IIT Guwahati

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The annual Techno-Management Festival
IIT Guwahati | 30th Aug - 02nd Sept 2018

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PAPER THEME

The Jungle Book

HAUTS SQUAD

Time: **2hrs 30min**
Maximum marks: **85**
Minimum marks: **-12**

Team Details

Name of the participants

1. _____

2. _____

Roll No.: _____

School Name: _____

INSTRUCTIONS

(Please read this section carefully)

General Instructions

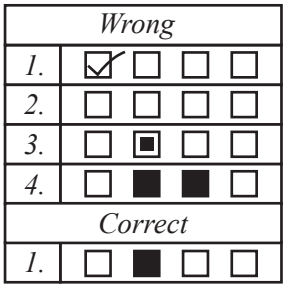
1. *Fill the Team Details in the space provided, before attempting the paper.*
2. *Verify that the question paper contains 24 pages and 20 Questions.*
3. *All the answers must be marked in the OMR provided separately which has to be submitted at the end of 2hr 30 min from the start of examination.*
4. *The question paper can be taken back home.*
5. *All answers must be clear and legible. In case of any ambiguity, the decision of evaluator is final*
6. *No queries regarding the correctness of the questions shall be entertained.*
7. *Blank papers, clip boards, log tables, slide rulers, calculators, cellular phones, pagers and any other electronic gadgets are not allowed.*
8. *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, 2018 on our website technothlon.techniche.org . To check your result, login with roll number and password 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. The city toppers will be awarded with medals.*

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.*



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 : No negative marking

For consecutive correct questions you will be awarded 2^0, 2^1, 2^2, 2^3 and so on. However, if you leave a question or answer a question wrongly, the sequence is broken, and you will start again from 1.v

E.g. Solving 5 questions,

For all correct you get 1+2+4+8+16 = 31

For all incorrect you get 0

For RRWWR you get 1+2+1= 4

For RRRWR you get 1+2+4+1 = 8

For RRRUR you get 1+2+4+1=8

And so on.

(R -> right answer, W-> wrong answer, U-> Unattempted)

All or Nothing :

Under this scheme you will be awarded marks only if all the questions of the corresponding section are correct, otherwise zero marks.

Fibonacci Sequence :

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

In this marking scheme, the 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 2 marks for the first question,3 marks for the second question and 5 marks for the third question.

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 zeroth term i.e, first wrong question gets 0 mark. If you get four wrong consecutively, you get 0, -1, -1 and -2 respectively. And so on.

Boomerang scheme:

If a question is solved correctly, you will be awarded 3 marks. If you do not attempt it, then Zero, otherwise, if attempted wrong, then -1.

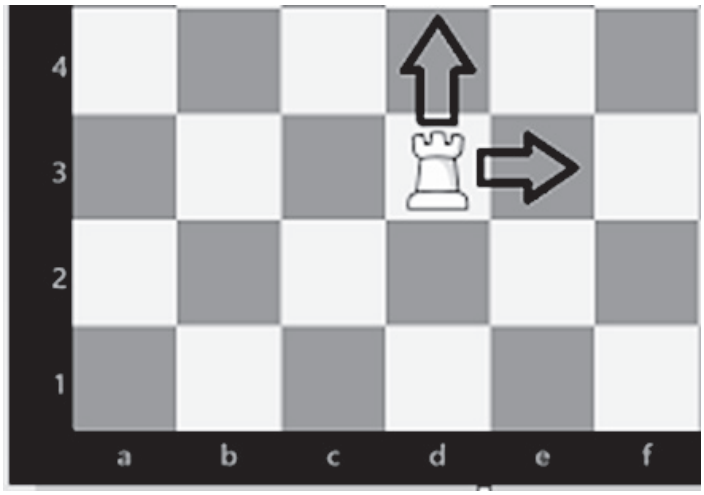
SEEONEE HILLS

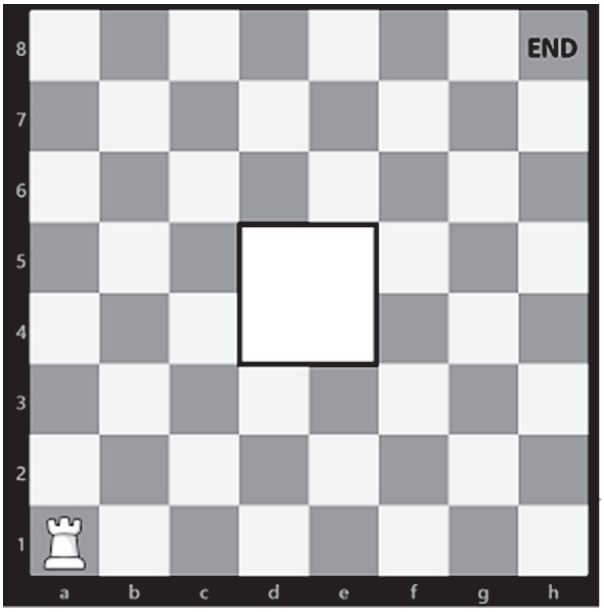
Type of Questions: MCQ
Marking Scheme : Boomerang
(Max = +12, Min = -4)

It is a warm evening in the Seeonee Hills. Father Wolf, Mother Wolf (Raksha) and their cubs-Nilay, Vamik, Chanchal and Lavi are resting in a cave.

Question 1:
The day was very hot. The wolves had spent the entire day dozing in the cave. It's evening now and the cubs are hungry. Raksha agrees to feed the cubs with the juiciest bones, only if, they solve a riddle. Raksha had learnt this riddle as a child, from her mother. The riddle is based on an ancient version of chess, with slightly different pieces. It is as follows:
Imagine a chess piece, which we shall call as the "Mutilated Rook or Giant" which can move one square either to the square to the right of it or the square above it.

For example, let's say, we have the 'Giant' at d3. Then the Giant can either go to d4 or e3 and nothing else.





We wish to calculate the total number of ways in which this 'Giant' can move from one corner (a1) to the the other corner (h8) without going through the central 2x2 squares(imagine that a 2x2 cavity is being cut out in the centre of the square), i.e. not involving the squares d4,d5,e4,e5. (See the diagram for better understanding)

A. 928 B. 982 C. 829 D. 892

[For Question 2 & 3]

Father Wolf is strolling outside the cave. He hears the bushes rustle a little. He drops his haunches, ready to leap. An skilled hunter, he takes the leap even before seeing what he's jumping at. But on seeing the creature emerge from the bushes, he startles, and stops in mid air, almost where he took off from. "Man!" he snapped. "A man's cub. Look!" Right in front of him, he sees a naked brown baby who could barely walk. The baby is carrying a wooden strip, which seems to be a one dimensional game. The rules of this game are as follows. Assume that random independent numbers, either 2 or 4 with a 50% chance each, come in from the right side of the strip which has N slots. The numbers are always squeezed to the left and every time two adjacent numbers are the same - they are replaced by their sum and the two blocks merge to become one. The game ends when all the N slots are occupied - and therefore there is no room for a new number.

Question 2:

For N = 4, what is the difference between the maximum and minimum number of moves (squeezes to the left) played to end the game with the maximum possible combination?

A. 12
B. 13
C. 14
D. 15

Question 3:

Given N = 4. If one gets equal number of 2's and 4's, calculate the difference between the greatest single tile and the maximum number of moves possible under the given condition.
Note: If the number of moves is odd, the difference between the number of 2's and 4's would be 1.

A. 12
B. 13
C. 14
D. 15

Question 4:

Father Wolf brings the man cub inside the cave. Meanwhile, two of his cubs, Chanchal and Lavi, are playing "jungle chess". The description of the game is as follows:

It is a n x *n square board with a stone on each square. You can perform any number of moves, each of which is one among the following two types.*

A horizontal move consists of selecting a square of the board. Then you're allowed to move an equal number of stones from the left and right squares into this square.

For example, suppose in a row, three consecutive squares have 3, 7, 9 stones respectively. In one move you can change that to 1, 11, 7 stones respectively, by moving 2 stones from each. Note that you cannot move anything more than 3 stones, as the left square has only 3 stones.

The vertical move is similar, but consists of the up and down squares instead of the left and right ones.

Note that this implies that no move can move any stone into any of the four cornerstones.

A number n is said to be beautiful if there exists a sequence of moves starting from a n ×n square that moves all stones into a single square. Call such a final square a target square.

How many of the following are beautiful : 1, 3, 6, 12 ?

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

THE PACK COUNCIL

Type of Questions: MCQ
Marking Scheme :
Fibonacci Sequence
(Max = +18, Min = -4)

Raksha finds the man cub adorable and decides to raise it as her own. She names it Mowgli. The wolf couple decide to take Mowgli to the Pack Council, the council of the wolves of the jungle. Every cub which is old enough to stand on its feet, has to be taken to the Council for induction into the Pack.

Question 5:
When Raksha and Father Wolf go to the Council with Mowgli, the leader of the Pack, Akela, the great grey lone wolf, who is the wisest of the wolves, is playing "Seonee chess" with another wolf. The details of Seonee chess are as follows:
The chess board is of dimension 4 by N.
In an "open knight's tour", we start at some square of the board, proceed by valid knight's moves, visit each square exactly once, and stop at the 4Nth square with no requirement that we ever return to the starting square.

Note: A knight's move - It moves to a square that is two squares away horizontally and one square vertically, or two squares vertically and one square horizontally.

For what N is there an open knight's tour of the 4xN chessboard?

A. All except 1, 2, 4
B. All except 1, 2, 3, 4
C. For N = Multiples of 3
D. For all odd prime numbers

[For Question 6 & 7]

The Council scrutinizes Mowgli, and decides to induct him into the Pack, after a heated argument among the wolves. Baloo, the sleepy brown bear and Bagheera, the black panther, second the inclusion of Mowgli into the pack. The wolves of the Pack depart after the episode. Only Akela, Baloo, Bagheera, Mowgli and his family wolves remain. They hear Shere Khan, the ferocious tiger, roaring angrily at a distance. He is angry at the council for not handing over Mowgli to him. On seeing Mowgli, Akela recalls the story of his friend wolf, Asav, who was trapped by humans and was forced to perform in a circus. He escaped the circus with his wit. He was kept in a prison cell inside the circus which was guarded by a human. The cell was situated at the beginning of a long straight corridor partitioned by five doors.The doors operated on different time switches so that the first, which separated the cell from the corridor, opened every 1 minute 45 seconds, the second every 1 minute 10 seconds, the third every 2 minutes 55 seconds, the fourth every 2 minutes 20 seconds, and the fifth, which was at the end of the corridor, every 35 seconds. Every once in a while, the five doors opened simultaneously. When this happened, the guard arrived, looked down the corridor to check the cell, and then left. Asav calculated that in making his escape it would take 20 seconds to cover the distance between consecutive doors, which was longer than the amount of time a door stayed open. He also knew that if he stayed in the corridor for longer than two and a half minutes, at a stretch, an alarm would sound. So he had to escape in the shortest possible time. Given that Asav was smart enough to keep the track of all time.

Question 6:

How much time had passed when Asav started moving?

A. 18m 40sec B. 19m 15sec C. 19m 50sec D. Prisoner cannot escape

Question 7:

How long before the guard returned does Asav cleared the last door?

A. 12m 50sec B. 13m 25sec C. 14m D. Asav cannot escape

Question 8:

Not very far away from Mowgli, in another part of the jungle, a disgruntled Shere Khan is lying in a cave with his sycophant Tabaqui - the jackal. Tabaqui is despised by the wolves because he runs about the jungle making mischief and eats from the rubbish heaps of the nearby village. He has caught hold of a grasshopper, wandering aimlessly in the cave. Having nothing to do, he thinks of playing a game with the grasshopper.

On a real number line, the points 1, 2, 3, . . . , 11 are marked. The grasshopper starts at point 1, then jumps to each of the other 10 marked points in some order so that no point is visited twice, before returning to point 1. The maximal length that he could have jumped in total is L, and there are N possible ways to achieve this maximum. Compute L + N.

Mark your answer as sum of digits.

A. 18 B. 20 C. 24 D. 26

BANDAR LOG

Type of Questions: Integer Type
Marking Scheme : Power Scheme
(Max = +31, Min = 0)

Baloo takes the responsibility of teaching Mowgli the "Law of the Jungle". The big, serious, old brown bear is delighted to have a pupil as quick as Mowgli, for the other wolves would learn only as much as applies to their pack and run away. Sometimes, even Bagheera drops in to check on Mowgli.

Question 9:

Baloo tests Mowgli occasionally. Today the big brown bear has an interesting question for Mowgli.
Let there be a lamp for each natural number.
In the beginning (the midnight between Saturday and Sunday), all the lamps are off.
1/2 of a second later there comes a little firefly which switched their state (i.e., turned them all on).
1/4 of a second later, another firefly comes and toggles the lamp switch for every second number. Now all the even lamps are off again and all the odd ones stay on.
1/8 of a second later comes yet another firefly and toggles the lamp of every third number: the number 3, which was on, gets turned off, the number 6 which was off is now on, and so on.
1/16 of a second later, another firefly toggles every fourth number, and so on (after 1/2^n of a second the firefly toggles all the numbers that are divisible by n).
Meanwhile, a red dragonfly, Aag, is learning to count:
It counts "one" and drops a flammable egg near lamp #1.
It counts "one, two" and leaves another egg near lamp #3.
It counts "one, two, three" and places an egg near lamp #6.
It counts "one, two, three, four" and lays an egg near lamp #10; and so on.
Aag walks at a constant pace of one lamp per second.
Suddenly, it lays an egg too close to one of the lamps, which was on at that time, and therefore hot, and it immediately explodes.
The explosion ruined the lamp's number sign, but the last three digits are still visible: "576".
When did the explosion occur? Your answer is in the form of Day (D), Hours (H), Minutes (M) and Seconds (S). Give the value of S/M.

Question 10:

Baloo is very fond of honey and berries. He challenges Mowgli to an eating contest. Baloo has placed 1,2, 3, ..., 14, 15 berries in coconut shells numbered 1, 2, 3, ... , 14, 15 respectively.

The rules of the contest are:

- *Mowgli may choose any subset of shells.*
- *He has to take the same number of berries from each shell.*
- *The task is to empty all the shells in minimum number of moves.*

Help Mowgli win the contest.

What's the minimum no. of moves in which he can achieve this?

Question 11:

Bagheera and Mowgli separately tell Baloo the number of times they've visited the edge of the forest. Baloo tells them, "Both of you visited the edge of the jungle, but one of you visited once more than the other". Then the following conversation takes place:

Bagheera: Did you visit the edge of the jungle more than I did?

Mowgli: I have no idea.

Bagheera: Me neither. Do you know now?

Mowgli: Yes, indeed!

Bagheera: Really? Then so do I!

What is the sum of the possible number of times Mowgli visited the edge of the jungle?

(Note: Bagheera's initial question does not convey any information about what he knows. Also, at no point did Bagheera and Mowgli visit the edge of the jungle together.)

Question 12:

While the three of them are having a conversation, Bandar Log throw branches and nuts on them from the forest canopy. Bandar Log, the jungle monkeys, are the jungle outcasts, the people without a law. They wish to be noticed, so they throw nuts and twigs from the tree branches, but no animal notices them just because they are deemed evil and shameless. They want Mowgli to be their leader, just because he can teach them to make huts from fallen branches. But they are forbidden people, so Baloo warns Mowgli to have no business with them whatsoever.

One hundred monkeys are sitting in a line on a big branch of a giant banyan tree. Each monkey either always tells the truth or always lies. The ith monkey in line says: "Of the (101 − i) monkeys who are not ahead of me in line (including myself), more than half of them are truth-tellers." How many possibilities are there for the set of truth-telling monkeys? Your answer is in the form of 100q + r. Give the value of r. (where i,q and r are integers)

Question 13:

Bagheera, Baloo and Mowgli are asleep under a tree. Suddenly, two monkeys swoop down from the top of the tree, grab Mowgli from his arms, and take him to the treetops. Then they begin their flight; the two strongest monkeys caught Mowgli under the arms and swung off with him through the treetops, twenty feet in a single leap. Mowgli, notices Chil, the kite, flying above him, high in the sky. Mowgli had learnt the Kite tongue from Baloo; he tells Chil to mark his trail and inform Baloo and Bagheera about his location. The monkeys take Mowgli to Cold Lairs, the monkey city, beyond the river. The Cold Lairs is an old deserted city, lost in the jungle.

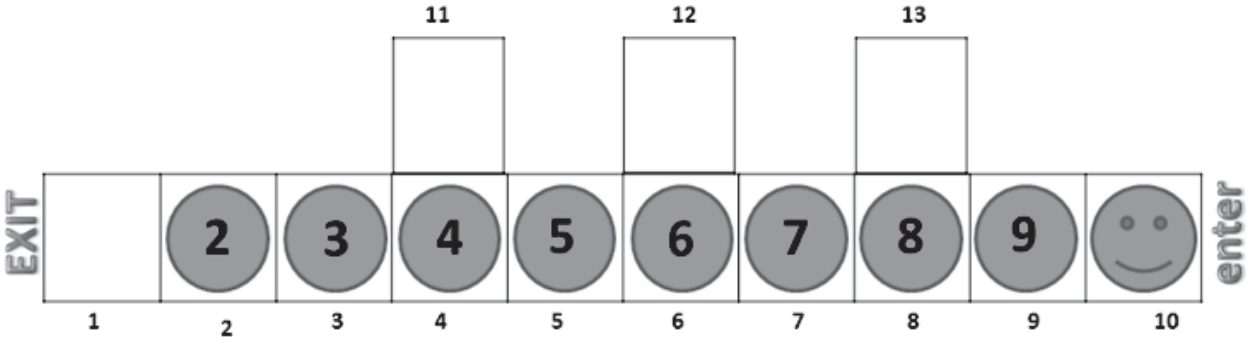
Two monkeys, Vanar and Kapi, enter an old building in the Cold Lairs. The building was designed by a mad architect and is full of traps. Vanar notices that Kapi is lagging behind and is trapped in the hallway which has only two doors (one from which he came and the other is exit separated by 10 tiles of distance). Vanar is in the control room of that building from where he notices that the path to the exit is blocked by huge cylindrical movable rocks as shown(numbered 2 to 9).

Vanar can control the movement of those rocks in the shown tiles. There are also three empty side tiles which will be helpful for the movement(can accommodate a rock or Kapi).

Vanar has to move the rocks and guide Kapi to the exit in the least number of moves.

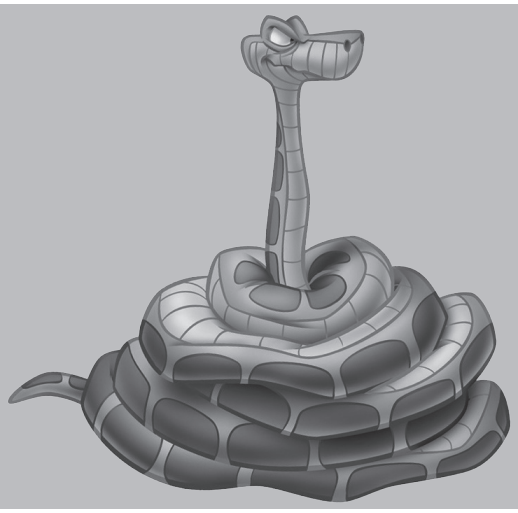
A rock/monkey may go any distance that is possible in a move.(i.e moving a rock two or three adjacent slots can be considered as one movement)

The exit door will be open only when the rocks are in their same respective positions as now.



Come up with a plan and find out the least number of moves needed (including that of Kapi as well as rocks).

KAA'S HUNTING



Type of Questions: MCQ
Marking Scheme : All or Nothing Scheme
(Max =+12, Min =0)

Distressed by Mowgli's abduction, Baloo and Bagheera, go to Kaa, the python, for help. The Bandar Log are afraid of Kaa. He can climb trees and steals the young monkeys at night. A mere mention of his name can make their tails cold.

Question 14:

Bagheera and Baloo reach Kaa's lair and ask him to help them in saving Mowgli from the Bandar Log. Kaa is a lazy old python. He agrees to help them but only on the condition that they solve a riddle. The riddle is about three humans who lived in the village on the edge of the forest a long time ago. It is as follows:

The three villagers, Halkoo, Bikram and Jagan were playing a game of cards. Each game had exactly one winner. No one won two games consecutively. Moreover, the player who was the dealer for a game did not won that game. The dealing sequence was Halkoo followed by Bikram followed by Jagan. This order repeated until they stopped playing. The only player to win more than two games did not win the first game. Who was the only player to win more than two games?

Help Baloo and Bagheera solve the riddle quickly, so that they can save Mowgli as soon as possible.

A. Halkoo *B. Bikram* *C. Jagan* *D. Cannot be determined*

Question 15:

After they solve Kaa's riddle, he agrees to help them to save Mowgli. But the problem is that they do not know where Mowgli is. Chil, who has been scanning the jungle floor, from the skies, for Baloo and Bagheera, finally finds them and tells them the exact location of Mowgli - the Cold Lairs. Bagheera is grateful to Chil and vows to never hunt him down. Then, the three of them, Kaa, Baloo and Bagheera, scurry off quickly towards the deserted city. Baloo is obviously slower than the panther and the python. He asks them to reach the city while he arrives.

Meanwhile, Mowgli is in captivity of the monkeys. They force him to play a stupid game. He is blindfolded. In front of him is a square turntable with four bottles at the corners. Each might be oriented "up" or "down". He has to make a sequence of "moves". Each move consists of five phases:

(1) A monkey turns the table an unknown number of quarter-turns;
(2) Mowgli selects "adjacent" or "opposite", and then take a pair of bottles which are either "adjacent" (90 degrees apart) or "opposite" (180), accordingly.
(3) He observes (by touch) the current orientation of these two bottles.
(4) He turns over one or the other bottle, or neither, or both.
(5) The monkey tells him whether all four bottles are in the same orientation; if so, he wins and the game is over.

After how many moves can Mowgli guarantee that he has won?
A. 4
B. 5
C. 6
D. 7

Question 16:
Kaa, Baloo and Bagheera sneakily enter the Cold Lairs and wait for the right moment to attack. Initially, Bagheera and Baloo lead from the front and attack the monkeys. The monkeys retort sharply and cluster around them both, hitting them ferociously. Then, enters Kaa, and attacks the cluster around Baloo. The monkeys scatter with the cries of "Kaa! It is Kaa! Run! Run!". Bagheera and Baloo rescue Mowgli, while Kaa begins his hunting dance.
He turns twice or thrice in a big circle, weaving his head from right to left. Then he starts contorting his 30 feet long body into shapes of eight, six and other numbers.
Say Kaa forms any two numbers a, b with his body (all numbers are allowed). Mowgli writes them down on a giant banana leaf. Next, he picks any pair of unequal numbers from the leaf, x,y and writes another number z =absolute difference of x and y on the leaf. He repeats this till no new numbers remain to be produced.
For example, starting with 2 and 5, the leaf changes as follows

2 5
2 5 3
1 2 5 3
1 2 5 4 3

So finally we get 5 numbers.
For given a,b, call this number the slither of a,b. So, slither of 2,5 is 5.
For concreteness, consider the collection 3,9,7.
The slither of every pair is
3,9 =3; 9,7 = 9; 3,7 = 7.
So the set is regenerated, without any extra elements. Call such a set venomous.
Consider all 3 element venomous collections (no element repeated), in which all elements are ≤20. How many such collections are there?
A. 7 B. 9 C. 11 D. 13

HIS OWN PEOPLE

Type of Questions: MCQ
Marking Scheme:
Boomerang
(Max= +12, Min= -4)

On returning from Cold Lairs, Baloo, Bagheera and Mowgli find out that the wolves have rebelled against their leader, Akela, and have removed him from the position of leadership. They also learn that Shere Khan is responsible for instigating the Pack against Akela. The wolves demand that Mowgli be removed from the pack. Mowgli, on learning that his Pack hates him, runs away from the jungle, vowing to lay Shere Khan's hide in front of the Pack. He goes to the nearby village, where he is adopted by a woman, Messua, and her husband, who identify Mowgli as their long lost son.

Question 17:
MySchoolPage, a company that works for better learning of children, organizes Mathematics classes for the children of Mowgli's village. But Mowgli seldom attends the classes. Today, Messua forces him to attend the class. The teacher is Buldeo, a man from the village, who tells fancy stories about the jungle when he is not teaching. Today he is teaching a problem on matrices. The problem is as follows:
Consider arrays of integers, a(i,j) with the following property. For all pairs of distinct rows i1,i2 and distinct columns j1,j2 the diagonal sum a(i1,j1)+a(i2,j2) and the anti-diagonal sum a(i1,j2)+a(i2,j1) are unequal. We are interested in finding such arrays with the entries chosen from as narrow a range of integers as possible. For example the following is an example of such a 3x3 array with entries chosen from {0,1}

0 0 1
0 1 0
1 0 0

Find a 5x5 array with this property with entries chosen from {0,1,2}.
Consider all such arrays possible. There exists some (maybe one) such arrays with the property that their both main diagonals contain type-wise(0,1 or 2) the same no. of elements. Give the number of non-zero elements in any one of the main diagonals of such an array.

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

Question 18:

Mowgli is given the job of herding the buffaloes to temper his impertinence. One day while herding his cattle Mowgli notices something. The ten buffaloes he has are grazing in a definite fashion. If they are labeled with different integers 0,1,...,9, (and arranged in a triangle) and that if two buffaloes are side-by-side, the remainder when the sum of their labels is divided by 10, is equal to the label of the buffalo in front and between them. For example:

1 2 4 5
3 6 9
9 5
4

Add the labels of the two buffaloes in the second row to obtain the label of the buffalo in the first row: (9+5=14 = 4 mod 10). But in the example, some of the buffaloes have the same label; in the solution, they don't.

While Mowgli is busy noticing this, Chanchal, his wolf brother, comes to him which scares the buffaloes and they scatter here and there.
Figure out how the buffaloes were labelled. Consider all possibilities of labelling. What is/are the max. no. of buffaloes which can be labelled with prime numbers in either of the outermost diagonal (containing 4 buffaloes) ? (e.g. in the above case, [1 3 9 4] and [5 9 5 4] are the 2 outermost diagonals).

A. 0 B. 1 C. 2 D. 3

Question 19:

Chanchal tells Mowgli that Shere Khan is planning to kill Mowgli. Mowgli asks Chanchal to keep an eye on Shere Khan while he thinks of a plan. Then, Mowgli goes back to his village, where he finds Buldeo, talking to 7 kids. The kids seem to be arguing over something. On inquiry, Mowgli finds that each of the 7 kids (namely A,B,C,D,E,F,G,H,I) bought different number of sweets ,each sweet costing 2 coins. After receiving their sweets, they started playing a game which is as follows:

- *The game had 7 rounds.*
- *In each round, the one who lost should double the sweet count of other 6 members by giving his sweets to the others.*
- *The game ended with each of them losing 1 game in an order (i.e A lost the 1st round, B lost 2 nd ...).*

To their surprise, all of them had equal number of sweets left with them after the completion of the game(Final number of sweets left with each is less than 200).
Now, the kids want to know who had profited and who had suffered loss by playing the game. 'A' seeks the help of Buldeo. Can you assist Buldeo in answering this problem?
Give the answer as the remainder when highest no. of sweets (initially ordered by some kid) is divided by the lowest ordered no. of sweets(initially ordered by some other kid).

A. 0 B. 1 C. 2 D. 4

Question 20:

Chanchal meets Mowgli again and tells him that he knows how Shere Khan plans to kill Mowgli. But Chanchal is a mischievous wolf, and agrees to reveal the plan, only if Mowgli solves a riddle. The riddle refers to a turn-based game where two players, taking alternate turns, each removes, in his turn, a chosen number of elements from a pile. The initial pile-size is N, a positive integer. The games differ in the rules regarding how many elements a player is allowed to remove in his turn. In every case, this number is restricted to be a positive integer. The player to lose is the first to have no legal moves left. For example, this happens if the pile is completely emptied.

The rules are as follows:

On the first turn, the first to play can take any amount that is less than N. On any subsequent turn, each player can take any amount that is no more than twice what was taken (by the other player) in the preceding turn.

The object is to determine for which of the following value of N does the second player has a winning strategy. Can you help Mowgli solve the riddle?

A. 4
B. 6
C. 8
D. 10

Then Chanchal tells Mowgli that Shere Khan is hiding in a nearby ravine in preparation to attack. With the aid of Akela, Mowgli and Chanchal divide the buffalo herd in two and stampede them from opposite ends of the ravine, trampling the tiger to death between them. Mowgli, who has promised to lay Shere Khan's skin on the wolf pack's Council Rock, sets about skinning the tiger. Buldeo has been told of the stampede by the other village boys, and soon arrives to chastise Mowgli. Buldeo demands that Mowgli hand the skin over to him for the reward. Mowgli refuses, and summons Akela to restrain him. When Mowgli and Akela let him go, Buldeo returns to the village and tells the villagers Mowgli is a shapeshifting sorcerer. By the time the unsuspecting Mowgli returns with the buffaloes, Buldeo has turned the entire village except Messua against him and they drive him away.
Confused and disgusted by their behaviour, Mowgli returns to the jungle and fulfils his promise to lay out Shere Khan's hide in front of the Pack. The Pack offers to take Mowgli back, but he refuses to forgive them for casting him out earlier. Instead he decides that from now on he will hunt alone, except for his four wolf-brothers who refuse to be parted from him. He is back with "His Own People"

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A word from organizers of Technothlon 2018

Hello
We hope that you enjoyed the last two and a half hours, brainstorming your way through what happens to be one of the most challenging exams for school students. We know that hundreds of thoughts like, "What is the point of giving such questions?" , "The level is unnecessarily high!" and "Who made such questions?" occurred to you throughout the examination. But we, as a team, can proudly state that making these questions was one of the most enjoyable experiences we've had till date.

The big question which perhaps still lurks in your minds is, "What does Technothlon want to achieve through this question paper?". Believe us, when we say that this was the first question that came to our minds when we started making the question paper. But the fact is that Technothlon has grown exponentially over the years, and so have the expectations regarding the exam. 'Being Ordinary' is the last thing you would expect from a Technothlon question paper. Our question papers are expected to be challenging, logical and most importantly, enjoyable. Even this year, we have tried not just to match the expectations, but to cross them all. A lot of time, hard work and sleepless nights have gone into the making of the question paper. Do not feel sad if you weren't able to solve the questions during the exam. Our motive is not just to test your mental prowess, but to help you better it. We hope that you will keep your spirits high, even after the exam and keep trying until you've solved the complete paper, a feat very grand in itself. Our aim was not just to select the brightest minds in the country but to inspire one and all. We hope that our grand prizes – A trip to NASA or ISRO and the chance of visiting IIT Guwahati were motivating enough to help deliver your best in the exam. We hope to see you at IITG and wish you all the very best for your future.

And finally, the chief organizers of Technothlon 2018 thank all the cityreps for making our dreams a reality. We thank you for working really hard despite the scorching summer heat or the chilling winter breeze, and spreading the word of Technothlon throughout the nation. We hope that you enjoyed the experience and got to know new people. A special thanks to all the institution heads, faculty coordinators, organizers, invigilators and volunteers who were responsible for the smooth conduction of the paper. Lastly, but very importantly, we thank our little team for designing the maze of logic and creativity that you have been trying to solve for the last two and a half hours.

Hope you enjoyed the entire experience!

An open invitation for a lifelong association with Technothlon

Before you feel that you have come to the end of your association with Technothlon, we should remind you that this is just the beginning. You have become an inseparable part of the Technothlon community. Regardless of whether you make it to the second round or not, we enjoy every moment of our interaction with you all. Our Facebook page 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 by utilizing the experienced pool of IITians and highly qualified faculty of IIT Guwahati. And finally, we will appreciate any constructive feedback about the question paper or any general issue that you would like to discuss with us. After all, your feedback is the only way we come to know about our performance.

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

Just like a rainbow gets its grandeur from the balanced blend of seven colours, each edition of Techniche promises to be a perfect blend of creative ideas, innovation and selfless efforts. It has the vision of motivating the youth of the country to think out of the box, and be responsible for the inception of such ideas that boost the growth of the techno-management sphere. Techniche brings forth a medley of remarkable events, be it the inspiring keynotes of prominent personalities in The Lecture Series or the opportunity to interact with eminent industrialists in The Industrial Conclave. From thrilling Robotics competitions to knowledge enhancing Workshops, every bit of Techniche will be a wonderful experience. With innovative ideas like Technothlon - the International School Championship and the Guwahati Half Marathon as well as other outstanding initiatives, Techniche stands proud as one of the best techno-management festivals of the country.

ROBOTICS

Every year the Robotics module of Techniche brings forth innovative problem statements in diverse areas of Robotics. This year, along with the classic Robocalypse, Escalade and four other events, a new aeromodeling event, Glide-a-Rama will be conducted. Every event will be a treat to watch and compete in.

INDUSTRIAL CONCLAVE

The Industrial Conclave is a one-of-a-kind platform connecting entrepreneurship enthusiasts to industrial big-wigs and visionaries. The 3 day event boasts itself for providing students, the opportunity to broaden their avenues and learn about the business dynamics of the industry. The previous editions saw the likes of Mr. Moninder Jain (MD, India and South East Asia Logitech), Mr. Bharat Salhotra (MD, Alstom India), Mr. Sreejit Roy (Vice President for Sectors, IBM), Mr. Andreas Wolf (Joint MD, Bosch) among others, the conclave continues to grow bigger and better, every year. So ladies and gentlemen, register now to witness the action at the Industrial Conclave 2018.

TECHEXPO

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 to 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.

TechExpo has been bifurcated into two categories viz. Junior and Senior. Cash prizes worth upto 3.5 lakhs are offered . From this year onwards TechExpo will be organizing a mentorship programme through which the winner gets a chance to be mentored by the faculty of IIT Guwahati. Other worthy projects may also get selected for the programme. We also reimburse the travelling expenses of top twenty teams, top 120 teams to get e-certificates.

EXHIBITIONS

The Exhibitions aim to share a unique focus of providing contextual use of emerging technologies and how they are impacting our lives.
The Exhibitions at Techniche aspire to play host to technologically advanced and futuristic innovations and projects from all around the globe and emerge as the ideal rendezvous point for those curious to gain insight for what is next to come.

TECHOLYMPICS

Starting from August a quest to win through a myriad of competitions will begin. Talent will be tested by mind blowing problems and the winner takes home astounding prizes with online events like Codejunk and Animate and offline events during Techniche like Emulate, Cryptophobia and Codescape, there is something for everyone and each one can suit their interest through plethora of choices .
So Avengers! It's time to assemble!

SPONSORSHIP

Techniche provides its sponsors visibility through various platforms. Through digital and print media, we make sure that maximum visibility is obtained by publishing blogs, news articles, sponsored ads, etc. Our nation wide competitions like Technothlon, Escalade and the ones under Corporate module help our sponsors to market themselves to a large chunk of public across the country. Our on-campus and off-campus branding strategies like pre-Techniche press conference , customised mails to IIT Guwahati students, flash ads, logo display through banner ads, hoardings etc, makes sponsoring in Techniche a great investment for the company.

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