

VIGNITE 2017

THE MAGAZINE OF
TRICORD

THE LIFE SCIENCES SOCIETY
Miranda House, University of Delhi



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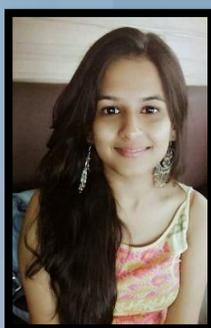


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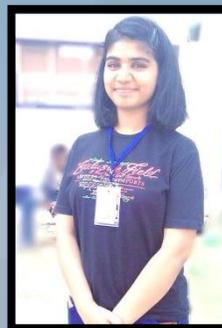
The Editorial Board Members



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Pratika Dhussa



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Foreword

I am delighted that the students of B Sc Life Sciences have been able to bring out a magazine of their own this academic year as well. Last year, the students had very appropriately named the magazine Vignite, a combination of Vigyan and Ignite, to convey that curiosity, enthusiasm, and the thirst for acquiring knowledge are the hallmarks of any learner. It is the effort and contributions of students that has enabled the Life Sciences Society to bring out a Life Sciences magazine.

Writing is indeed a very good way of channelizing one's creativity. Contributing even a small write-up for a magazine hones one's writing skills, improves originality, and opens up new horizons. Vignite could be brought out only because of the varied talents, latent potential and resourcefulness of students. The President of Tricord, the Life Sciences Society, Shaiza Suhail has been very efficient in carrying out her duties. The General Secretary Prerna Mudai has been supportive and has actively involved herself in the Society activities. Both of them have devoted themselves wholeheartedly throughout the year for Tricord, which is very creditable. The Treasurer Smriti Suri, the Cultural Secretary Sukanya David, Class Representatives Neha Sachan (III year), Ariba Aziz (II year) and Pratika Dhussa (I year) have organized the various events efficiently. The contribution of Sukanya David and others in designing posters, taking photographs and making aesthetic compositions of photographs, and sprucing up the display board has been highly commendable. In fact, Shaiza, Prerna and Ariba have served two consecutive terms as the President, the General Secretary and as a Class Representative, respectively, which is highly commendable. Incidentally, Prerna and Ariba have been elected unanimously as the President of the Society for 2017-18 and the Class Representative of III year for 2017-18. Many students who are not office bearers have willingly helped in various ways, and I thank them. I appreciate the editorial board members, namely Prerna Mudai, Pratika Dhussa and Smriti Mishra, for their earnest and painstaking involvement in bringing this volume to fruition. I thank all the authors for their contributions. I hope that this in-house publication will encourage the reading habit, inculcate writing skills, and evoke originality among students. I thank all the office bearers and other students who have made the year 2016-17 a successful and fruitful one.

I am grateful to the Principal Dr Pratibha Jolly for her constant encouragement and support. The staff advisors, Dr Rekha Kumari of the Department of Zoology, and Dr Malti Sharma (in the odd semester) and Dr Deepti Rawat (in the even semester) of the Department of Chemistry, have been very forthcoming and that has enabled us to work as a team, and I extend my sincere thanks to them. I thank Dr Richa Misra for working in place of Dr Rekha Kumari during VigZest 2107.

20 May 2017

Dr Janaki Subramanyan
Coordinator
B Sc Life Sciences

Preface

Tricord, the Life Sciences Society of Miranda House, has had some amazing experiences in the past year. Beginning from the inaugural lecture in September and ending with the annual festival and farewell, we were actively a part of many co-curricular activities in 2016-17.

All of the above was possible because of the guidance and support from our staff advisors, Dr Janaki Subramanyan, Dr Rekha Kumari, Dr Malti Sharma and Dr Deepti Rawat; and the enthusiasm of the society members. Our Principal Dr Pratibha Jolly has been very supportive and has given us numerous opportunities to participate in various events as well as represent the college at other institutions. All the other faculty members and the lab staff have been extremely cooperative and helpful as well.

On behalf of the office bearers for the year 2016-17, I would like to express my gratitude and thanks to the Principal, staff advisors, faculty members and the society members for all their cooperation, support and participation.

Shaiza Suhail
President
Tricord

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Teach For India: A Life-Changing Experience

I am always asked this question when I meet people for the first time. Why did you join Teach for India? The time I came to know about Teach for India, it just appealed to my instincts and I took a plunge without thinking much. Undoubtedly, it was the best choice that I could have ever made. Teach for India aims to build a broad people's movement for educational equity that will accelerate progress towards that day when all children in India have the opportunity to attain an excellent education so that we, as a nation, can find our light and our true potential. I applied for Teach for India fellowship while I was in the 3rd year. I had to complete a rigorous, multi-stage selection process. Once I got selected, I had to head to Flame University in Pune for a 5-week training programme before the actual teaching started. It's a two-year fellowship programme. Fresh graduates, employees from the corporate background and even people who have retired come from across the country to be a part of this fellowship programme. It is without a doubt one of the finest fellowship programmes our country has to offer. The structure of the fellowship, the clarity of thought among everyone working for the organization and just the opportunity the fellowship provides is almost unparalleled.

Currently, I've been placed in Sarvodaya Kanya Vidyalaya, Adarsh Nagar. I'll be teaching as the subject teacher of Grade 6th, 7th, 8th and 9th and the class teacher of Grade 7th . The journey has been magical so far and I believe there is a lot more yet to be discovered. Until then, I can just thank Teach for India for such a transformational journey, personally.

Shaiza Suhail
B Sc Life Sciences III Year

Field Trip to Neela Hauz Biodiversity Park

An educational trip to Neela Hauz Biodiversity Park was organized by the teachers of the Department of Botany, Miranda House, on 29 March 2017. Forty-seven students from B Sc Life Sciences and B Sc (Hons) Botany took part in the trip. The students were accompanied by six teachers and two lab staff members. Welcoming the group, Dr C R Babu, Professor Emeritus, University of Delhi, and Head of the Centre for Environmental Management of Degraded Ecosystems, explained the brief history of the Neela Hauz lake and the water treatment system of the wetland.

Prof. C R Babu explained how the lake has been starting to revive through entirely natural

means from once being a dumping ground to its present state of being a symbol of environmental regeneration. After its revival, the wetland now treats close to a million litres of water everyday using tanks and aquatic plants with special properties to clean water. The microbes generated by the 20 different types of aquatic plants cleansed the water of bio-toxins, while sludge and fine particulates are removed via a gradual process of passing the water through layers of pebbles of varying size. This revived wetland is already attracting avian and aquatic species.

Then, Prof. Babu and his staff members showed us the various sites of the wetland treatment system. Later, the students and teachers were guided by Prof. Babu and his staff in planting around 150 tree saplings. Suitable tree species which could withstand the weather and thrive in the local surroundings were selected for the plantation.

At the end, Prof. Babu told us about the benefits of this regeneration model and its cost effectiveness. Prof. Babu concluded with an inspirational note by saying that we all should be proactive towards environmental conservation and encouraged the students to go on such educational trips. It was indeed a great learning experience.

Soniya Kangjam

B Sc Life Sciences III Year

Swarm Intelligence – The Genius of Swarms

A swarm basically means a group. We all must have observed swarms (groups or colonies or flocks or schools) of bees, ants, fishes, and birds. What is so special about them? It is the collective intelligent behaviour they show. This unique behaviour is known as swarm behaviour or swarming! And it arises due to interaction between the individuals and between an individual and its environment. There is no central authority. For example, in a colony of ants, the queen never gives orders to any of the members. A single ant is not a genius and it acts randomly but a swarm of ants indeed is!

Swarm Intelligence (SI) is based on swarming behaviour of insects and animals where principles apply to inanimate entities. It is an artificial intelligence (AI) technique where individuals (boids) follow a de-centralized approach. It is the collective behaviour of self-organized systems. The term Swarm Intelligence was introduced by Gerardo Beni and Jing Wang in 1989. Random interactions among the individuals lead to the emergence of intelligent global behaviour, unknown to individuals.

Many models have been put forth to explain swarm behaviour. The following two models are the most popular algorithms adopted and accepted.

1. Ant-colony optimization (ACO) was proposed by Marco Dorigo in 1992. As the name suggests it aims to derive solutions to problems by imitating the behaviour of

natural ants. Natural ants are able to find the shortest path between their food and nests with the help of certain chemical secretions known as pheromones (responsible for interactions among individuals). Pheromone trail is followed by ants and the shortest path discovered! Parallel to this, artificial ants (computer based simulation agents) locate optimal solutions by moving through a space representing all possible solutions.

2. Particle-swarm optimization (PSO), proposed by Kennedy and Eberhart in 1995, is based on simulating the behaviour of birds. Individuals here learn from their previous experiences and those around them. And hence tend to find the best solution.

The most revolutionary application of swarm intelligence is in robotics. This is specifically known as swarm robotics. It involves the study of robotic systems consisting of a large group of relatively small and simple robots which interact and cooperate with each other in order to jointly solve tasks that are outside their own individual capabilities. Swarms are most resistant to failures. The largest swarm so far created is the 1024 robot kilobot swarm. Contradictory to traditional robotics where the focus was on developing highly capable, expensive and few robots; swarm robotics emphasizes on having a large number of relatively inexpensive robots.

Swarm robots have various characteristics. They are:

1. Parallelism – Different robots can perform different tasks at the same time.
2. Flexibility – Addition or removal of an individual does not influence the structure and the efficiency of the swarm.
3. Fault tolerance – When a robot breaks down another one can take over. No single point-of-failure.
4. Robustness – Less reliance on a single individual.
5. Cost effective – Cheaper to build than the complex robots.
6. De-centralized approach – No ruling authority.
7. Scalability – Add more robots, and get more work done.

Swarm robots can communicate with each other through camera and coloured LEDs. That is how a chain is formed and the chains aggregate to form a cluster, something known as clumping.

Swarm robots have been used in:

1. Military – The U.S. Naval forces have tested a swarm of autonomous boats that can steer and take offensive actions by themselves. Swarms can be used to form autonomous armies of unmanned aerial drones, self-navigating cruise missiles for warfare.
2. Space research and exploration – Swarm robots can be used for mining on the Moon, Mars and even asteroids for establishment of settlements and for exploring unbound things about our solar system.

3. Medicine – Micro-nano systems are used for treatment and monitoring of diseases (like diabetes). Nanobots could swarm to source of cancerous tumors and release medicine without damaging healthy tissues; they could also be effective in atherosclerosis.
4. For rescue operations after a natural calamity like earthquake in a place out of reach of the humans.
5. Crowd simulation – Artists use swarm technology as a means of creating complex interactive systems. For example, to show the movement of a swarm of bats in Batman Returns and battle scenes in The Lord of the Rings film trilogy. Stanley and Stella in: Breaking the Ice was the first movie to make use of swarm technology for realistically depicting the movements of groups of fish and birds using the Boids system.

Robots are going to be an integral part of the future. Swarm robotics will play a big role in the future, possibly changing robotics as we know it. Dumb parts, properly connected into a swarm, yield smart results. Thus swarm intelligence has proved to be a boon for all of us (and for upcoming lazy generations)!

Neha Mehlawat
B Sc Life Sciences II Year

VigZest...More Than Just Memories

For many of us, college days count as some of the best days of our lives — the friends we make, the bonds we build, the time we spend hanging out in the canteen, sharing everything from our class notes to gossip. To a fresher who is willing to hop on to the festival bandwagon, college fests offer a chance to do all this and much more.

VigZest, the annual festival of the Life Sciences Society, Tricord, added some values to my learning experience. There are three distinct things that I've learnt by playing a part in organizing the fest. The first is the planning skills you need. Chalking things out beforehand is a must, be it contacting sponsors, getting the venue booked, and so on. I believe that this is of immense help in the corporate world later on in life. Secondly, fests teach one to work in a team and enhance leadership skills. The third and most important, volunteers learn to multitask since they have to make time for academics even while organizing a fest.

Event management is something that does not come naturally to us, we have to invest time and gain experience. The college gives us multiple opportunities to gain the required experience. Having said that, missing out on such opportunities could turn out to create a void in your learning during graduation, when you look back on this time at a later stage in

your life. Recalling my experience, from the very first day, I had inculcated the zeal to work hard for VigZest and make it a successful event. Heartwarming memories of VigZest are never going to fade. It has been a life changing experience which nobody would want to miss out on.

Pratika Dhussa
B Sc Life Sciences I Year

My First Experience at MIMAMSA

MIMAMSA 2017 was organized by the students of Indian Institute of Science Education and Research (IISER), Pune, on 08 January 2017 at IIT Delhi for the Delhi teams. Being a science enthusiast, I was eager to participate in it the moment the registrations for the competition were declared open.

As a saying by Carl Sagan goes, “Science is a way of thinking much more than it is a body of knowledge”. MIMAMSA proved to be a life-changing experience for me. It unleashed the confidence I now have on my capabilities.

For those who are unaware, MIMAMSA is one of the toughest national-level science quizzes, organized by the students of IISER Pune. With a team of four members, all from different streams, we represented our college. MIMAMSA strives to convey the implicit beauty of science by creating a unique set of questions that focuses on concepts and their interdependence, in order to explain the diverse range of phenomena around us. The event not only forces you to find the correct solution but to reflect upon the numerous ways in which you can perceive that particular response.

It was an inspirational experience for me. I learnt how different disciplines come and work together to give stupendous results. Being a student of B Sc Life Sciences, an interdisciplinary course, the quiz was more congenial for me. To all the readers, what I would like to say is that such opportunities should be grabbed at once to make your academic growth a full-fledged experience.

Anamika Anand
B Sc Life Sciences II Year

Growing Up

As a child, everyone desires to grow up, and as soon as possible, because the world of the grown-ups is perceived as all sorted and organized and filled with independence and choices. In my journey of childhood with the luggage of fantasy I realized I was growing up. I was turning nineteen. Somehow, I didn't feel sorted.

I had completed my high school and was eagerly waiting for my results. I could feel butterflies in my stomach. After receiving my result and scoring surprisingly high marks, I was overwhelmed. Soon, I got busy in applying for colleges and got admitted into Miranda House.

Since then, time passed so fast, and with new friends, paths, travel route, schedule, and syllabus; I didn't really get time to stop and realize. I think this is what growing up means, running and not knowing when to stop. I think this is what I will also do. I am all ready to learn from my falls in the past and keep running forward. I have never felt so prepared, and I have never felt so independent. I think I've grown up.

Kritika Chauhan
B Sc Life Sciences I Year

Distress in the Zoological Parks

Zoological parks are places for recreation. We have visited these places many times as a child. We loved the visit and got excited at the sight of so many new animals. But we have never noticed the fact that the animals in the zoo are distressed or that they are not happy and joyful as compared to those animals which live in an open jungle.

“Wild animals in a zoo suffer both physically and mentally as their complex social, behavioural and physical needs can't be met in the unnatural man-made environment. Animals are closely confined, there is lack of privacy and very little opportunity for mental stimulation or physical exercise” (Source: CAPS - Captive Animals' Protection Society). All these conditions often result in abnormal and self-destructive behaviour known as **Zoochosis**. According to Born Free, the following behaviours are symptomatic of zoochosis: pacing and circling, tongue playing and bar biting, neck twisting, head bobbing, waving and swaying or rocking and over-grooming and self-mutilation.

The objective of zoological parks is to provide educational opportunity; but often visitors spend their maximum time at the behavioural display of animals for entertainment rather than

for enlightenment. Zoological parks hardly save the species from extinction, instead they divert the much-needed attention away from it. So, instead of building up more zoological parks focus should be shifted to developing natural wildlife sanctuaries and biosphere reserves because wild animals belong in their natural habitat and should not be kept in captivity.

Glory Simran
B Sc Life Sciences I Year

Giving Up on MBBS

If you chose biology in intermediate and didn't have mathematics simultaneously, you will be told by people that the only good career you can pursue is MBBS (medicine). As for myself, my only focus was to get through the medical entrance examinations and achieve admission into a good college. I also had coaching classes for the same for two continuous years.

By the time I had given the National Eligibility Entrance Test (NEET) in May 2016 and was eagerly waiting for the results, my board examination results were declared wherein I managed to score somewhere around 97%. Due to the ambiguity that persisted about the NEET results that year, my father asked me to give a shot at Delhi University. I gathered a lot of information about the various courses I could explore into and ended up taking B Sc Life Sciences, a subject with immense potential. Things were a little rough at first. However, with each passing day at Miranda House, I grew as an individual. Pursuing one of the toughest courses, I learnt multitasking, and of course, mental strength and resilience from the four-hour long practical classes!

Coming here, and giving up the medical field, is a decision I will never regret in my entire life. Of course, MBBS offers a lot. But it cannot transform you, the way a course like B Sc Life Sciences does. It cannot nurture you, the way societies at Miranda House do. Most importantly, it can never, in any possible way, give you the privilege of being an embodiment of optimism, courage and hope - of being a Mirandian!

Shreeya Srivastava
B Sc Life Sciences I Year

Her Feelings

She executed everything that the world told her,
She respected every one about whom the world told her,
She always walked on those footprints that the world advised her,
She thought in that way in which the world wanted her to speak.

She never cared about herself as she had to care for others,
She never appealed for enormous materials that others couldn't afford,
She never hurt someone as others' feelings meant to her more than hers,
She always gave up all those things that the others did not like.

But, when she began to follow her own path, the world stopped her,
When she wanted to explore the world herself, the world faulted her,
When she searched for the things that could fetch joy and enjoyment,
the world neglected her,
When she appealed for the materials that she didn't own, the world refused her.

So, will she have to endure like this ever more?
Will she never discourse about her can of worms?
Will she always snivel for not having worldly possessions?
Will she give up the ghost by not living up to her happiness?

Never, she will not cash in her chips like that,
She will execute what she wishes to accomplish,
She will dig into her new paths, fulfill her big desires and never cry over unsatiated things,
She will do whatever she wants as well as the right things the world taught her.

I know, one day will come by all odds on which,
The world will be glad and elated by looking at her,
The world will appreciate her and her works,
The world will trust her and accept her in the way
she always wanted to be in her dreams.

Radhika Basotra
B Sc Life Sciences II Year

Good Advice to Live By

One night, four college students stayed out late, partying and having a good time. They paid no attention to the test scheduled for the next day and did not study. So, they made a plan to get out of taking their test. They covered themselves with grease and dirt and went to the teacher's room. They said they had been to a wedding the previous night and on the way back they got a flat tire and had to push the car back to the campus. The teacher listened to them and thought. He offered them a retest three days later. They thanked him and accepted his offer. When the test day arrived, the teacher put them in separate rooms for the test. They were fine with this since they had all studied hard. The test had two questions.

1. Your name (1 point)
2. Which tire burst?..... (99 points)

Options:

front left; front right; back left; back right

So always be responsible and make wise decisions.

“If you want your dreams to come true, don’t oversleep.

Minds are parachutes, they function only when open.

One thing you can’t recycle is wasted time.

One thing you can give and still keep is your word.

And finally, the pursuit of happiness is the chase of a lifetime!”

(Source of the quote: <https://www.tuko.co.ke> ; Author unknown)

Rashmi Aggarwal
B Sc Life Sciences II Year

Lucid Dreaming

Dreams can be said to be the screensavers that our mind turns on to prevent shutting down completely. They are lifelike connections but with bizarre and vivid twists. With advancements in metaphysics came the concept of lucid dreaming, that is dreams in which we know that we are dreaming. To understand this phenomenon consider yourself asleep and dreaming. At a certain point of time when you realize that you're dreaming you are left with two options, either to wake up or to continue dreaming. The latter one is a lucid stage. Stanford scientist Stephan LaBerge proved that this phenomenon occurs during the fifth stage of Rapid Eye Movement (REM) sleep. In this stage the body is basically paralyzed except the eyelids with an increased heartbeat and respiration rate. It is a 3-D multisensory hallucinatory experience of being completely absorbed in our imaginations. Since the laws of physics are not valid in a dream we can consciously bend them and reshape our entire dream. This means anything is possible in a lucid dream. For e.g., having superpowers, a trip to the sun or having a date with Tom Cruise. These limitless features allow psychological improvement in the well being and can be a therapy for nightmare treatment as well as problem solving. Thus, by all counts lucid dreaming is a state where half of the mind is awake while the other half lingers in the REM sleep and can be an incredible valuable tool in neurosciences.

Meghna Joon
B Sc Life Sciences I Year

Dust

"Your eyes sparkle like diamonds!"
my aunt told me yesterday.
I hear that so often.
So today, I try to stand in front of the mirror,
and face,
my face.

I force a smile to see my crooked teeth.
Suddenly I see her,
looking at me.
So with hurried and nervous steps,
I go back to the place
I left my broom.

"There's a pile of dust here, madam!" she screams
and I rush to attenuate my sins
with a broken broom.

I reach for the corners
when my hands discover
a shining gold ring,
and my chapped lips curve upwards,
my eyes trying to take in
the beauty of something
so majestic and magnificent.

"It'll look great when mum wears it!"
I think, and wonder
of the possibility of it being a waste
in this big, big mansion.

I lift up the splendid piece
and with shaky steps
I place it
on my mistress' dressing table,
wiping off the dust beneath it,
and the one
piled on my mind.

Smriti Mishra
B Sc Life Sciences I Year

The Secret

The day you can discover and harness,
Secret that was guarded by the wise,
of abundance of peace, happiness,
joy, wealth and everything nice,

and the goals that you can achieve,
success that you can attain,
in just changing the way you perceive,
Life will be all about accomplishment and gain.

Is fate and destiny you say,
that governs your life as a whole?
what you encounter in your way,
you really think you can't control?

Think again my friend, because what you hear,
is not the truth, NO, nowhere near.
What you believe to be a predestined path dear,
you must know, is just a blackboard, crystal clear.

Attract through your thoughts what you desire,
and as you think good, you'll attract even more,
hence, the vibrations you radiate like a fire,
that energize to a frequency that seems to soar,

is all you need to put the forces of Universe together,
what you desire shall then manifest and realize.
You can now see the first word of each line put together,
become a string of words that is 'The Secret' lying in disguise.

Yes, "The Secret of joy and success in Life is that what you think is what you attract and hence, that is what you become." Keep thinking good, think good of others too. Spread love for it to come back to you multiplied, and yes, remember to thank the Universe at every step for what you already have. Gratitude is the key to manifest all your dreams into reality.

The Secret is a scientifically justified law of attraction. To know more, read or watch "The Secret" by Rhonda Byrne. I knew it, henceforth I shared. Spreading The Secret is everyone's responsibility - everything is in abundance, don't fear competition because there is none, and hence there is no secret.

Spread the love.

Prerna Mudai
B Sc Life Sciences II Year

The Health Quiz

1. What is the normal temperature of human beings?
2. What is the normal blood pressure of human beings?
3. What is the normal pulse rate/ heart rate?
4. What is the expanded form of CBC?
5. What do KFT and LFT stand for?
6. How many are the principal types of blood groups?
7. What is the blood sugar or glucose level in normal human beings when measured at (i) random, (ii) on fasting, and (iii) two-hour post-prandial (two hours after a meal)?
8. What is the volume of blood in the body?
9. What is the normal body mass index (BMI)?
10. If the blood has high creatinine level, what does it show?
11. What is a lipid profile/ lipid panel/ cholesterol test?
12. What is meant by thyroid function tests (TFTs)?
13. What is the other name for vitamin C?
14. Which is the sunshine vitamin? Why is it so called?
15. What is the major role of iron?
16. Why are iron and folic acid supplements given to pregnant women?
17. What is a TT injection?
18. What is the normal vision/ visual acuity of human beings?
19. What is the least distance of distinct vision?
20. What is the normal range of eye pressure?
21. What is the normal middle ear pressure?
22. What is ringworm?
23. What is AQI?
24. What is PM 2.5 and why is it dangerous?
25. Why does milk not suit some people?
26. What causes skin warts?

ANSWERS:

1. An oral temperature (by mouth) of 98.6°F (37°C). The axillary temperature (temperature measured under the armpit) is at least a degree lower than the oral temperature.
2. 120 over 80 mm Hg. The systolic pressure is 120 and the diastolic pressure 80. The systolic blood pressure is the pressure in blood vessels when the heart beats. The diastolic blood pressure is the pressure in the blood vessels when the heart rests between beats.
3. An RHR (resting heart rate) of 60 to 100 beats per minute is considered normal.
4. Complete Blood Count.
5. KFT stands for Kidney Function Test and LFT for Liver Function Test.
6. Eight. The groups are A, B, AB and O; each can be Rh Positive or Negative.

7. (i) Random: 70–140 mg/dL, (ii) Fasting: less than 100 mg/dL, and (iii) Two-hour post-prandial: less than 140 mg/dL.
8. The volume of blood in an average human adult male, who is between 68-73 kg, is 4.7 to 5 litres. The volume of blood is roughly 7 % of the body weight.
9. The normal BMI is weight in kilograms divided by height squared in metres. According to the WHO a healthy adult BMI is between 18.5 and 25.
10. Kidneys are not functioning properly. Creatinine is a chemical waste generated from muscles, and the kidneys filter out creatinine from the blood and excrete it in the urine.
11. It is a blood test that measures total cholesterol, low-density lipoprotein (LDL) cholesterol (the bad cholesterol), high-density lipoprotein (HDL) cholesterol (the good cholesterol) and triglycerides.
12. The TFTs measure T4 (thyroxine) and TSH (thyroid-stimulating hormone) levels in the blood. A high level of T4 indicates an overactive thyroid (hyperthyroidism).
13. Ascorbic acid.
14. Vitamin D. Our skin contains the precursor (7-dehydrocholesterol) of vitamin D. When sunlight falls on the skin, the precursor gets converted to vitamin D₃. Vitamin D₃ then follows a metabolic pathway through the liver and finally to the kidneys, where it is converted into calcitriol, the active form. Vitamin D is required for the absorption of calcium and some other minerals.
15. The haemoglobin in red blood cells and the myoglobin in muscle cells together contain about 70 percent of the body's iron. Both haemoglobin and myoglobin are oxygen-binding proteins.
16. To prevent maternal anaemia, neural tube defects in the baby, low birth weight, preterm birth, and postpartum infections.
17. TT stands for Tetanus Toxoid. The tetanus vaccine is also referred to as TT.
18. The reference value above which the vision or visual acuity is considered normal is called 6/6 vision. This means that at a distance of 6 metres a normal human eye is able to separate contours that are approximately 1.75 mm apart.
19. The least distance of distinct vision is 25 cm.
20. The normal range is 12 to 21 mm Hg.
21. The normal middle ear pressure is between +50 to –150 dePa (mm water).
22. Ringworm is an infection of the skin caused by fungi.
23. AQI stands for Air Quality Index.
24. PM 2.5 stands for fine Particulate Matter equal to or less than 2.5 μm in diameter. Such particles can enter the lungs and even the blood stream.
25. They have lactose intolerance and cannot digest the milk sugar lactose properly. They produce too little of the enzyme lactase which degrades lactose.
26. Viruses belonging to the Human Papillomavirus (HPV) family.

Dr Janaki Subramanyan
Department of Botany

VigZest 2017



VigZest 2017, the Life Sciences Festival of Tricord, was held on Monday, 13 Feb 2017, in the Students' Activity Centre and Nescafe Lawns.

The Programme

Formal events

- **Frontiers in Research:** Paper Presentations by Faculty Members of Miranda House
The Presenters:
 - Dr Anshika Lumb:** Assistant Professor, Department of Chemistry
 - Dr Deepti Rawat:** Assistant Professor, Department of Chemistry
 - Dr Poonam:** Assistant Professor, Department of Chemistry
 - Dr Elangbam Geetanjali:** Assistant Professor, Department of Botany
 - Dr Deepali:** Assistant Professor, Department of Botany
 - Dr Simran Jit:** Assistant Professor, Department of Zoology
- **WordWar--**Debate on Euthanasia: A Good Death
- **Decipher--**Scientific Crossword
- **Quizzicus--** Quiz Competition

Informal events

- **Canvas Speaks:** T-shirt painting competition
- **The Pursuit:** Treasure hunt
- **Ball Toss:** Game
- **Sher-o-Shayari:** Game

Frontiers in Research: Paper Presentations by Faculty Members of Miranda House

Green Chemistry: Prerequisite for Sustainable Environment

Dr Anshika Lumb

Assistant Professor, Department of Chemistry, Miranda House, University of Delhi, Delhi 110007

Today, we are achieving advances in science, technology, health services, industrial developments, military research, media entertainment, tourism, urbanization, education and much more but at the cost of the environment. There is an exigent need to develop practices that will improve environment quality and conserve natural resources and energy, thereby building the sustainable environment for future generations.

Green chemistry is an area of chemistry and chemical engineering focused on designing products and processes that minimize the use and generation of hazardous substances. Now, we aim at developing technologies and revising the previous processes into green processes by replacing hazardous solvents with water, by using catalysts to fasten the chemical processes, and by reducing the side products as waste.

Exploring Antibacterial Activity of Green Synthesis of Metal Nanoparticles

Dr Deepti Rawat

Assistant Professor, Department of Chemistry, Miranda House, University of Delhi, Delhi 110007

With the advent of the modern era, a shift in emphasis on green chemistry is apparent with the desire to develop more environmental friendly routes to a myriad of materials. Assimilating the principles of green chemistry in nanoscience has drawn the attention of scientists across the globe because of striking difference in physical and optical characteristics as compared to their bulk counterparts. The main thrust is to synthesize zerovalent nanoparticles from environmentally benign methods that utilize non-toxic chemicals, environmental friendly solvents and renewable materials. Generally the synthesis of metal nanoparticles involves reduction of metal salts using reducing agents such as sodium borohydride, hydrazine, and so on, and stabilizing agents to prevent their agglomeration. The chemicals employed for synthesis of nanoparticles are toxic, expensive and environmental unfriendly. Thus there is paradigm shift from chemical synthesis to green synthesis that uses eco-friendly compounds as reducing agents. Bio-inspired methods have emerged as an

effective alternative to conventional methods for “green” synthesis of nanoparticles. Among them, plants have been exploited since ancient times because they possess various therapeutic compounds, which are being used as a traditional medicine. Due to its huge diversity, plants have been explored constantly for a wide range of applications in the field of pharmaceuticals, agriculture, and industry. Metal nanoparticles have been synthesized using plant extracts and their antibacterial applications have been explored.

Degradation of Atrazine under Milder Conditions Using Cobalt(II) Phthalocyanines as Catalyst

Dr Poonam

Assistant Professor, Department of Chemistry, Miranda House, University of Delhi, Delhi 110007

Degradation of highly persistent pesticides into environmentally compatible products has been a worldwide environmental challenge. The widespread use of pesticides has led to public health concerns, increased the resistance of pests against various pesticides, and resulted in the contamination of water, air and soil. Atrazine (2-chloro-4-ethylamino-6-isopropylamino-triazine) is used as a selective herbicide to control grasses and broadleaf weeds in rangelands, corn, sorghum and sugarcane crops. Atrazine is a well recognized recalcitrant pollutant due to its slow degradation by physico-chemical or biological methods. Metallophthalocyanines and metalloporphyrins have been used as a catalyst for a variety of eco-friendly reactions which are effective in transforming harmful environmental pollutants into biodegradable moieties. A series of functional metallophthalocyanines have been synthesized to study their role as a catalyst towards the reductive dechlorination of atrazine using sodium borohydride as a mild reducing agent.

Reference:

- Poonam, Ahmed, S., Kumari, P. & Chauhan, S. M. S. 2012. Reductive dechlorination of atrazine catalysed by metallophthalocyanines. *Tetrahedron Lett.*: 7083.

Screening of Algae for Carbon Sequestration

Dr Elangbam Geetanjali

Assistant Professor, Department of Botany, Miranda House, University of Delhi, Delhi 110007

Screening of microalgae for biological carbon sequestration is a tedious job and for this extensive work has been carried out to find suitable strains of algae which are tolerant to high concentration of carbon dioxide. Hence, attempts were undertaken to isolate microalgal strains from tropical areas which can withstand and utilize higher levels of

carbon dioxide from the atmosphere. More than 80 microalgal species were isolated from different agroclimatic conditions in India for this study. The samples contained mainly green algae, blue-green algae and diatoms. As compared to blue-green algae and diatoms, the number of green algal species was very high. When the selected isolates were subjected to various carbon dioxide concentrations (550 ppm, 1%, 4%, 12% and 15% CO₂), *Chlorella protothecoides* (Chlorellaceae, Chlorophyceae), *Chlorococcum granulosum* and *Scenedesmus obliquus* (Chlorococcaceae, Chlorophyceae) were found to be more suitable and more robust, when grown in different CO₂ concentrations, indicating that these microalgae can be used to capture the carbon dioxide produced by different power plants and automobiles.

Extraction and Purification of Biomolecules from Cyanobacteria

Dr Deepali

Assistant Professor, Department of Botany, Miranda House, University of Delhi, Delhi 110007

The emergence of elevated drug resistance among bacterial pathogens, led to a rapid expansion in natural product research. Non-exploration of microbial diversity especially the diverse photosynthetic oxygen-evolving cyanobacteria with its ability to produce unparalleled array of secondary metabolites has also induced interest to explore the little explored cyanobacteria especially the extreme habitat colonizing ones, i.e., the Antarctic cyanobacterium (*Nostoc* CCC 537). Because secondary metabolite production is a function of age and is generally produced in pre-stationary to stationary phase, 60-day-old cyanobacterium (according to growth rate) and *Enterobacter aerogenes* as the test strain were taken. The methanolic extract (intracellular biomolecules/ secondary metabolites) of lyophilized biomass was tested for its best activity in different solvents; methanol was superior to DMSO or water on the basis of inhibition zone size produced on the lawn of target bacterium.

Initial stage of purification of methanolic extract was TLC fractionation (two times in different solvent systems) and the subsequent UV-illumination. Each illuminated band was bioassayed for bioactivity. The most potent one was extracted in ethanol and further subjected to HPLC fractionation. Each fraction of HPLC was bioassayed for its bioactivity. The fraction with maximum activity was designated as the Active Principal/ antimicrobial entity.

As the production of secondary metabolites in cyanobacteria are regulated by environmental regimes, the increase in biomolecule(s) production by cultured cyanobacteria is likely to become an important strategy for improving the supply of biomolecules. In addition to the

biomolecules, the cyanobacteria also produce a broad spectrum of diverse structures of high quality and thus offer an immense pool of new potential bioactive agents.

Hexachlorocyclohexane (HCH): Contamination; Degradation; Toxicity and Bioremediation

Dr Simran Jit

Assistant Professor, Department of Zoology, Miranda House, University of Delhi, Delhi 110007

Lindane (γ -hexachlorocyclohexane, HCH) was historically among the most intensively produced and used pesticides in the world history. In the production of HCH eight isomers are formed with the following distribution: α - (60-70 %), β - (10-12 %), γ - (10-12 %), δ - (6-10 %), ϵ - (3-4 %) and η - and θ -HCH (<2 %). Based on the reaction stoichiometry (one ton production of Lindane generates 8 to 12 tons of HCH waste isomers), it is estimated that the total global usage of Lindane has resulted in 4 to 7 million tons of HCH waste. Extensive, sometimes indiscriminate and unregulated disposal practices have resulted in dumpsites. These act as reservoirs for the leaching of residues into all components of the environment. Consequently, residues of pesticides have been detected in popular soft drinks, vegetables, and drinking water.

A large number of bacterial strains especially Sphingomonads have been discovered that are capable of degrading HCH. The degradation pathway of only γ -HCH has been studied in detail while the genetics, and physiology of degradation of environmentally relevant, and persistent isomers: α -, β -, and δ -HCH are yet to be completely elucidated. Additionally although there are several reports on detection of α -, β -, γ -, and δ -HCH from environmental samples, reports on detection of HCH metabolites are rare, and inconclusive with respect to their amounts. Therefore, based on the current status of research on HCH metabolism, and lacunae in the understanding of HCH degradation pathways the present study was designed to monitor the extent of HCH contamination near one of the Lindane production units; detect hydroxylated metabolites of β -, and δ -HCH; assess their toxicity; and look for efficient HCH degrading Sphingomonads which can be used for decontamination of HCH soils.

A preliminary evaluation of contamination by HCH isomers, and their metabolites levels in soil, and water samples around the last operating Lindane manufacturing unit located in Ummari village, Lucknow (26°54' N and 81°4' E), was conducted. The Σ -HCH (sum of α -, and β -HCH) levels for the topsoil of the dumpsite reported in this study were between 10 and 10,000 times higher as compared to contamination levels reported from similar HCH deposits in other countries. Chromatographic methods developed for detection of hydroxylated metabolites of β -, and δ -HCH: PCHL (pentachlorocyclohexanol) (B1/D1), and TCDLs (tetrachlorocyclohexan-1,4-diol) (B2/D2), against a high background of HCH residues. Using the developed method, hydroxylated metabolites of β -HCH, the B1, and B2 were detected from all soil samples. The terminal hydroxylated metabolites for β -, and δ -

HCH degradation, the B2, and D2 were tested for their general effects on cellular metabolism by Microtox assay, and affinity for human endocrine response element (hRE) by Yeast Estrogen Screen (YES) assay. Similar to *Sphingobium indicum* B90A, six novel Sphingomonads strains isolated from the investigated HCH dumpsite were found to metabolize β -HCH to B2. Therefore, these strains are also expected to metabolize δ -HCH to D2. Thus, these strains can replace *S. indicum* B90A for bioaugmentation of HCH contaminated sites.

Competitions Held by Tricord

- **Poster Making Competition on the topic Microbes in Waste Management (08 September 2016)**

The Winners

S. No.	Name of student	Course	Year	College	Position
1	Saroj Sharma	B Sc Life Sciences	III Year	Miranda House	I
2	Smriti Suri	B Sc Life Sciences	III Year	Miranda House	II
3	Karuna Sharma	B Sc (Hons) Botany	III Year	Miranda House	III

The Judges:

Dr Bani Roy, Department of Chemistry, Miranda House

Dr Richa Misra, Department of Zoology, Miranda House

- **WordWar, Debate on the topic Euthanasia: A Good Death (VigZest 2017 on 13 February 2017)**

The Winners

S. No.	Name of Student	Course	Year	College	Position
FOR THE MOTION					
1	Muskan Sahdev	B A (Hons) English	I Year	Deshbandhu College	I
2	Risha Bora	B Sc (Hons) Botany	I Year	Deshbandhu College	II
AGAINST THE MOTION					
3	Ranu Sancheti	Bachelors in Journalism & Mass Communication	II Year	Amity University	I
4	Sonal	B A (Hons) History	I Year	Deshbandhu College	II
Best Interjector					
5	Damya Srivastava	B Sc (Hons) Botany	II Year	Dyal Singh College	I

The Judges:

Dr Somdutta Sinha Roy, Department of Botany, Miranda House

Dr Richa Misra, Department of Zoology, Miranda House



DECIPHER

THE CROSSWORD
COMPETITION OF VIGZEST'17

**Decrypt, decode and
discover your path to
victory through the
scientific crossword**

Register for Decipher at the
link: [https://goo.gl/forms/duTAeJhkDhj9ucC
G2](https://goo.gl/forms/duTAeJhkDhj9ucC G2)

DATE: 13th February, 2017
TIME: 1 pm to 2:30 pm
VENUE: STUDENT ACTIVITY CENTRE,
MIRANDA HOUSE

WORDWAR

THE DEBATE COMPETITION OF
VIGZEST'17

TOPIC : "EUTHANASIA -
A GOOD DEATH"

To be a part of the hottest altercation of the season, register for Wordwar at the link:
<https://goo.gl/forms/cVLftAm7pvGDvCPl1>

DATE: 13th February, 2017
TIME: 1 pm to 2:30 pm
VENUE: STUDENT ACTIVITY CENTRE,
MIRANDA HOUSE



VIGZEST '17

The Annual Festival of
TRICORD
THE LIFE SCIENCES SOCIETY OF MIRANDA HOUSE

Main Events	Other Events
FRONTIERS IN RESEARCH* Paper presentations by faculty members	CANVAS SPEAKS (T-shirt painting competition)
DECIPHER (Crossword Competition)	THE PURSUIT (Treasure Hunt)
QUIZZICUS (Quiz Competition)	BALL TOSS (Game)
WORD WAR (Debate)	SHER-O-SHAYARI (Game)
Aptitude test	

★ 13th FEBRUARY, MIRANDA HOUSE ★
Attractive gifts and prizes to be won! NO REGISTRATION FEES! All necessary prizes will be awarded through on-campus bank transfers.

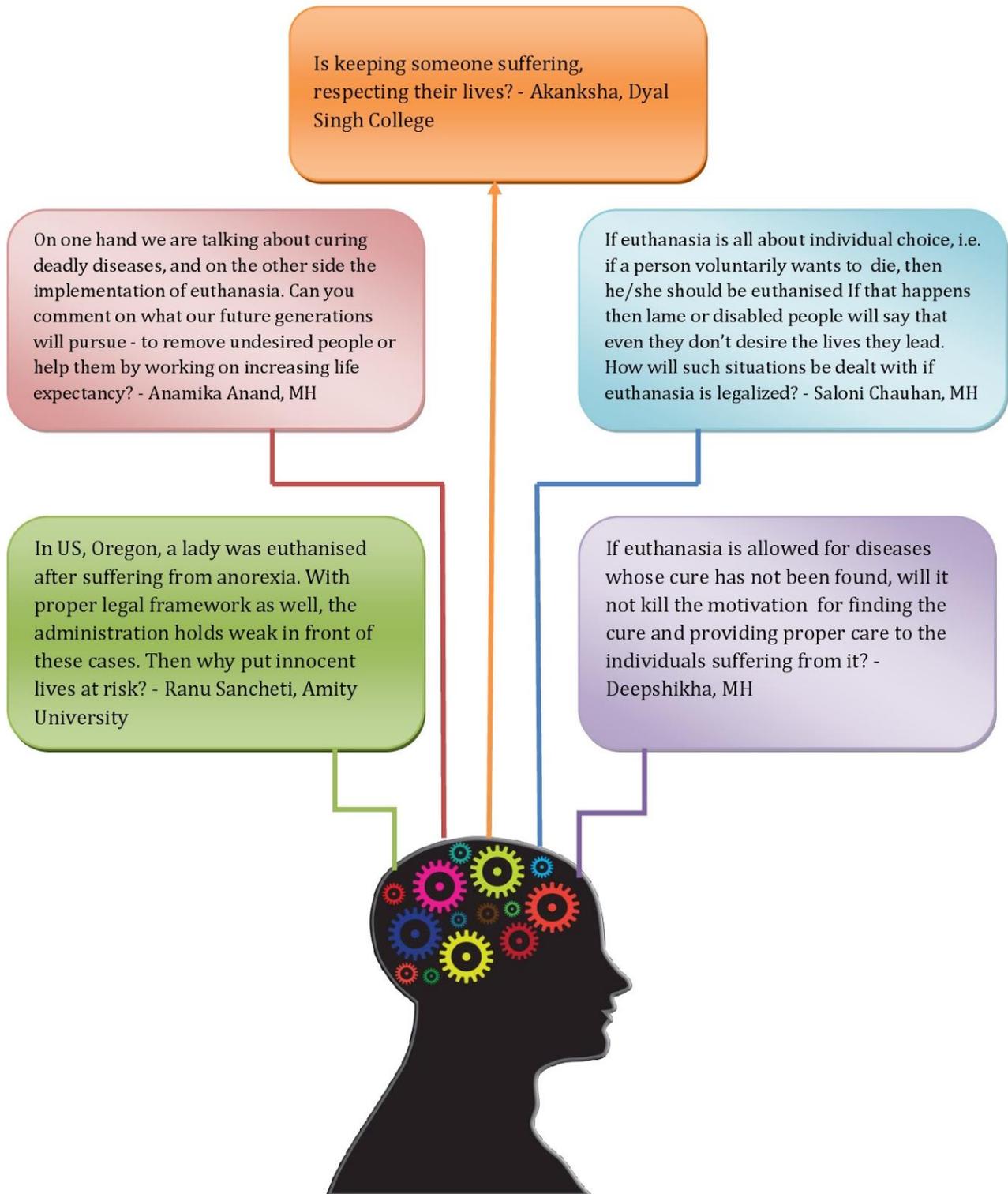
Staff Advisors, VigZest 2017 :-
 Dr. Janaki Subramanyan (Botany Department)
 Dr. Deepthi Rawat (Chemistry Department)
 Dr. Rekha Kumari and Dr. Richa Misra (Zoology Department)

Union Members/ Event Coordinators :-
 Shaiza Suhail (President) 8587869986
 Prerna Mudal (General Secretary) 9560198392
 Sukanya David (Cultural Secretary) 9910860489

TITLE SPONSORS:
 CO-PRESENTERS:

Merchandise Partners:

THE BEST INTERJECTIONS



- **Decipher, The Crossword Competition- Three rounds, one each of Chemistry, Botany and Zoology (VigZest 2017 on 13 February 2017)**

The Winners

S.No	Name of student	Course	Year	College	Position
1	Anita	B Sc (Hons) Botany	III Year	Miranda House	I (Botany)
2	Swati Jain	B Sc (Hons) Chemistry	II Year	Miranda House	I (Chemistry)
3	Radhika Singh	B Sc Life Sciences	III Year	Miranda House	I (Zoology)



CROSSWORDS OF THE DECIPHER COMPETITION OF VIGZEST 2017

1.Botany:

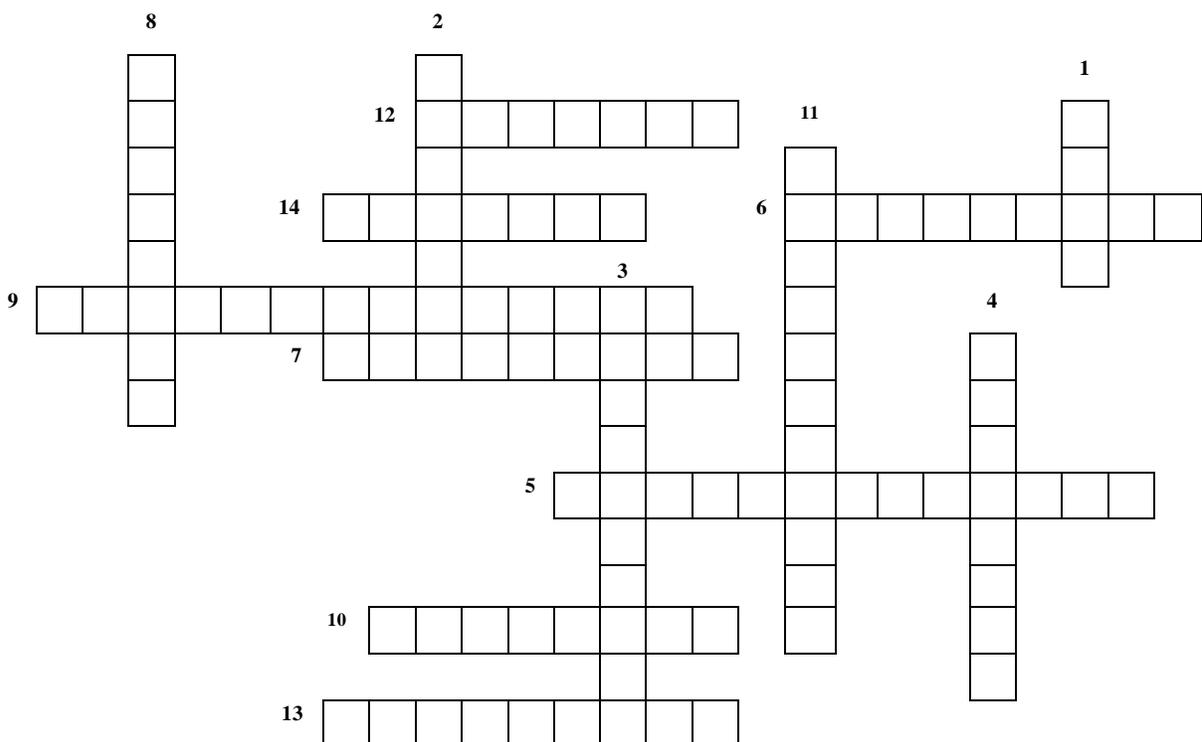
ACROSS:

5. The chloroplast is cup shaped in this alga.
6. They are also involved in gaseous exchange apart from stomata.
7. The chief water-conducting cells of xylem in gymnosperms.
9. Two free ribonucleotide units are linked by this bond.
10. The botanical name of peat moss.
12. Proteins that speed up biochemical reactions.
13. Unit membrane that bounds a vacuole.
14. Grape sugar.

DOWN:

1. The common name of *Azadirachta indica*.
2. The tallest living plant.

3. The scientific name of the plant that is often called the Terror of Bengal.
4. The cell organelle having digestive enzymes.
8. The site of formation of starch in algae.
11. Process due to which shrinkage of cell's protoplasm occurs.



Perna Mudai
B Sc Life Sciences II Year

2. Chemistry:

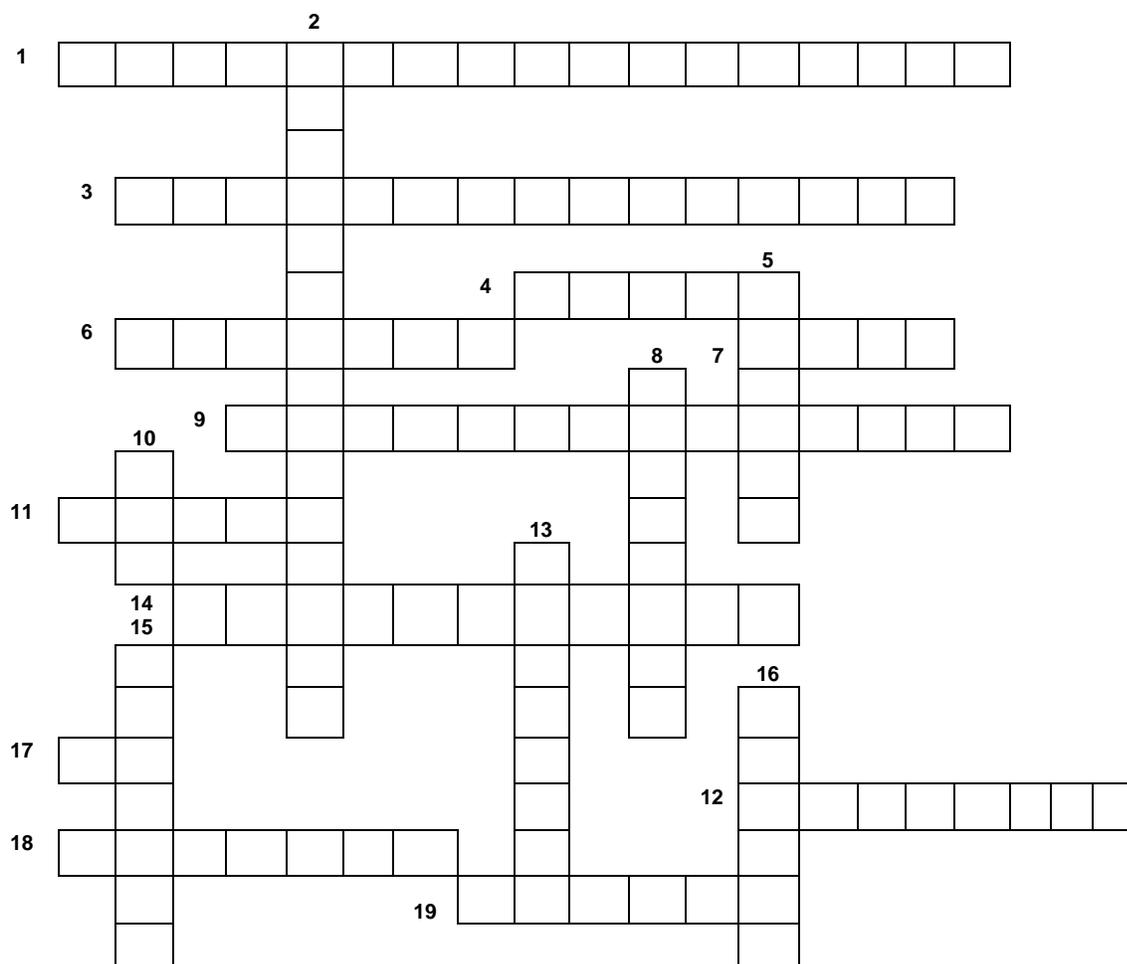
ACROSS:

1. Tendency of an atom in a bonded molecule to attract the electron density toward itself.
3. Indicator used in the titration between NaOH and HCl.
4. Opposite of cathode.
6. Part of the atom that has no charge but has mass.
7. In endothermic reaction the system gains heat from the surroundings, true or false.
9. Type of titration used to estimate the strength of magnesium using disodium salt of EDTA.
11. Scientist who lends his name to free energy change.
12. The most electronegative element in the periodic table.
14. Process by which a liquid is converted into gas.

17. The suffix used for aldehyde in nomenclature.
18. Simplest organic aromatic compound.
19. He thought of the ring structure of benzene

DOWN:

2. High energy state formed as a result of the successful collision between reactants.
5. A molecule of this compound has two carbon and four hydrogen atoms.
8. Number of moles of solute dissolved in one litre of solvent.
10. Opposite of trans in organic compounds.
13. The time in which the concentration of reactant falls to half of its original value.
15. The reagent which gives silver mirror with aldehyde.
16. A solution which resist change in its pH on addition of hydrogen ions and hydroxide ions.



Dr Malti Sharma
Department of Chemistry

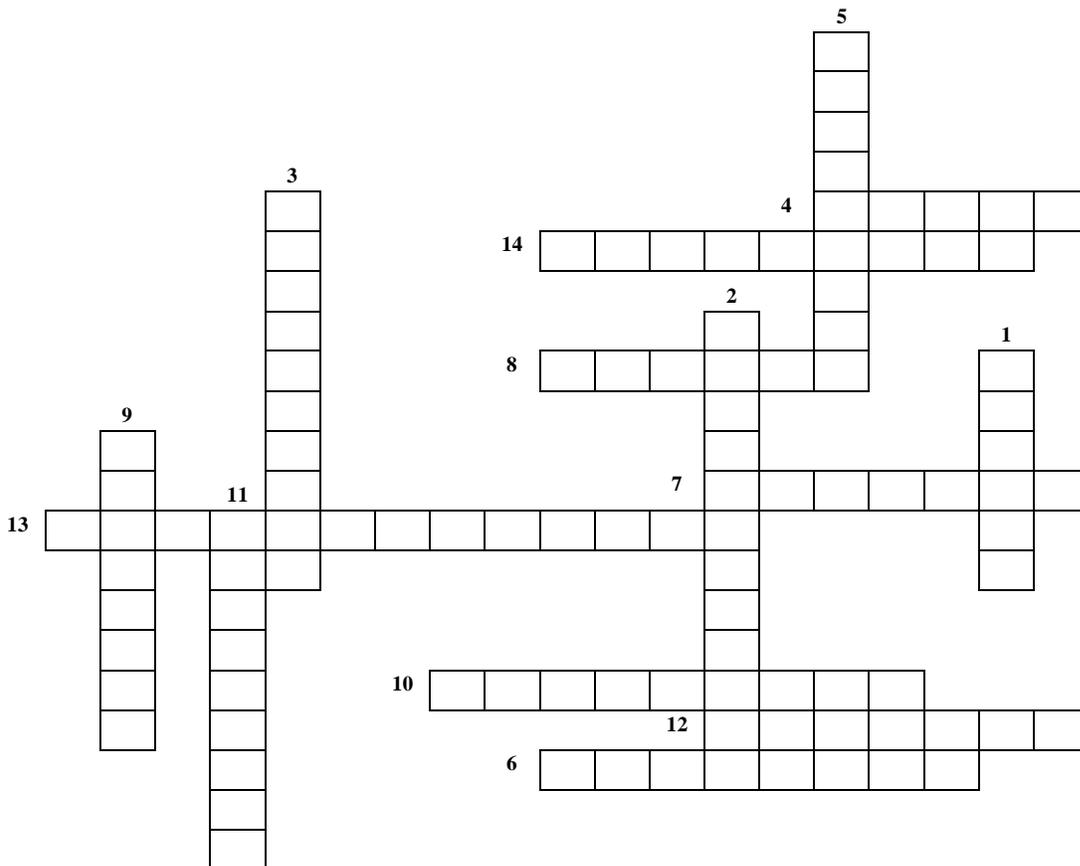
3. Zoology:

ACROSS:

4. A chemical test used to diagnose typhoid.
6. Era of the dinosaurs.
7. Process of producing genetically identical individuals.
8. Complete set of genetic material present in a cell.
10. Secretion of mast cells.
12. Secretion of beta cells of pancreas.
13. The study of fossils.
14. Cell cycle stage used for karyotyping.

DOWN:

1. Body part lacking red blood cells.
2. Rise in RBC count.
3. A close living relative of humans.
5. Largest known vertebrate.
9. An egg-laying mammal.
11. Secretion of Leydig cells.



ANSWERS TO THE DECIPHER COMPETITION OF CROSSWORDS

1. Botany

DOWN: 1. Neem; 2. *Sequoia*
3. *Eichhornia*; 4. Lysosome
8. Pyrenoid; 11. Plasmolysis

ACROSS: 5. *Chlamydomonas*; 6. Lenticels;
7. Tracheids; 9. Phosphodiester;
10. *Sphagnum*; 12. Enzymes;
13. Tonoplast; 14. Glucose.

2. Chemistry

DOWN: 2. Transition state; 5. Ethene;
8. Molarity; 10. Cis
13. Half life; 15. Tollens
16. Buffer

ACROSS: 1. Electronegativity;
3. Phenolphthalein; 4. Anode;
6. Neutron; 7. True;
9. Complexometric; 11. Gibbs
12. Fluorine; 14. Evaporation
17. Al; 18. Benzene; 19. Kekule.

3. Zoology

DOWN: 1. Cornea; 2. Polycythemia
3. Chimpanzee; 5. Blue whale
9. Platypus; 11. Androgens

ACROSS: 4. Widal; 6. Jurassic; 7. Cloning
8. Genome; 10. Histamine
12. Insulin; 13. Palaeontology
14. Metaphase.

- **Quizzicus, Quiz Competition (VigZest 2017 on 13 February 2017)**

The Winners

S.No.	Name of student	Course	Year	College	Position
1	Jignesh.M.E.	B Sc (Hons) Botany	I Year	Ramjas College	I
2	Damya Srivastava	B Sc (Hons) Botany	II Year	Dyal Singh College	II
3	Ayushi	B A Programme		Miranda House	III

QUIZ OF THE QUIZZICUS COMPETITION OF VIGZEST 2017

A Quiz on Health and Hygiene

1. The normal human body temperature in degree Fahrenheit is
 - a. 98.6
 - b. 98.0
 - c. 99.0
 - d. 98.2

2. What is the single most effective way to prevent the transmission of diseases?
 - a. Antibiotics
 - b. Washing hands
 - c. Avoiding contact with the patient
 - d. All of the above

3. What is added to water to prevent tooth decay?
 - a. Chlorine
 - b. Fluoride
 - c. Sugar
 - d. None of these

4. A bacterium which causes serious food poisoning
 - a. *Escherichia coli*
 - b. *Rhizobium leguminosarum*
 - c. *Clostridium botulinum*
 - d. *Bacillus subtilis*

5. What is the normal blood pressure in human beings?
 - a. 120/80
 - b. 140/ 90
 - c. 100/ 80
 - d. 90/ 60

6. Which one of the following, acts like a fuel in driving the body?
 - a. Carbohydrates
 - b. Vitamin
 - c. Fats
 - d. Water

7. Dengue causes fever, headache and joint pain, and a
 - a. Low neutrophil count
 - b. Low eosinophil count
 - c. Low platelet count
 - d. Low RBC count

8. Which of the following powers do Environmental Health Officers not have?
 - a. Authority to close down premises
 - b. The power to arrest
 - c. Authority to enter premises without appointment
 - d. The power to seize food

9. Which of the following food manufacturing company was in a legal suit regarding the ingredient Monosodium Glutamate in their popular product?
 - a. Patanjali
 - b. Nestle
 - c. Britannia
 - d. Haldiram's

10. Which African country out of the following did not have a major Ebola outbreak in 2016?
 - a. Liberia
 - b. Sierra Leone
 - c. Guinea
 - d. Ghana

11. A major illness caused due to non-availability of sanitation facilities?
 - a. Measles
 - b. Ricketts
 - c. Diarrhea
 - d. Common cold

12. Trans fats are bad for the health because
 - a. They increase bad cholesterol (LDL) levels
 - b. They decrease good cholesterol (HDL) levels
 - c. They increase the risk of heart disease and stroke
 - d. All of the above

13. Which plasmodium is the most serious form and can be fatal?
- Plasmodium falciparum*
 - Plasmodium ovale*
 - Plasmodium malariae*
 - Plasmodium vivax*
14. Metastasis is the most feared property of which kind of tumor?
- Benign tumor
 - Non-cancerous tumor
 - Malignant tumor
 - Premalignant tumor
15. Which one of the following is the causal organism of elephantiasis?
- Ascaris lumbricoides*
 - Onchocerca volvulus*
 - Trichinella spiralis*
 - Wuchereria bancrofti*
16. Who amongst the following developed a vaccine against Polio?
- Alexander Fleming
 - Jonas Salk
 - Louis Pasteur
 - Pablo DT Valenzuela
17. National Immunization Day 2017 in India was observed on
- 6th February
 - 15th January
 - 29th January
 - 8th January
18. Which is the best type of waste bin to use in a kitchen?
- A black bin bag
 - A foot operated bin with a lid
 - An old cardboard box
 - Open dustbin with polythene lining
19. Which fruit is rich in potassium?
- Banana

- b. Orange
- c. Pear
- d. Mango

20. According to the WHO, health is defined as a state of complete

- a. Physical well being
- b. Mental and social well being
- c. Both a and b
- d. None

ANSWERS TO QUIZZICUS

1. a 2. b 3. b 4. c 5. a 6. a 7. c 8. b 9. b 10. d 11. c 12. d
 13. a 14. c 15. d 16. b 17. c 18. b 19. a 20. c

Purna Mudai
B Sc Life Sciences II Year

- **Canvas Speaks, The T-shirt Painting Competition on The Changing Face of the Earth (VigZest 2017 on 13 February 2017)**

The Winners

S. No	Name of student	Course	Year	College	Position
1	Anisha Mukherjee	B Sc (Hons) Mathematics	I Year	Miranda House	I
2	Haidam	B A (Hons) English	III Year	Miranda House	II
3	Rajiv	Bachelor of Fine Arts (Painting)		College of Arts	III

The Judges:

Staff Advisors, Tricord



Our Sincere Thanks to Our Sponsors

For VigZest 2017

- Endeavor Careers
- Union Bank of India
- Deep Institute
- Careers 360- The Education Hub
- Grabooks

For the Inaugural Function

- Chem Academy

Achievements of Our Students

S. No.	Name of student	Year	Competition	Achievement
1	Neha Mehlawat	II	Science Quest	Participation. The team secured III position.
			Baseline Test in Biology 2016, D S Kothari Centre for Research and Innovation in Science Education	II position. Received the Certificate of Appreciation.
2	Anamika Anand	II	Slide Making Competition Koshika 2017	II position
			MIMAMSA, quiz of IISER Pune, held at IIT Delhi	Participation as a team member
3	Harshi Gupta	II	Antaragni IIT Kanpur Prelim modern art competition	I position
			Antaragni IIT Kanpur (Quilling)	Participation
4	Smriti Mishra	I	Freshers' talent hunt (Dramatics)	II position
			MIMAMSA, quiz of IISER Pune, held at IIT Delhi	Participation as a team member

**Ariba Aziz, B Sc Life Sciences II Year
& Pratika Dhussa, B Sc Life Sciences I Year**

Active Members of College Societies

S. No.	Name of student	Year	Society	Position
1	Radhika Singh	III	Adwitiya- The Fine Arts Society	President
2	Aarushi Maitrey	II	Enactus- Project: Daryaft	Co Project Head & HR Head
3	Prerna Mudai	II	Enactus- Project: Daryaft	Project Head till February 2017
4	Kanishka Malik	II	Enactus- Project: Daryaft	Member
5	Tannu Ruhil	II	SPIC MACAY	Member
6	Harshi Gupta	II	Adwitiya- The Fine Arts Society	Member
7	Malika Saini	I	Enactus	Social media head

**Ariba Aziz, B Sc Life Sciences II Year
& Pratika Dhussa, B Sc Life Sciences I Year**

Annual Report for 2016-17

Our Office Bearers

- Shaiza Suhail, III year, President
- Purna Mudai, II year, General Secretary
- Sukanya David, II year, Cultural Secretary
- Smriti Suri, III year, Treasurer
- Neha Sachan, III year, Class Representative
- Ariba Aziz, II year, Class Representative
- Pratika Dhussa, I year, Class Representative

Editorial Board Members

- Purna Mudai, II year
- Pratika Dhussa, I year
- Smriti Mishra, I year

List of Cultural and Educational Programmes Organized

- Vignite 2016, the magazine of the Life Sciences Society: Tricord, was brought out and distributed to the current II and III year students.
- The Freshers' welcome was organized on 26 August 2016, and the Farewell Party on 13 April 2017.
- Poster-making competition on Microbes in Waste Management was held on 08 September 2016.
- Inaugural lecture by Prof. V C Kalia, Chief Scientist, Institute of Genomics and Integrative Biology, Delhi, was organized on 15 September 2016. He spoke on Novel Opportunities for Exploiting Biodiesel Industrial Effluent for Generating Bioenergy and Bioplastics.
- Annual Festival VigZest was organized on 13 February 2017: Frontiers in Research: Paper Presentations by Faculty Members of Miranda House, Scientific Crossword (Botany, Zoology and Chemistry), Debate on Euthanasia - A Good Death, Quiz on Health and Hygiene, and Aptitude Test by Endeavour Careers. Additionally T-shirt painting, treasure hunt and two games were also organized.
- An educational trip to Neela Hauz Biodiversity Park was organized on 29 March 2017. Students of I and III year went for the trip.

List of Visitors/ Speakers Invited

- Mrs Alpana Rustogi, college counsellor, held a Collective Counselling Session for III year students on 31 August 2016.
- The inaugural lecture was delivered by Prof. V C Kalia on 15 September 2016.

- In Frontiers in Research during VigZest 2017 six young faculty members of the college were invited, namely Dr Anshika Lumb, Dr Deepti Rawat and Dr Poonam of the Department of Chemistry; Dr Elangbam Geetanjali and Dr Deepali of the Department of Botany; and Dr Simran Jit of the Department of Zoology, to present their research work.
- A counseling session was organized on 22 February 2017. Mr Dhruvjyoti Banik, Core Faculty for Mathematics, Endeavor Careers, spoke on MS v/s MBA. Let's Help You Choose.

Students' Participation

- On 30 July 2016, two students of II year participated in the Prime Minister's meeting with students at IG stadium.
- Seven students from II and III year went to the Indian National Science Academy on 27 August 2016 for the release of the Festschrift Volume in honour of Prof. M G K Menon, and joint function of Prof. M G K Menon Lecture Award (2016) to Prof. P N Tandon and Prof. M G K Menon lecture (2015) by Prof. Balram Bhargava.
- Many students went for the India Today Youth Summit on 17 September 2016.
- First year students participated in the Bridge Course on Basic Laboratory Techniques, organized by the Department of Botany and the D S Kothari Centre for Research and Innovation in Science Education, Miranda House, during 05-06 September 2016.
- On 12 January 2017 eight I year students went for the Nobel Media moderated session with Nobel Laureates at Nehru Memorial Museum and Library on the theme "Strengthening ties between science, government and industry – a recipe for innovation?" The participating Nobel Laureates were William E Moerner, Nobel Prize in Chemistry 2014 "for the development of super-resolved fluorescence microscopy", Harold E Varmus, Nobel Prize in Physiology or Medicine 1989 for the "discovery of the cellular origin of retroviral oncogenes" and Serge Haroche, Nobel Prize in Physics 2012 for "ground-breaking experimental methods that enable measuring and manipulation of individual quantum systems". The session was moderated by Mattias Fyrenius, CEO Nobel Media.
- Five II year students participated in a Seminar on Women Leadership in Science and Technologies: Opportunity and Challenges, on the occasion of International Women's Day. The seminar was organized by Vigyan Prasar and the Department of Biotechnology at the Indian National Science Academy on 08-09 March 2017.

Awards Won

- Neha Mehlawat of II year secured the II position in the Baseline Test 2016 for Biology conducted by the D S Kothari Centre for Research and Innovation in Science Education, Miranda House. She gave a presentation on Swarm Intelligence and has received the Certificate of Appreciation.

- Neha Mehlawat of II year was selected as a team member of Science Quest. The college team stood third in the University.

The inaugural lecture was followed by giving books as prizes to the toppers. The following were the prize-winners.

1. Payal Singh for securing the highest marks in Semesters I to IV (2014-16)
2. Neha Sachan for securing the highest marks in Semester III + IV (2015-16)
3. Sonia Kangjam for securing the highest marks in Semester III (2015-16)
4. Neha Sachan for securing the highest marks in Semester IV (2015-16)
5. Preeti Yadav for securing the highest marks in Semesters I + II (2015-16)
6. Shambhavi Dwivedi for securing the second highest marks in Semesters I + II (2015-16)

DU Innovation Projects

- Shaiza Suhail and Smriti Suri of III year were student members in the project Sugarcane to Nanoparticles: Green Technology the Future (MH 310).
- Rashmi and Sonali Awasthi of II year are members in the DU Star Innovation Project Eureka! MyLab Developing Resources and Hands-on Science Activities and an Adaptation Accessible for Visually Impaired (MH 01).

Summer Internships

- Many students participated as summer interns at the D S Kothari Centre for Research and Innovation in Science Education, Miranda House, during 2016.
- Shaiza Suhail of III year did a summer training at the Cluster Innovation Centre, University of Delhi, in 2016, on the topic Phylogeny of the Bacterium *Campylobacter jejuni* (membrane proteins involved in pathogenesis).

Fellowships

- Shaiza Suhail of III year has been selected for Teach for India, a teaching fellowship programme of Teach for All Network, an NGO, for a period of two years.

Dr Janaki Subramanyan
Coordinator
B Sc Life Sciences

Our Office Bearers



Shaiza Suhail
President



Smriti Suri
Treasurer



Prerna Mudai
General Secretary



Sukanya David
Cultural Secretary



Neha
Class Representative (III Yr.)



Ariba Aziz
Class Representative (II Yr.)



Pratika Dhussa
Class Representative (I Yr.)

THE TRICORD MEMBERS



Departmental Farewell 2017



VigZest 2017



Winners of Poster Making Competition



Winners of T-shirt Making Competition