you solve all questions in a section correctly then, you will be getting Maximum marks which is shown on top of the section.

Fibonacci Sequence :

A Fibonacci Series is a series of numbers in which the n th term is the sum of the $(n-1)$ th and $(n-2)$ th terms. The series starts with $1, 1, 2, 3, 5 \dots$ So the next term in the series will be $3+5=8$.

In this marking scheme, your marks start from 2. If you answer consecutive questions correctly, your marks will increase according to the sequence. For example, if you answer 3 consecutive questions correctly, the marks you will get for the first question are 2, second question is 3 and third question is 5.

However, if you leave a question or answer a question wrongly, the sequence is broken, and you will start again from 2.

Wrong answers have negative marks, again determined by the Fibonacci Sequence. It starts from the first term i.e, first wrong question gets -1 mark. If you get three wrong consecutively, you get -1, -1 and -2 respectively. And so on.

PROFESSOR'S PUZZLE ROOM



Type of Questions: Integer Type
Marking Scheme : Power Scheme

"It's here. Finally. The day I start my journey towards becoming a Pokémon Master is finally here" Max thought to himself when he woke up. He had been dreaming of this day for a long time now. He finishes off his morning routine in a hurry, picks up his backpack and rushes downstairs. Heads towards the door. "Wait!" his mom screams. "Have breakfast at least". "But mom", he complains as he heads back for breakfast. "I know you're very excited, but take care out there", she says. "Will do mom!" he says, and heads out. "Also, Professor Maze wanted to meet you. Go meet him in his lab" she says. "Ok Mom", he screams as he heads to the lab.

Question 1 :

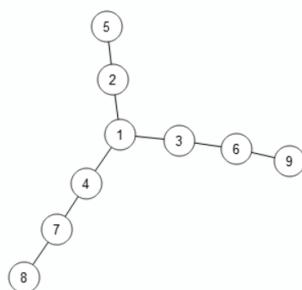
Max reaches the lab, and walks in wondering why Professor Maze had asked for him.

"Oh, hello there Max" the professor says when he sees Max. "I've got something for you, but I seem to have misplaced it, I'm going to need your help finding it." Professor Maze continued "I kept the gift in a high security room. In the room, there are 17 lockers in a row, each has a door that you can open to see inside, and a door to the adjacent locker. If you open a locker and find your gift, you can keep it. Else, the door will close automatically, and the gift will move to an adjacent locker." Can he find his gift? If so, what are the minimum number of attempts required? Report your answer as the sum of digits of the minimum attempts (eg. if number of min. attempts is 15, answer 6 as $1 + 5 = 6$). Answer 00 if he cannot find his gift.

Question 2 :

If the lockers were arranged as shown below, what would be the sum of the digits of number of minimum attempts.

Answer 00 if he can't find the gift.



From the package, Professor Maze takes out a small bag full of pokéballs. "Take this Max, it'll help you. I have something else for you, I almost forgot. I have the perfect pokémon for you. I think you'll love him." Max excitedly takes the pokéball from Professor Maze, and throws it releasing the pokémon. A small, yellow, mouse like pokémon materializes. It's a Pikachu! "Thanks prof! I love him" he says as he rushes outside, prepared to leave Pallet Town and begin his quest.

Question 3 :

Max starts on his way to Pewter Town, for the first Gym Battle. On the way, he bumps into a mysterious man offering a chance at catching loads of Pokémons. “What do I need to do?” asks Max. The mysterious man replies “Here’s a map of Viridian Forest. You will begin at $(8,10)$. Every grid has an unique Pokémon. But if your position is (a,b) , you can only move to $(a,a+b)$, $(a,a-b)$, $(a+b,b)$, $(a-b,b)$, $(b-a,b)$ and $(a,b-a)$. You can continue until you have no Pokémons under your reach.” What is the sum of digits of the maximum number of Pokémons Max can catch?

THE BOULDER BADGE

Type of Questions: Multiple Choice
Marking Scheme : Fibonacci Sequence



Now laden with enough Pokémons, Max heads to the Pewter Town Gym. As he attempts to enter the Gym, a pokémon trainer stops him. "Leader Brock only battles smart people. You have to first prove that you are worthy by solving these puzzles", he says. "Bring them on!" says Max.

Question 4:

The goal of each puzzle is to end up in center space within the specified number of moves. Your location is indicated by X. There are five robots that you can control, indicated by A-E. Each robot travels horizontally or vertically,

A			B	C
E				
				X

but only directly toward another robot – as far as it can go until hitting it edge to edge. A set of moves is a continuous sequence of such moves made by the same robot. What are the number of moves made by each robot, total number of moves by you and total set of moves for each case? (A-B-C-D-E-X-Total)

- a) 2,1,1,3,0,4 and 7
- b) 2,1,1,3,0,4 and 6
- c) 1,2,2,1,1,5 and 5
- d) 1,2,2,1,1,5 and 7

Question 5:

Seeing that Max has managed to solve the puzzle, the trainer gives Max another challenge. The trainer has a dozen Pokéballs, arranged in a 3x4 grid, which for convenience we have labeled A through L.

A	B	C	D
E	F	G	H
I	J	K	L

Two of the pokéballs are chosen randomly, and they have a pokémon inside them. The other ten are empty. Max is given two options. He can either open them in the order A,B,C,D,E,F,G,H,I,J,K,L (Option A) or he can open in the order A, E, I, B, F, J, C, G, K, D, H, L (Option B). Whatever option Max chooses, the trainer will choose the other. You stop when you have found a pokéball with a pokémon inside. Your score is the number of pokéballs you have opened. Once you have found a pokéball with a pokémon, you once again put the pokémon back in the same pokéball and leave it intact. The one with the lowest score wins.

For example, let the pokémon be in H and K. Let's say Max chooses Option A. Then he will find the first pokémon in H, and will score 8 points. Whereas the trainer, following option B, will find his first Pokémon in K, and score 9 points.

Which option should Max choose so that he has a higher chance of winning the game?

- a) A, B, C, D, E, F, G, H, I, J, K, L
- b) A, E, I, B, F, J, C, G, K, D, H, L
- c) Choice doesn't matter
- d) Can't decide without knowing the Pokéballs that have the pokémon

THE BREAK IN



Type of Questions: Multiple Choice

Marking Scheme : Fibonacci Sequence

(Continue sequence with previous section)

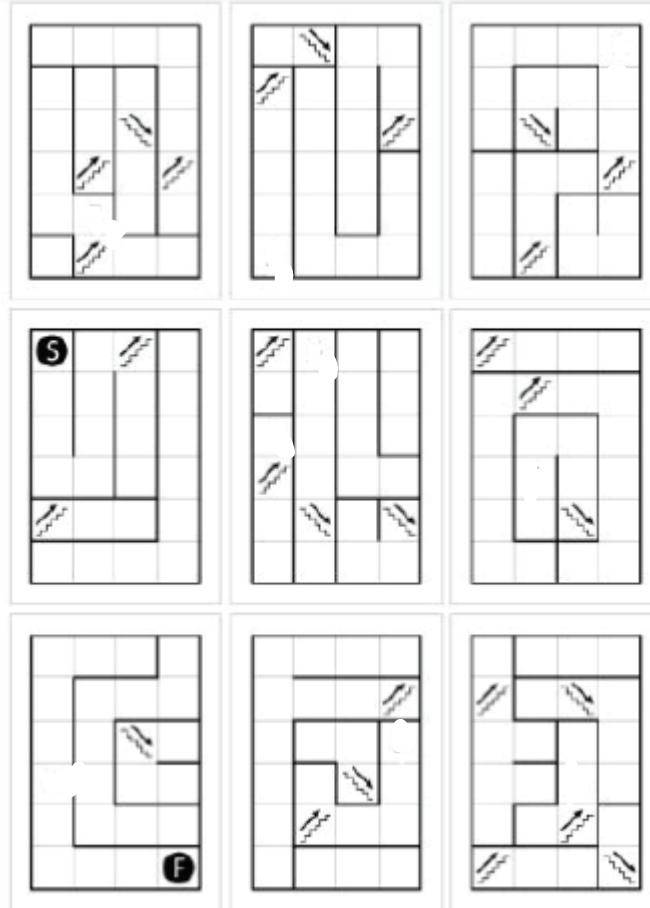
After having successfully solved the puzzles, Max enters the Gym. "You have managed to solve the Puzzles, impressive. So, shall we battle then?" says Brock. A fierce and intense competition ensues. Brock uses a variety of Rock type Pokémons, including Onyx and Geodude. However, they are no match for Max's Squirtle and Bulbasaur. Very impressive indeed, for a kid of your age, Brock tells Max as he hands him his Boulder Badge. Max thanks Brock and heads outside, towards Viridian City. However, on the way, he is attacked by a man, a woman and a Meowth in a peculiar outfit. They called themselves Team Rocket, and managed to steal all his pokémon (except Pikachu, because he refused to stay in his Pokéball). He follows them to their 9 storeyed head quarters, however, he doesn't know how to get inside.

Question 6 :

As he is wondering how to get inside, he sees Officer Jenny patrolling the area. He explains the situation to her. Officer Jenny says she has the floor plans for the HQ, but does not know how they fit together. She hands him the floor plans for the 9 floors (shown below).

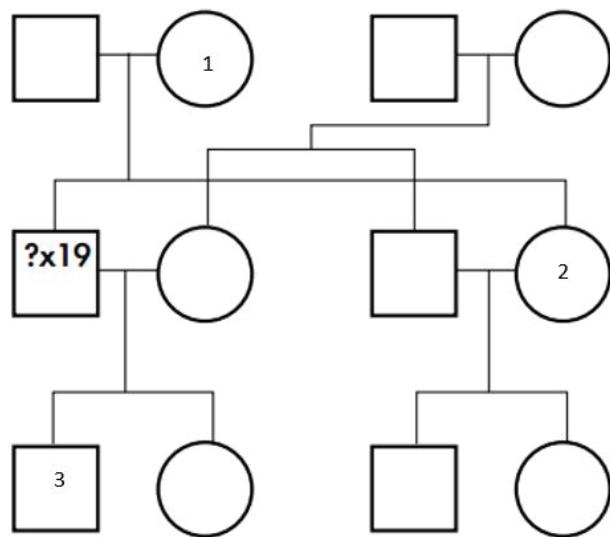
When arranged correctly, it will contain a path from the Start(S) on the bottom floor, to the Finish (F) on the top floor that goes through every up and down stairway. Everytime you hit an Up stairway, you must go to the square with the same coordinate in the floor directly above you. Similarly everytime you hit an Down stairway, you must go to the square with the same coordinates in the florr directly below you. You can't cross heavy black walls or retrace any part of your path. The cards are given the values 1-9 horizontally. In the final arrangement, let the card corresponding to i^{th} floor be called c_i . Then, the value of $[(c_1*c_9)+(c_2*c_8)+(c_3*c_7)+(c_4*c_6)+c_5]$ is?

- a. 73
- b. 57
- c. 83
- d. 79



Question 7 :

Now that Max has the plan for the building, he heads to the Team Rocket building with Officer Jenny. The entrance however, is password protected. A hint has been provided.



The Combat Potential of this family of Charmanders are controlled by their Health and Attack, which are each labelled by one of 8 distinct prime numbers. Each pokemon has a characteristic pair of Health(H) and Attack(A), receiving one from each parent, and have neither H nor A values in common with their siblings. Each pokemon's CP is precisely the product of its A and H values, never crossing 120, and in each of the six (adjacent) pairs, the female (circles) have higher CP than males (squares). The password is the sum of CP in the boxes labelled 1,2 and 3. What is the password?

- a. 299
- b. 171
- c. 206
- d. 191

Standard Chess Moves (Useful for next section)

King - The King can only move one square in any direction - up, down, to the sides, and diagonally.

Queen - The Queen can move in any one straight direction - forward, backward, sideways, or diagonally - as many squares as she wants to.

Rook - The Rook may move as far as it wants, but only forward, backward, and to the sides.

Bishop - The Bishop may move as far as it wants, but only diagonally.

Knights - Knights move in a very different way from the other pieces – going two squares in one direction, and then one more move at a 90 degree angle, just like the shape of an “L”. Knights are also the only pieces that can move over other pieces.

Pawns - Pawns can only move forward one square at a time.

Note that except in the case of Knights, the number of squares any piece can move in any direction is limited if there is a piece in any of the squares in that direction. The pieces can not simply move past a piece.

MR. GIOVANNI

Type of Questions: Integer Type
Marking Scheme : Power Scheme



With the password, they manage to open the locked door. As they enter the Team Rocket HQ, they are spotted by the security guards. The guards managed to capture Max and Jenny despite their best efforts, and take them to Mr. Giovanni, the leader of Team Rocket. Mr. Giovanni orders them to be locked up.

Question 8 :

He imprisons them in his prison and decides to test their cleverness. They are kept in two different cells, which are located on opposite sides of the prison, so that they cannot communicate in any way. Max's cell's window has twelve steel bars, while Jenny's cell's window has eight.

The first day of their imprisonment, Mr. Giovanni tells first Max and then Jenny that he has decided to give them a riddle to solve. The rules are simple, and solving the riddle is the only hope the two have to escape.

- In the prison there are no bars on any window, door or passage, except for the windows in the two logicians' cells, which are the only barred ones (this implies that each cell has at least one bar on its window).
- Mr. Giovanni will ask the same question to Max every morning: "Are there eighteen or twenty bars in my castle?"
 - If Max doesn't answer, the same question will then be asked to Jenny the night of the same day.
 - If either of them answers correctly, and is able to explain the logical reasoning behind their answer, Mr. Giovanni will immediately free both of them and never bother them again.
 - If either of them answers wrong, Mr. Giovanni will throw away the keys of the cells and hold Max and Jenny prisoners for the rest of their lives.
- Both Max and Jenny know these rules.

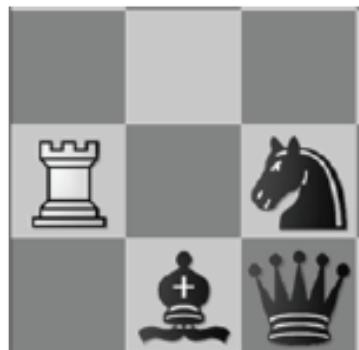
As soon as either Max or Jenny answer, the decision is made. Only if they don't give an answer does the question pass on to the other person. What's the minimum number of days they will need to escape?

They soon find the answer. Impressed that they could escape, Mr. Giovanni makes them another offer. Mr. Giovanni is an avid fan of chess, and hence gives them two problems. If they solve both the problems, Mr. Giovanni offers to not only free all the Pokémons he has captured till date, but also to give Max 5 of his strongest Pokémons, which can help Max easily defeat all the gym leaders.

Question 9 :

Max is given a 3x3 chessboard. Max is asked to place 2 black rooks, 2 white knights and 1 white bishop on this board in such a way that:

- a. each piece threatens one or more pieces of the opponent
- b. each piece is protected by another piece of its own colour
- c. each piece (except the black queen) is under attack by some opponent piece



Let the pieces be assigned numbers as follows: Queen=9, Knight=3, Bishop=3, Rook=5 on black squares and respective negative values on white squares. Find out the 'sum' of all pieces in the arranged position.

Question 10 :



Figure 1

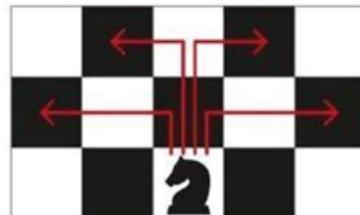


Figure 2

Now, Max is given another chessboard as shown in figure 1. There is only one knight, and there are several pawns. The set of moves a knight can make is shown in figure 2. The knight can jump over a pawn, but cannot land on a square that has a pawn in it. The pawns can not move. Mr. Giovanni asks Max for the least number of steps required to reach the position marked with an X. What is the answer?

Max manages to answer both questions successfully. Thoroughly impressed, Mr. Giovanni sticks to his word. Now armed with 5 extremely powerful Pokémons, Max sets out on his journey to conquer all the Pokémon Gyms and earn his trip to Victory Road

THE JOURNEY TO VICTORY ROAD

Type of Questions: Multiple Choice
Marking Scheme : Fibonacci Sequence

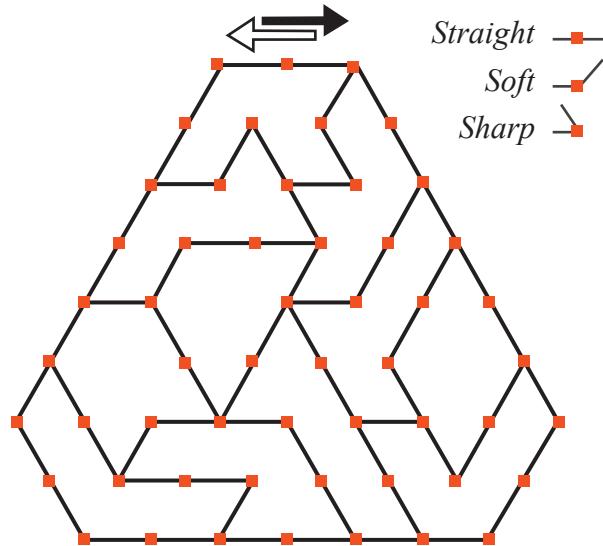


Question 11 :

A long and exciting journey lay ahead! The first stop was at Cerulean City. Max made his way to the Gym to take on Misty, the Gym Leader. However, to battle her, he first had to battle his way through a maze of trainers. The rules and the map of the maze are given below.

Start from the top middle, in the direction of the solid black arrow.
Return to the top, in the reverse direction.

At each node, the angle of departure must be different from the last i.e., never use straight, soft or sharp twice in a



At each node, the trainer is replaced once he/she is beaten. How many trainers did he have to face before he could battle Misty?

- a) 27
- b) 17
- c) 34
- d) 24

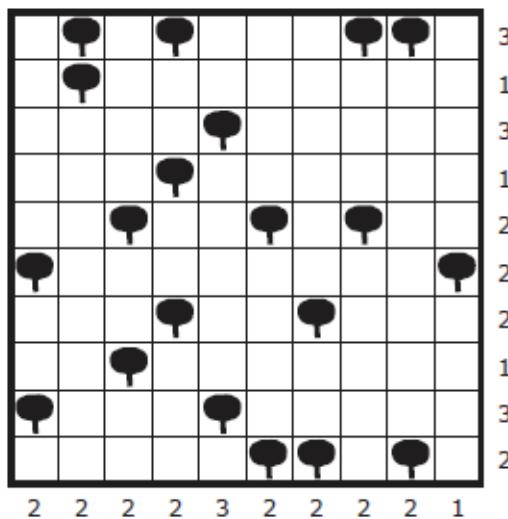
After battling his way through a horde of trainers, Max finally made his way out of the maze. He now faced Misty. He however got a brief break before he had to battle her, to recover. Soon, the battle for the Cascade badge began.

The battle was intense, with Misty's Staryu recovering from everything Max was throwing at it. It wasn't until he discovered that water type had a weakness towards electricity that Max got ahead. After a thrilling battle, Max defeated Misty and earned the Cascade Badge! Two badges collected, 6 more to go!

Next is a trip to Vermillon City. The path to the gym however, is blocked by a tree. As Max stands there wondering what to do, a bystander tells him they know a trainer who can teach Pokémon to use Cut, which can help him get to the gym. The trainer is however pre-occupied with deciding an arrangement for the tents. Max decides to help him to make his work easier.

Question 12 :

Attach a tent to each tree, in a horizontally or vertically adjacent cell. Cells with tents do not touch each other, not even diagonally. Numbers outside the grid indicate the number of tents in that row or column. The numbering of odd, even squares starts from the bottom left corner. Odd rows are given the value of 1, and even rows are given the value of 2. Similarly, odd columns are given a value of 1, and even columns are given a value of two. The value of a cell is the product of its row value and column value. What is the sum of values of all cells that have a tent in it?



- a. 39
- b. 32
- c. 47
- d. 43

Now having figured out the tent arrangement, the trainer happily teaches Max's Bulbasaur a new move, Cut. Now armed with the new move, Max makes his way to the Vermillon City gym after clearing the tree in front of it using his new move. He now faces Lt. Surge and his army of Electric pokémon. Despite not having an outright advantage, Max battles it out and manages to earn his Thunder Badge.

PALLET TOWN TIMES

Type of Questions: Multiple Choice

Marking Scheme : Fibonacce Sequence

(Continue Sequence with previous section)



The next few Gym Battles pass without many incidents or troubles. Max has acquired 6 of the 8 badges required to get to Victory Road. He decided to take a detour back to his house in Pallet Town to celebrate his brother's birthday.

Question 13 :

It's his 30th birthday, and his friends got him a cake with 30 lit candles. He tries to blow them out, but each time he blows, he successfully extinguishes a random number of candles, between one and the number that remain lit. How many blows will it take, on average, to extinguish them all? (approximate it to the nearest whole number)

- a) 3
- b) 4
- c) 5
- d) 6

Question 14 :

Following the party, Max and his friends decide to play a party game with cards. There are 20 cards arranged in a row on the table. Each card is showing a positive integer. On each player's turn, he allowed to take either the left most or right most card. This is done until all the cards are taken. The winner is the player who has the greatest sum of numbers on his/her cards. What should be Max's first move so that he can win the game?

The sequences are: A -> 2 11 13 8 12 5 6 8 9 21 10 7 15 17 18 4 16 18 19 1

B -> 12 18 13 4 8 16 17 5 3 19 21 1 6 11 12 18 14 15 6 9

- a. 1 from A and 9 from B
- b. 2 from A and 12 from B
- c. 2 from A and 9 from B
- d. he cannot win in any case

BACK TO WORK!

Type of Questions: Multiple Choice
Marking Scheme : All or Nothing
(9 marks)

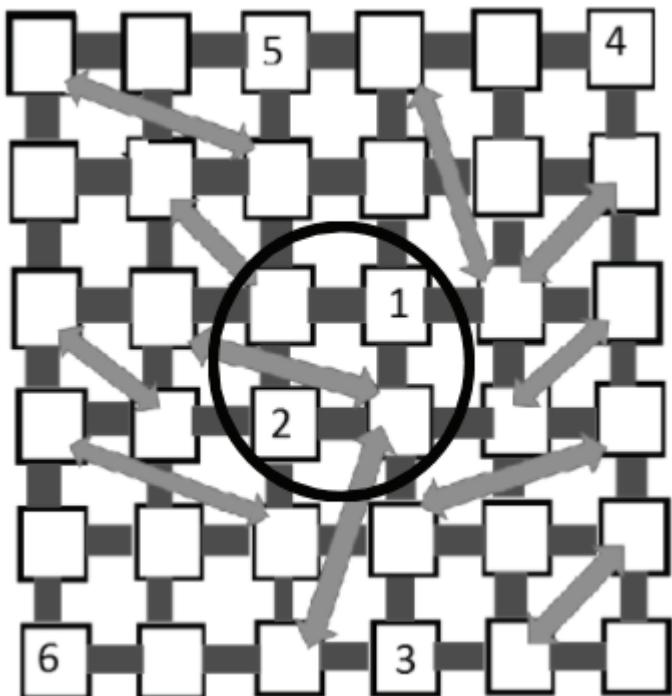


Question 15 :

After having celebrated his brother's birthday, Max makes his way to Fuchsia city, to take a boat to Cinnabar Island. The sailor, Mr. Hendricks, is however in a dilemma. There is a castle in the middle of the sea on the way to Cinnabar Island. Owing to issues, he needs to bribe each and every soldier with 10 PokéDollars to pass through. He is not sure of the number of soldiers in the main towers due to the new rules that have been imposed. He seeks Max's help.

In the castle, there are passways as straight row and column (passways are the dark grey strips) at any point when you see left or right or up or down .

Also there are some magical tunnels joining one stop (stops are the places where troops of soldiers stand) to the other in a non-straight manner. The magic of the tunnel is cloning the soldiers. If you place any number of soldiers in one stop, then all stops joined to it through the tunnel will have same number of cloned soldiers. Cloned soldiers can also be cloned if there is one more. Number of soldiers at any stop in any row or column are more than one and sum of all soldiers at all stops in any row or column is same. Every stop is marked a number from 1 to 6 and stops in any row or column have different numbers. Soldier troop with 'x' number of soldier will stand on the stop marked as 'x'. There are some soldier having all time duty and they are depicted in the figure with their positions. But fearing for safety, the king increased the security and ordered to place a soldier on every stop in the above way of his convenience.



The circle in the middle represents the main tower and Max has to find the number of extra soldiers. The answer is _____

- a) 62
- b) 64
- c) 66
- d) 68

Question 16 :

Max has now reached Cinnabar Island. He notices that there is a maze at the entrance of the Gym. A sheet of instructions is stuck on the maze, which reads as follows:

You are currently at S. You have to reach F using the following set of moves to enter the gym. One set of move consists of the following in the exact order as given. Start at S. Move one space in North, West, East or South. Following that, move two spaces in any of the four direction. Following that, 3 moves. Then 4, then 5.

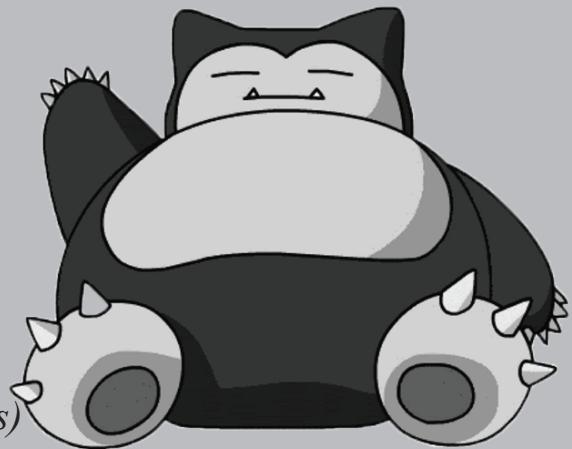


How many sets of moves will you require to reach F?

- a) 4
- b) 5
- c) 6
- d) 7

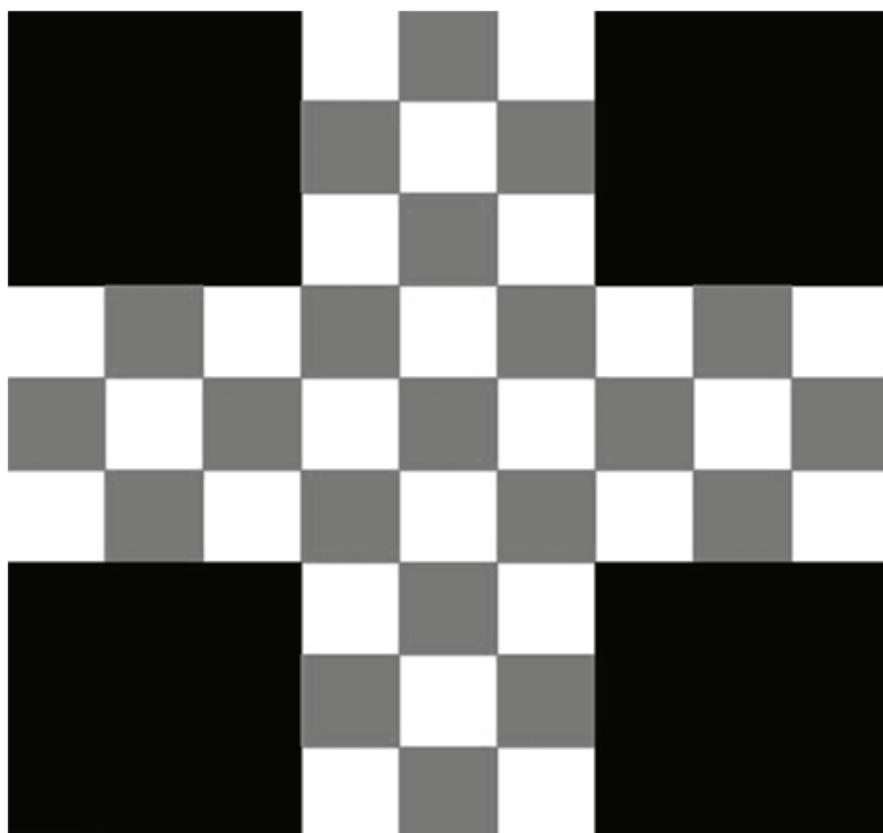
THE MYSTERIOUS MAN RETURNS

Type of Questions: Multiple Choice
Marking Scheme : All or Nothing (12 marks)



After making his way through the maze, he takes on the Cinnabar Island gym leader, and manages to defeat him, and earns himself his 7th Badge, all thanks to Squirtle. Blaine's line up of fire based pokémon were no match for Max's water based pokémon.

He must now head back to Viridian City for his final badge! On his way back, he bumps into the mysterious stranger yet again. This time, he offers him a rare Snorlax if he can beat his puzzle. Max accepts the challenge. The stranger takes him to an arena in the Jungle. Refer box below for shape of the arena. Grey represents bushes, while white represents the ground. Rows are named 1-9 top to bottom, and columns are named A-I, left to right.



There are five Pokémons with different values attached.

The Pokémons are Geodude, Rapidash, Mankey, Ekans and Alakazam.

There are two trainers, Red and Blue, each having their own Pokémons. Red's Pokémons are marked Red. Blue's likewise are marked blue.

Geodude moves like the Rook on a chessboard

Ditto behaves like a pawn on a chessboard

Rapidash moves like the queen on a chessboard

Alakazam moves like the bishop on a chessboard

Mankey moves like Rapidash except it moves on alternate squares in each direction..

If Ekans is on a black tile, it can cover all the black tiles within its reach if not obstructed.(by the end of the chessboard)

You need to dominate the entire board using your pieces and by spending minimum points. You have an infinite number of dittos.

Following are the rules you will have to follow:

A- Any Ditto(on the starting row) which is on a square dominated by another Pokemon will transform into that Pokemon.

B- If the Ditto placed on any square on the board is on the square dominated by more than one Pokemon, then Ditto will transform into the Pokemon that requires minimum points.

Points:-

Rapidash- 5 [Home Square:- Red- I5 Blue-E1]

Geodude- 4 [Home Square:- Red- I4 Blue-F1]

Alakazam-3 [Home Square:- Red- I6 Blue-D1]

Mankey- 2 [Home Square:- Red- D9 Blue-A6]

Ekans-1 [Home Square:- Red- E9 Blue-A5]

**Home square is the start location of that Pokemon.*

C. No red and blue piece should attack each other.

D. Only one extra Ditto can behave as same piece in each red and blue. This means that a Ditto cannot transform into a Pokemon if it is dominated by another transformed Ditto.

E. A Ditto cannot be placed at any of the Home Squares.

Question 17 :

What are the total number of pokemon used, except dittos, by both Red and Blue?

- a. 6,7
- b. 5,5
- c. 7,4
- d. 6,6

Question 18 :

What is the total number of dittos used?

- a. 5
- b. 6
- c. 2
- d. 4

THE FINAL BADGE

Type of Questions: Integer Type
Marking Scheme : All or Nothing (6 marks)



Question 19 :

After winning the challenge fair and square, and winning a Snorlax, Max finally reaches Viridian City. As he enters viridian city, he notices that there is a Pokémon trainer in front of the gym.

I will only let you pass if you beat me in my favourite game, he says.

This is a game played with a sequence of tiles, each labelled with two numbers. You start at the first tile in the sequence and choose one number from each tile that you stop at, according to the following rules:

- At tile i , if you pick up the smaller number, you move on to the next tile, $i+1$, in the sequence.
- At tile i , if you pick up the larger number, you skip the next tile and move to tile $i+2$ in the sequence.

The game ends when your next move takes you beyond the end of the sequence. Your score is the sum of all the numbers you have picked up.

For example, suppose you have a sequence of four tiles as follows:

Tile 1	Tile 2	Tile 3	Tile 4
1 (2)	1 3	(1) -1	-2 -3

Then the maximum score you can achieve is 3, by choosing the numbers that are circled. Now, you are given the following tiles. What is the maximum score you can make to ensure you beat the security guard?

Tile 1 1 -1	Tile 2 -3 1	Tile 3 4 -1	Tile 4 -3 -4	Tile 5 1 2	Tile 6 4 3
Tile 7 3 -4	Tile 8 4 1	Tile 9 4 2	Tile 10 -1 1	Tile 11 -2 -1	Tile 12 -3 -4

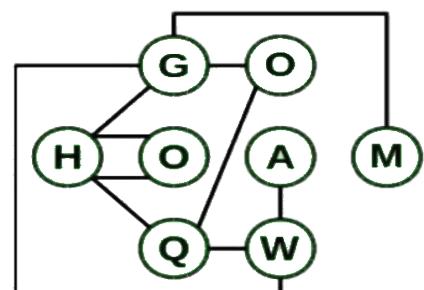
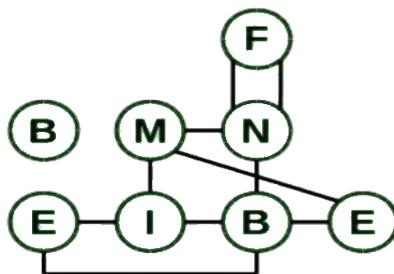
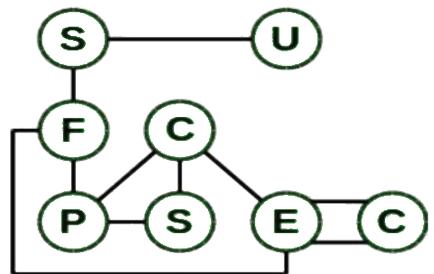
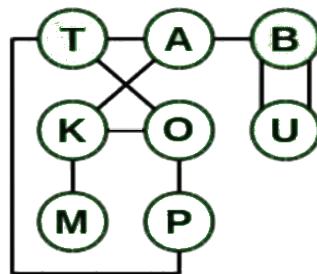
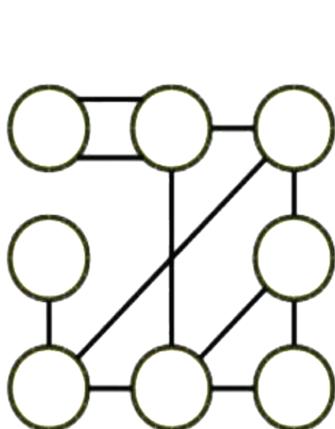
Question 20 :

After beating the trainer in his own game, Max enters the gym. Inside the Gym is an old man. "Oh, I've given up battling. However, there is a problem. I seem to have forgotten the passcode for the locker with my Gym Badge. If you can open it for me, you can take the badge."

"I had left these as hints, but I can't figure them out now", he says as he hands Max a few sheets. Help Max find the passcode.

Hint: The final passcode is an 8 letter word.

How many times in the final word, does the letter B occur?



Now that the problem has been solved, the old man sticks to his word and hands Max the final badge. Having won all 8 gym badges, Max heads back home to take a break before heading for Victory Road. Max's parents are elated hearing the news. Max now prepares to take on the Elite Four in Victory Road, IIT Guwahati!

Rough Page

(Do all the rough work here)

A word from organizers of Technothlon 2017

Hello,

We hope you enjoyed these last two and a half hours, racking your brains and trying to find your way through what is arguably one of the most challenging exams for school students. We're sure a lot of thoughts must have crossed your mind while you were trying to solve the paper, ranging from "This is ridiculous" to "Who even makes these questions?!". While some people from our little team might disagree, we have had a blast making these questions.

It was important that we asked ourselves what we wanted to achieve with our question paper. Did we want it to be the toughest technothlon paper yet? Did we want it to be something completely different? But we soon realised that, over the years, as Technothlon has continued to grow, so have expectations regarding the exam. The technothlon paper is expected to be challenging, logical, and most importantly, fun. This year, we have tried to not just live up to these expectations, but exceed them. Countless number of sleepless nights have gone into making this paper as fun, as challenging and as logical as possible. Do not be disheartened if you could not solve the questions during the exam. Our aim was not to just test your mental prowess, but instead help you improve it. We hope that you will take this paper up as a challenge and try to solve it even after the exam is over. Our aim was not just to select the brightest young minds across the country, but to inspire one and all. We hope that the prospect of winning a trip to NASA and coming to IIT Guwahati would have motivated you enough to give it your best shot. We hope to see you there and wish you all all the best.

And finally, the chief organizers of Technothlon '17 thank all the city reps for making our dream a reality. Thank you all for working continuously, regardless of the summer heat or the cold winter breeze, and spreading the word of Technothlon in cities all across the country. We hope you have learnt a lot from this experience. A special word of thanks to all the faculty coordinators, organizers, volunteers and invigilators, who were instrumental in the smooth conduction of the paper. And last but not the least, a very special thank you to our little team who have helped us design this labyrinth of puzzles that you have been solving for the last two and a half hours.

Hope you had fun!

An open invitation for a lifelong association with Technothlon

Before you feel like you have reached the end of a sensation, we should remind you that this is merely the beginning! The Technothlon community has been growing at a phenomenal rate, and we invite YOU, the future leaders of the country, to be a part of it. Regardless of whether you make it through to the final round or not, we cherish the opportunity to interact with every one of you. Facebook is our means of reaching out to the student community. Be connected, stay updated!

We are eager to help through counselling of any kind required in any sphere by utilizing the experienced pool of IITians and highly qualified faculty of IIT Guwahati. And finally, we would be glad to receive any constructive feedback about the question-paper or any general issue that you would like to discuss with us. After all, your feedback is what Technothlon thrives on for improvement.

Chief Organizing Team

Jitika Rajpoot

Pratyay Prakash Nigam

Yash Gandhe

Udayraj Deshmukh

Likhita Konjeti

Vishak Regu

Contact us at -

www.technothlon.techniche.org

<https://plus.google.com/+technothlon>

<https://www.facebook.com/technothlon.techniche>

<http://technothlon.tumblr.com>

Download The Official Technothlon app from the Google Play Store for all updates round the year.



Techniche

The annual Techno-Management Festival
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Like a picturesque canvas has the most precise blend of colours, patterns and brush strokes, Techniche year after year promises to be a perfect blend of ideas, innovation and enthralment. It has stayed true to its vision of motivating the youth of our nation to think out of the box, expand their horizons and reach the zenith of success in all techno-management spheres. Techniche brings forth a kaleidoscope of events, be it the astounding keynotes delivered by globally admired personalities in The Lecture Series or the opportunity to interact with eminent industrialists in The Industrial Conclave. Rediscover your inclination towards the literary aspect of life challenging Literary Events and a chance to perfect your art of diplomacy through IIT Guwahati's Model United Nations. From thrilling Robotic competitions to the enriching Workshops, every bit promises to be a fulfilling experience. With innovative ideas like Technothlon - The International School Championship, The Guwahati Half Marathon as well as other life inspiring initiatives, Techniche has left no stone unturned and now takes pride in being one of the premiere techno-management festivals of the nation.

LECTURE SERIES

The Lecture Series serves as a platform to inspire and motivate thousands of young minds across the world by connecting them with the pioneers in various fields. Students and professors, participants and school children alike, all clamour into the auditorium to interact with illustrious figures from all walks of life who come under one roof and share their experiences and ideas. It brings you an opportunity to interact with such personalities who are at the helm of changing our world today. This year, several illustrious speakers such as Dr. Nadrian Seeman (Inventor of DNA Nanotechnology), Mr. Mike Morasky (Visual Effects Artists at Valve Corporatio), Mr. Patrick Plourde (Creative Director at Ubisoft, worked on Assassin's Creed and Far Cry) and Thomas Barclay (Senior Research Scientist, NASA) will be gracing the stage. Having gained immense popularity over the past few years, it is widely recognized as the biggest and the best lecture series in the entire nation.

INDUSTRIAL CONCLAVE

Industrial Conclave, has been, and forges ahead as an ideal interface between the industry and the students to inspire, motivate and train them for the battle for success in life. In this 3 day long, high profile event, eminent personalities from various spheres share their invaluable experiences which helps the young minds understand the internal dynamics of the ever growing industry. The past editions saw the likes of Mr. Marten Pieters (MD and CEO, Vodafone India), Ms. Vinita Bali (Former CEO and MD, Britannia Industries Ltd), Mr. Arun Iyer (National Creative Director, Lowe Lintas India) among others, the Conclave has ceaselessly grown bigger and better, every year. So, ladies and gentlemen, register now, and witness all the action, here at the Industrial Conclave 2017.

MODEL UNITED NATIONS

Born with the aim to bring out the best in every individual, the concept of IITG MUN is guided by a set of values and goals that seeks to provide every individual "hands down" idea of the intricacies of the decision making process at international level, in an effort to provide holistic development of society as a unit.

ROBOTICS

The Robotics module of Techniche 2017 provides you a platform to bring forth new ideas and produce novel technologies in the quest to build the perfect machine. So, put your thinking caps on and let the creative juices flow. From autonomous to manual robotics, there is going to be something for everybody.

TECH EXPO

Techniche's latest undertaking, the TechExpo has been initiated with the cardinal aim of bringing to light the technological advancements made by the youth of this country and provide an opportunity to showcase their innovations on a larger platform. It provides for a platform for the participants to showcase the projects undertaken by them in front of a mass multitude of people which includes but isn't restricted to Professors from various fields, notable personage including Nobel Laureates and Students from the nation.

For sponsorship, contact:

UMANG PARDHI

Marketing and Corporate Relations

+91-7002185595

umang@techniche.org

For further details, contact:

ANIMESH JAIN

Convener

+91-8839583767

animesh@techniche.org

Email us at : info@techniche.org

www.techniche.org

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fb.com/techniche.iitguwahati | plus.google.com/+techniche | technicheblog.wordpress.com/

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