

Sonali Garg: 1st Year

# MESSAGE FROM THE PRINCIPAL



I am gratified to know that the department of chemistry is bringing out the fifth issue of their magazine "Equilibrium" for this academic year 2018-2019. This is a productive material and subsidiary skill developing tool for the students. I also applaud the coordination and efforts behind the team of students and teachers to bring out this issue.

I wish all my students a big success in life ahead.

Keep up the good work.

Dr. Rama

### MESSAGE FROM TEACHER IN-CHARGE



It gives me immense pleasure to see the fifth edition of our departmental magazine "Equilibrium". An enormous amount of team effort involving both teachers and students has gone into shaping this issue. "Equilibrium" is an important value addition to the intellectual development and will benefit the academic community at large. It provides a platform where teachers and students can exchange view points and collaborate on ideas which would normally be difficult to accommodate within the traditional academic environment. The Contents of the magazine reflect the

wonderful creativity of thoughts and imagination of our students and teachers.

I extend my warm wishes to all my Colleagues and students to continue this journey on the road of excellence.

Dr. Monica Dinodia

### MESSAGE FROM THE CONVENER

Good things remain good only because they are always scarce. I am glad to pen for this wonderful magazine as an appreciation of the commendable efforts

put forth by the team. This magazine brings the students and teachers of chemistry department on a common platform to share and display their idea and creative talents.

Through this message I wish all my students "All the very best" for their future endeavors and hope students of chemistry department bring more laurels to the college on the whole.

Best Wishes,



Dr. Taruna Singh

### PRESIDENT'S NOTE

# **Shammy Suraj President**



During my time in Hansraj, I've learnt "Knowledge comes from work and experiences". On my arrival, I was quite nervous as the pace of this city was much faster than the streets I come from.

This year I had the honor of becoming the president of Rasayanatva – The Chemical Society of Hansraj College. Leading the team was a totally different yet enriching experience.

As Spiderman once said, "With great power comes great responsibility". I realized how true this was when we started working on our magazine "Equilibrium". The

journey of collecting articles, poems and research work in the field of chemistry was quite exciting and challenging. It was even more difficult to create an equilibrium between interest and information. This is a result of pure hard work and I hope everyone likes it.

This note wouldn't be complete without thanking my teachers, juniors and all my dear friends for all those unforgettable moments and this lovely chemical family so close to my heart that it makes saying goodbye the hardest.

#### **Deepika Meena Vice President**

"We didn't realize we were making memories; we just knew we were having fun." – This is how the last 3 years flew away. It just seems like yesterday that we stepped into this college with butterflies in our stomachs and thinking about our lives ahead. Being an active participant in all the department's events only

made me a better and confident person.

Taking up the responsibility as the Vice President of Rasayanatva, The Chemical Society wasn't an easy task at all but with the support of all the teachers and fellow students made it feel like a cake walk. It was no less than a blessing to be part of the Chemistry Department.

The department has provided me with a lot of skills and values which I will cherish for a lifetime. It has given me my biggest assets: knowledge and family (DRAPS) and I will always be thankful.

#### EDITORS' NOTE



Always question and wonder for Science is a way of thinking much more than it is a body of knowledge. Thinking enhances one's creativity, emotions and perception. This is what 'Equilibrium' encourages its readers to practice. Through the means of this magazine, the readers will get an insight into the Chemistry Department of Hansraj College and gain knowledge in the field of Chemistry all while having a lot of fun and laughs.

It was undoubtedly an arduous task to edit this magazine for it is the V issue and we had some big shoes to fill. We gave our best in order to exceed everybody's expectations and raise the bar for upcoming issues of 'Equilibrium'. This would have not been possible without the assiduous support of the teachers and students of the Chemistry Department and we are thankful to each one of them.

With all new creativity and passion, we're ready to bring out a yet new riveting and enthralling version of our magazine, 'Equilibrium'. We hope it'll be a great and admirable journey for all the readers to go through the zealous write-ups of the students as well as teachers.

Warm Regards, Aadya Jaipuria, 2<sup>nd</sup> Year Shambhvee Pandey, 2<sup>nd</sup> Year

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# FACULTY PHOTO



Left to Right:

**Sitting**: Dr. Monica Dinodia, Dr. Anjali Saxena, Dr. Ranjana Rastogi, Dr. Renu Parashar, Dr. Shampa Bhattacharya, Dr. Pratibha Pandey, Dr. Taruna Singh, Dr. Chetna Gupta, Dr. Parul Pant.

**Standing:** Dr. Indrani, Dr. Shweta Rastogi, Dr. Nidhi Rawat, Dr. Himanshu, Dr. Sunita Gulia, Mr. Hari Mohan Meena, Dr. Shailendra Kumar Singh, Dr. Amit Rawat, Mr. Sonu, Dr. Manoj Kumar, Mr. Satish Chand, Mr. Surendra, Dr. Brijesh Rathi

Camera Shy: Dr. Aparna Garg, Dr. Jyoti Singh, Dr. Ambika, Dr. Yogesh Dixit, Dr. Arun Kant

# NON-TEACHING STAFF



Left to right:

**Sitting:** Mr. Sunil, Mr. Sandeep, Mr. Subhash, Mr. Ritesh Kumar Meena, Dr. Monica Dinodia(faculty), Mrs. Kamla Rani, Mrs. Poonam Vasudheva.

**Standing:** Mr. Tulsi Das, Mr. Ramesh Kumar, Mr. Rohit, Mr. Radhey Kumar Meena, Mr. Balram, Mr. Sunil Arya, Mohammad Usman.

Camera Shy: Mr. Vinay Sharma, Mr. Liyakt Ali, Mr. Vinay, Mr. Manoj.

## OFFICE BEARERS



Left to Right:

**Sitting:** Priya Raj (Council Member), Sonali Garg (Council Member), Dr. Taruna Singh (Convener), Satyam Kumar (Treasurer), Ankush Paul (Joint Secretary)

**Standing:** Devanshu Mishra (Council Member), Shambhvee Pandey (General Secretary), Shammy Suraj (President), Deepika Meena (Vice-President), Aadya Jaipuria (Council Member)

# 3rd Year



#### Left to right:

I Row: Soni Raghav, Aanchal Grover, Deepika, Sapna, Tanya Gupta, Shama Parveen, K M Anupam Singh, Anju Yadav, Rashmi Yadav, Shraddha Bhatia, Sheetal Chawla, Pranjal Tyagi, Shreya Goel,Rashi Arora, Shristi, Manish Kumar Paswan, Shammy Suraj

II Row: Kashish Kalra, Dimple, Ingit Patel, Sonu Kumar Verma, Akanksha, Shubham Saini, Deepika Meena, Rinku, Palak, Ayush Vishnoi, Rakshita Jain, Akash, Rahul Kumar Gupta, Ajay Kumar, Ankush Goyal, Nitin Kumar, Dhiraj

III Row: Muhammed Rabeeh CP, Hari Krishnan UG, Anuj Sharma, Chirag Kapoor, Amresh, Just Doimary, Mukul Kumar, Harendra Singh, Rajat Bharti, AdityaJangid, Vinod Kumar, Gagandeep, Animesh Banerjee, Rishabh Phatak, Arun Kumar

# 2<sup>nd</sup> Year



Left to right:

I Row: Aadya Jaipuria, Suman Sourav, Shivani Gupta, Bhavya Babuta, Nikita Raj, Anjali Mangla, Ahinsa Jain, Himanshu Rajput, Asif Ali, Atul Yadav, Vipin Saini, Raneesh Jafar, Paras Meena, Satyam Kumar

II Row: Nivedita Das, Avani Sahu, Shruti Aggarwal, Komal Mavi, Aakriti Gupta, Aman Bansal, Ashish Chaturvedi, Vinay Kaushal, Mohnish, Gaurav, Aman Rana, Rishaan, Shambhvee Pandey

III Row: Akriti Sankhwar, Akanksha Rao, Ishika, Phalguni Bisht, Yashasvi Srivastava, Nikki Mittal, Kratika Garg, Shikha Mehta, Vivek Kumar, Parvesh Bansal, Vivek Chauhan, Azad Saini, Devanshu Mishra, Bhoopendra Singh

IV Row: Rahul Kumar, Rohit Yadav, Amar kumar, Vaibhav Dixit, Chandan Gupta, Manit Gill, Mahendra Narwariya, Anand Jain, Ajit Pratap Singh, Dixit Chouhan, Imdadul Islam

# 1st Year



Left to right:

I Row: Manisha Meena, Ankush Paul, Yukta Singh, Sonali Garg, Sonu Jajam, Shruti Jain, Mansi Sharma, Ishika Dhanwani, Nishita Bhardwaj, Namrata Goyal, Deepika Gupta, Priyanka Jangid, Roshani, Satakshi Butola

II Row: Amisha Bansal, Rishika, Priya Raj, Yamini Nirwan, Anjali Malik, Meenakshi, Anjali Maurya, Ritika, Nikita Meena, Sagar Pal, Karan Asnani, Shipra Chauhan, Diksha Rana, Prateek Gondwal, Anirban Phukan

III Row: Uttam Singh Yadav, Mohit, Raman, Rohit, Himanshu, Sonu, Prashant Singh Rajpoot, Pankaj, Ayush Rana, Ashish Goyal, Salam Chandragit, Arvind Kumar, Nancy Verma

IV Row: Vasu Mittal, Sarthak Kaushik, Tushar Sharma, Prateek Jain, Abhishek Saini, Deepak, Neeraj Nayak, Ankit, Ayush, Sanyam Choudhary, Rajeshwar Singh, Vivek Sharma

## **BIDDING ADIEU**

The farewell of the Chemistry department for the class of 2018 was held on April 11th, 2018 in the college auditorium. The event was organized and managed by Rasayanatva, The Chemical Society of Hansraj College under the guidance of Dr Shweta Rastogi.

The farewell began with the lighting of the lamp by the Dr Rama and the teachers followed by an enthusiastic speech by Dr Rama (Principal) and Dr Chetna Gupta (HOD). The fourth issue of 'Equilibrium', the annual departmental magazine was inaugurated and hence began a series of informal events in which all the students of the outgoing batch participated with full enthusiasm. These were interspersed with music and dance performances by the extremely talented students from all the 3 years. Titles such as 'Mr/Ms Farewell' and 'Mr/Ms Well-Dressed' were awarded on the basis of the level of participation of the 3rd year students in different activities and how well they were groomed on the occasion. Each outgoing 3rd year student was presented with a memento, a graduation hat and a unique title characteristic to his/her personality.

A lot of students spoke their hearts out about how their college lives went and the nostalgia was palpable. The teachers also shared their fondest memories with their beloved students. The program ended with enjoying on dance floor with bunch of memorable.

So, the class of 2018 bid its farewell to The Department of Chemistry, Hansraj College.



Devanshu Mishra 2<sup>nd</sup> Year

## ANNUAL REPORT 2K18-19

The chemical Society of Hansraj College, RASAYANATVA, inaugurated the academic year 2018-19 with the celebration of Teachers' Day on 5th September 2018. This was followed by a fresher's party on 10th October 2018. The freshers enthusiastically participated as it provided a great platform to showcase their talents and introduce themselves to the senior batch.

The Society in association with Research Committee, Hansraj College organized a seminar entitled Real-time detection of Amyloid-Fibrils using combined Raman and FTIR Spectroscopies on 5th November 2018. It was delivered by Dr. Gajendra Pratap Singh, Senior Research Scientist, Singapore-MIT Alliance for Research and Technology, Singapore. The objective of this interdisciplinary seminar was to expand the knowledge of students in various fields and directions. This was followed by another seminar on How to excel in chemistry in the 21st Century: Some Useful Tips delivered by Dr. A.K. Bakshi, Vice Chancellor, PDM University, Haryana on 6th March 2019. Talk was full of knowledge, enlightened both the teachers and the students and encouraged the students to be creative to excel in chemistry.

The Chemistry department set a milestone by organizing the 1<sup>st</sup> International Conference on Integrated Chemistry, Biology and Translational Medicine (ICBTM) under the guidance of Dr. Brijesh Rathi.

On 11th March 2019, the annual festival of the Society CHEMOTSAV 2019 was celebrated with great vigor. A range of interesting games along with competitions were held. Main attractions were Talaash, The Treasure hunt and Extra Innings, The Mock Cricket Auction. Students from several colleges participated enthusiastically and the members of the Society made the event a great success. Farewell to the outgoing batch will be given on 30th April 2019.

### **SEMINARS**

Science is a way of thinking much more than it is a body of knowledge. Being aware of the environmental issues and getting new exposure, discoveries and opportunities in the various branches of chemistry is more important than having theoretical knowledge. The Chemical Society of Hansraj College continued its legacy of interdisciplinary lectures. Two informative lectures we're delivered in the session 2018-19. The interdisciplinary lectures held throughout the year helped students wonder a bit more of what all they can find if they dig a little. This not only helped us to think more but also encourages us to read more, to learn more, to see more and to achieve more.

The first distinguished lecture was held on 5th November 2018, delivered by Dr. Gajendra Pratap Singh, currently working at the Singapore MIT Alliance for Research and Technology Center on "Real Time Detection of Amyloid Fibrils using combined Raman and FTIR Spectroscopies". The lecture was followed by a discussion about the progress made in Combining Raman and FTIR Technologies in the Startup company Prob Tech Innovations Ltd. It led us to a whole new world. The various experiments and studies performed by sir himself were inspiring for everyone present there.





The second invited lecture was held on 6th March 2019 delivered by **Prof. A.K Bakshi**, currently Vice Chancellor of the PFM University Bahadurgarh, Haryana on the topic "**How to Excel in Chemistry in the 21st Century: Some useful tips**". Sir highlighted on the way of teaching and education system in India, myths that students have about science and the common mistakes that they perform. He focuses on online teaching and mocks system. He said

"If you always do what you always did, you will always get what you always got".

So, discover new, live new.

His thoughts and ideas were clearly reflected in the lecture and proved to be one the most knowledgeable

## 1st International Conference on Integrative Chemistry, Biology & Translational Medicine (ICBTM 2019)

"The vast number of advancements in science reminds us of the unlimited discoveries that are yet to be made"

Hansraj College, University of Delhi in association with Loyola University, Chicago, Stritch School of Medicine organized a two-day International conference on Integrative Chemistry, Biology and Translational Medicine on 25<sup>th</sup> and 26<sup>th</sup> of February 2019.

The two-day event featured world renowned scientists from India and around the world as well as young scientists who wanted to showcase their work. ICBTM was in best interest of eminent researchers, students and delegates from both academia and industry.

The conference was convened by Dr Brijesh Rathi, faculty in Hansraj College as well as adjunct faculty at Loyola University, Chicago and Dr Prakasha Kempaiah, research associate professor at Loyola University, Chicago. The Chief Guest of the conference was Dr. AK Singh, Director General Life Sciences, DRDO, Govt. of India. Prof Ravi Durvasula, chair of Department of Medicine of Loyola Medicine & Loyola University Chicago, Stritch School of Medicine and Dr Rama, Principal Hansraj College, University of Delhi were the chairman of ICBTM 2019.



The conference went underway with the lighting of the lamp by our dignitaries and invited guests. The welcome address was given by Dr Brijesh Rathi and there were opening remarks by Dr Rama and Prof Ravi Durvasula and an inaugural address by Dr A.K Singh.

The conference had two key note lectures, four plenary lectures and eight invited lectures. In addition to that there were Poster Presentations and Oral Presentations by students, research scholars, faculty and scientists who wanted to display their work.

The lectures were highly informative and showed us the groundbreaking discoveries made around the world in the field of medicine and science. The scientists brought their new approach towards fighting the various widespread diseases including malaria.

All the lectures had a questionnaire session where the queries regarding the topics could be cleared. Certificates were awarded to the under-graduate students for their curious minds during this session.



The last session of the conference included the distribution of awards for the dignitaries and awards for the brilliant poster and oral presentation and also for the curious minds of undergraduate and postgraduate students. The hard work of the Organizing Secretaries of ICBTM, Dr Chetna Gupta and Dr Taruna Singh were also recognized during the valedictory ceremony and they were presented a token of appreciation. They played a very important role for the smooth commencement of the conference.

The two-day seminar ended with a vote of thanks by Dr. Prakasha Kemapaiah. The journey gave everyone a horde of experience and knowledge and also gave us the inspiration to look forward and work for the betterment of the world.



Anirban Phukan 1st Year

# FRESHER'S FIESTA

On the waves of excitement and enthusiasm, freshers of the year 2018 enjoyed Fresher's party on the 10th of October, 2018.

The fresher's party of 2018 was organized with the dual theme of "Perfectly Mismatch" in the tones of "Red and Black". The theme was carried out elegantly by each and every fresher adding glamour to the fiesta. The day started with a delightful lunch which spirited everyone for the entire day, filling our stomachs along with our hearts. The event took place in the auditorium which was elegantly decorated by the 2nd and 3rd year students who made sure the day felt festive. After the lightning of the lamp which signified the presence of the Divine, the informal event began with the talent show of the interested first years in which they displayed their acting, dancing, singing and many more skills. In between the talent show, there were the rocking performances of the seniors. There were various games in which each and every first-year student participated with full joy. The winner of the games won a box of chocolates as the prize. Towards the end when all the performances and games ended, the performers and the winners of the games were called on the stage for the ramp walk where the girls and boys had to walk in pairs.

After the question answer round, the titles along with gift hampers for the Mr/Ms. Fresher, Mr/Ms. Well dressed and Star performer were awarded to the best deserving students. Later everyone came on stage and danced to the fullest of their heart. Everyone came together in groups and got pictures clicked. Thus, the day ended joyfully with everyone interacting and having fun.



Sonali Garg 1<sup>st</sup> year





#### LIFE OF A FRESHER

" Passengers to note: We are reaching our final destination New Delhi in few moments "

Soon as we step into the land of dreams, it begins with an auto driver and taxi driver trying to impress me whom to choose, while much to their surprise I begin dialing my Uber driver to know where he actually is and that's where it all began.

For years we dream about DU and getting into this North Campus colleges and when finally, we find our percentage soaring above their cut off, the joy knows no bound. The preparations and the excitement become higher while imagining a life without your mom waking you in the morning gives us nightmares.

Freshly out of schools, every fresher in Delhi University feels themselves to be in an ocean. Unsurprisingly, surfing the tides of this ocean, we have come to settle with its moods. Stepping into Hansraj College, known all over India as the college of King Khan, naturally becomes a pride we wear in front of all our school friends but the fear of being left out haunts every now and then till you decide to make this place your own.

Naturally, we have acquired a safe-place in our small corners; a place of our own in this ocean. Now it feels that you can anticipate the next wave and adjust your balance accordingly. Indeed, the first thought, "Will we get friends? How can we live without the friends we have lived with so many years? "I kept looking for the answer until I found some lovely people who were just the ones, I looked for in this ocean to twin up with. Indeed, not a single day now passes without texting early morning on our small group, "Who all are coming today?" From Hangouts to night outs, from 3 am social work in some distant place to going through 4 hours of labs, our day ended with tagging each other in memes across social media ~a bond to be cherished.

I learned here, that everything is possible. Here, you are allowed your own space, space where you can explore yourself in ways you have only imagined prior to this. The varsity is what you want it to be for you. And that is important to note. But I have, in a short span, observed that this opportunity is as liberating as it is scary. And this complexity is what makes every experience worth it. Societies of a college are one of the most exciting things a student is introduced to in his first semester. The wide range of societies for every talent of yours makes you think twice which to apply for and which to not. For students who have always taken an active part in activities beyond their regular drab routine, this becomes an area to explore. Getting doomed is easier seeing a lot of your classmates not participating but then at the end of the day, you choose your path to success. Luckily NSS and English Debating Society became my perfect match as I owe much to them at the end of this year in terms of exposure, lessons I learned, people I could meet and boundaries I pushed myself beyond the syllabus which everyone completes.

In a classroom of subject and stream-toppers from their respective schools, academic backgrounds, and ideologies, another important lesson was learned. You are one amongst the crowd. Your specialization is everyones. Humility drives this bargain. There is so much to learn from someone's ideology as much as there is so

much for you to share with them. That is a liberating thought. The endless process of learning ever remains a wondrous possibility. "A college is a place where you unlearn and learn a lot of things," says my best friend. It is this journey from the known to the unknown that leads us

to the known back again. It becomes difficult to settle with so many students from so many backgrounds especially in DU where students throng in from every part of India at once but when you are about to end a year and you look back, you realize you have learned a lot in this mixed culture.

Society meetings to important classes to fresher dance performance, at some point of time it necessarily becomes hectic and delusionary for a fresher to decide what to do and what to opt out of. While most of your friends are out in the weekends, it takes tolerance to spend three days in a Parliamentary Debating Tournament or spend those hours in Yamuna Khadar working for NSS. While you begin to feel left out, at the end of the year your patience and tolerance reap rewards as your friends feel left out of all the experience. While few of Delhiites go back to their home, it remains again a pleasing experience to go back home in midterm meeting family and old bonds again and telling them about your new life.

Making most of college life while also ensuring my grades didn't drop, we visited Diwali melas in colleges, attended TEDx, interactive seminars by guests, dancing hard in fresher's party to a sweaty volleyball afternoon, soon college became a part of our lives till 5pm and beyond. Excitement reached cloud nine as hoping out to colleges to attend their fest with your gang and making sure you have enough uploads to make the rest jealous became a part and parcel of even semester. From Salim Suleiman in SRCC to Vishal Shekhar in Hindu while ensuring not to miss the melodious Prateek Kuhaad in Gargi College or stand-up comedian Zakir Khan in IGDTU, we ensured our fresher experience of college fest was richer than others. It was also a time to focus on individual department fests to society fests as we slogged days in preparation of them while hopping from college to college participating in quizzes and auction events. Self-development was something I never neglected as compering in International Conference as well as attending Global Summit which was pivotal to our research career went side by side beside the five internships, I finished in my first year. Indeed "bohot kuch karlia".

At times it was exhausting and difficult but now when I look back, I see so many memories, so many unknown people whom I have reached out to, few amazing seniors whom I have met because of the societies and the bond has prevailed unbroken. I fleshed out my experience from being an unknown outsider to a rich experienced first year from knowing the best restaurants to best places to visit, internships to do and what not to do in the first year. I have chosen my experience and I hope you will too, for I believe this is the age to explore, learn, make mistakes, relearn, work on your goals and achieve them. Delhi University will provide you everything and better than any undergraduate University can but it all remains on you how much you utilize it on your own.

I see the swollen eyes during the farewell as I can feel what might rush in their minds having spent three best years of their life together and yet they walk away smiling knowing they will meet someday again, sit down with a cup of Sudama chai and laugh over all they did in their first year as a "fresher".



Ankush Paul 1st Year

## CHEMOTSAV2K19

Every DU student waits for the even semester to begin. Why you ask? Because 'tis fest season, undoubtedly the best part of one's college life. Everyone is filled with a strange exuberance, to work for their societies, department or college. There is a silent competition between the various departments to put forth their best and attract the maximum crowd to their stalls. Every department, every society, every college pull up their socks, the most creative and smart minds come together and exhibit their fun side to the world. Rasayanatva, the Chemical Society of Hansraj College, could stay no less. Rasayanatva had its fest Chemotsav 2k19 on 11 March 2019 under the annual fest of college, Confluence'19.

The best part of a fest is its preparation time. It gives a chance for seniors to know and bond with their juniors and vice-versa. Everyone works together enthusiastically and whole-heartedly to have an amazing fest. The preparations for our fest caught speed only ten days prior to the fest. Everyone was assigned their respective duties. Some were given creative work, some were supposed to organize the games, some went on a taste drive to get the best food stalls for the fest while some engaged in technical work. Various posters, videos, memes and boomerangs were posted on our Instagram handle to ensure the maximum outreach of the fest. First year students portrayed a much greater zeal since it was their first time while the third years were busy savoring each and every moment because it was their last time. The theme for the day was ethnic. On the day of the fest, the atmosphere was surcharged with excitement and joy. Then, came the most important task that was the assembling of our creative efforts in the area of staff canteen. Strings of colourful flags, beakers, test tubes, conical flasks, flowers adorned the whole area. All the game stalls were put up with their posters alongside. The main banner was an amalgamation of scientific apparatus and displayed the letters of 'CHEMOTSAV 2K19'. Soon that empty area was transformed into a beautiful fest zone with various games, food stalls and a photo booth.





Registrations for the main events i.e. the IPL Auction and Talaash, The Treasure Hunt began at 9:30 am. IPL Auction witnessed participation from various colleges across the DU circuit. In no time, the games and food stalls started to attract crowd.

Everyone was excited to receive the clues and begin the treasure hunt. The participants were supposed to perform some tasks in between to get the next clue which made the hunt more fun. The IPL Auction was a successful one too, with the team members bidding enthusiastically for their favourite teams. **Chemystery** was one of the games which proved to be difficult and amusing for the students. Another game was Across the Globe wherein, one was supposed to guess the name of the country from emojis. Games like Catch the Phrase, Gambezzle, Buzz Wire, It's a Match and Pictionary kept the crowd intrigued and on their nerves at all times. There was something for everyone. There was IPL Auction for cricket lovers, Talaash for mystery lovers, Across the Globe and Chemystery for smart minds, Catch the Phrase and Gamebezzle for fun lovers, food stalls for food lovers and much more! Everyone enjoyed the games and applauded the creative team whose hard work was evident throughout the fest. The icing on the cake was the amazing dance battle of Oorja-The Western Dance Society of Hansraj College which was taking place in the staff canteen only, alongside Chemotsav.

Once again, the chemists of Hansraj College presented an amazing collection of their efforts and proved that they are no less than anyone in organizing a fest and presented a sweet bundle of memories to their seniors.



Ishika Dhanwani 1<sup>st</sup> Year

## ALUMNI 2018

Name of student	Course	Name of University	City
Princi Gupta	Integrated M.Sc. &	Indian Institute of Science Education and Research	
Tanushree Gupta	PhD.	(IISER)	Bhopal
Ria Miglani			
Harshita Khurana		Indian Institute of Technology	Bombay
Animesh Mishra			
Nikunj Kumar			Delhi
Rahul			
Suman Yadav			Roorkee
Hariom Saini			Indore
Rajdeep Soni			
Abhishek Jain			Mandi
Sristhi Jaiswal			
Ridhima Jain			
Priyam Bajpai	M.Sc.	University of Delhi	Delhi
Harendra Yadav			
Yanshu Sagar			
Arushi Anand		Jamia Milia Islamia	Delhi
Nancy Jain		Janna Ivima Islanna	
Shagun Khushwaha			
Niharika Sharma		Amity University	Uttar Pradesh
Karan Gehlot			
Abhishek Bakshi		JNU	Delhi
Priya Bhatia	MBA		

## NEED OF THE HOUR

"Save water"

"Save trees"

"Save petrol"

"Save our only home----the planet earth"

Add to the above list---"Save clothes"

Why this new slogan?

According to recent report of World Economic Forum, BBC Earth we are creating mountains of waste clothing. Around 92 million tons of garments are discarded in a year.

With increasing population and advanced lifestyles we are purchasing more than earlier times. In simpler times one needed just four or five types of wearable sets viz: office wear, comfort wear, sleep wear, and party wear. But in these hectic times we also need sportswear, travel wear, seasonal wear, swim wear, fashion wear and so on. Thus, clothing sales have been increasing faster than world GDP! Almost 100 billion garments were sold worldwide in 2015 against 50 billion in the year 2000.

Out of all this tons of discarded clothing about 73% is buried or burnt, 12% is recycled and just 0.12 %. gets turned into new garments. 80-85% of discarded garments are of synthetic fibres. Different synthetic fibres commonly used are nylon, polyester, acrylic, rayon, spandex, Orlon, latex, acetate etc. Almost 60 % of raw material for these synthetic fibres is derived from petroleum, wasting millions of tons petroleum every year. Burying the synthetic fibres causes long term damage to the environment, as the non -biodegradable fibres have long life and remain in landfills for long. Burning them too, is not much of a help as it pollutes the atmosphere with lots of toxic gases.

Natural fibres as cotton, wool, jute, flax, mohair, silk etc. are biodegradable so take less time to breakdown. But their availability is limited and they do not fulfil all the modern-day requirements.

Manufacturing such huge numbers is itself a cause of concern. Processing, printing, designing, scouring, mercerizing of the finished product utilize tons of water, producing waste water in worrying amounts. Moreover, different chemicals such as dyes, detergents, bleaches, enzymes, softeners etc. used during the process add to the waste burden of the water bodies.

Reports point out that we are wearing the same clothes less often than we earlier used to. Thus, to mitigate the disastrous effects of all this the only solution is "Save clothes" i.e. "Use each one more time;" Recycle more" and "Discard less".

Dr. Ranjana Rastogi

## ANALYSING THINGS INSIDE OUT

Science can be broadly understood as the perception of facts with concrete proofs which are completely dependent on the authentication by machines. From launching of a rocket with high accuracy or knowing the structure of nano-sized objects we use machines which give highly accurate and authentic results. The world these days has become more like a machine-driven technology hub to give answers for most of the unanswered questions of present times. Starting from a microchip to a space ship all have been the accomplishments of science and technology. As a result, people increasingly view science as the holder of unequalled power capable of achieving anything. Therefore, one may argue that we should turn to science for obtaining all of the solutions to the present-day problems. Science has been incapable of providing definite conclusions in many areas.

With such great advancements in fields of science technology the main problem which is faced by such successes is that it still falls flat for explaining even the most basic facts or answering the most obvious questions.

Let us take one of the most elementary question that still remains unanswered; how an atom is formed and what is the most basic part of it? Is it mere ensemble of orbiting electrons and the nuclear protons and neutrons or positrons, neutrinos, antineutrinos, quarks, still subtler particles or energies of specific kind? Whatever be its composition, this subtle unit of matter is indeed a source of immense energy. All activities of the material world exist and are regulated by this atomic energy at the root or is there something more subtle than what is "seen" through or what is life? How do we arrive to answers for these questions by just depending upon the machines which would give results based on the input given to them? Where do we go from here? These are the most basic questions where our present day science fails to explain. Similarly, many unexplained theories and observations also indicate the inefficacy of present day science. A simple question of origin and functioning mind still remains one of the biggest mysteries for science. The powers of enlightened mind are natural keys to success and bliss in human life. Our past is assimilated in the folds of its memory, our present and future too are under the subliminal control of our mind. Mind has no physical (gross) existence but it still creates the entire personality of a person; how and why? For this we will also have to pay attention to the subtle aspect of mind.

The amount of knowledge that is and can be stored in the human brain (mind) is so much that the knowledge or information available in world's largest library would be negligible in its comparison. No treasure of the world could be enriched like this astonishing organ in human beings. However, how and what use of it would someone make depends upon the evolution of his consciousness and the enlightened state of his inner self \*. At a gross level we may say that the optimal use of the enormous powers of the brain depends upon how balanced, focused and illuminated one's mind is.

Even the most evolved intellectual brain today uses less than 10% of its real potentials. Rest 92% remains dormant or unrecognized. The instances of exceptional wisdom, acumen, perfect decision making, courage, foresight, etc achieved so far in the human society are indeed adorable. In view of such excellent talents demonstrated by otherwise ordinary human beings, it should not be difficult for us to imagine the supernormal faculties one could attain by arousing even half of the yet unused and hidden potentials of the brain and its subliminal counterpart – the mind.

What we see today through our eyes and machines are just the manifestation of what lies deep in the subtler forms. Due to these non-understandable facts any beliefs and inferences based on purely outer aspects of science are liable to be changed. It is often experienced by those who can think deeper that the subtler forms of matter and energy and the subliminal currents of conscious force are exponentially more powerful than their gross manifestations.

Similarly, the aura around one's body is not a clinical property or expression of bio magnetic force of the gross (physical) body. Rather it is a property of the mind – its vital force. It also reflects the effulgence of the Inner Light. Radiance of the aura expands naturally as one's thoughts and deeds synthesize with the inspirations of the soul. Exercises of physical fitness enhance the vital capacity and smooth functioning of the body parts. However, these alone are not sufficient for the emergence of aura. Illumination of the mental domain through the activation of the inner mind and its linkage with the' Inner Light' scintillate the aura significantly.

These questions need to be addressed properly and for doing it science has to be understood and defined in much more broader way which should include even the subtle aspects which are non-perceivable by machines. Even the most developed minds of great scientists like Sir Albert Einstein, to Nobel Laureates like Max Born, Ramanujan, Planck, Ernst Boris Chain, Amo Panzias and Arthur Compton all have laid emphasis on the presence of subtle part of energy which plays a very vital role in governing the gross part.

Science with a modern definition should envisage two aspects i) Gross ii) Subtle. The observations which have been or can be calculated *via* machines

would fall under the gross aspects; and the observations which need much subtler research especially energies of living forms would come under the subtle science.

An important parameter that should be attached to authenticity of subtler studies is whether the solution given by such studies has any contradictions by large or not. The most important question for studying such subtle aspects is the place/ object where such experiments should be conducted. What all experiments should be carried and how to draw conclusion out of observations and inferences. The answer to this leads to the only possibility i.e. humans (as the most developed minds on this planet is that of humans). The power to perceive analyze and draw conclusion at even subtlest of the cases rest only on humans.

For considering the subtle aspects it is interesting to see what the ancient sciences say about the tiny units of functional manifestation of life. The principle of "Añu me Vibhu" is described in the Indian scriptures in great detail. It is said in these scriptures that the entire universe exists subtly in every living cell. The infinite expansion of space outside cannot be grasped by any instrument. The same is true of the inside the nucleus of the cell. It is so subtle that it can't be experienced by sensory perception neither could it be deciphered by any physico-chemical or electronic device. It does not have any stable form. But, the power of this subliminal universe is indeed infinite like its cosmic counterpart.

The scientific developments in molecular biology and biotechnology are advancing at a remarkable pace. The advent of research on the subliminal existence of the consciousness (which would only happen if experiments are conducted on the subtle part of science) in the bio-molecules and in the cell-nucleus will prove to be of greater impact. As, not only the biological but also the mental functions are controlled by the 'subtle element' of the energy.

These days countries are accepting parapsychology as a subsidiary branch of science but the importance given to such fields as judged by scientists is still abysmal. Much more needs to be done in this field and the analysis (practical) part should be more on experimenting with self rather than experimenting on machines.

Dr. Parul Pant

## NOBEL PRIZE IN CHEMISTRY 2018

The Nobel Prize in Chemistry 2018 was divided, one half awarded to Frances H. Arnold "for the directed evolution of enzymes", the other half jointly to George P. Smith and Sir Gregory P. Winter "for the phage display of peptides and antibodies."



Frances H. Arnold
Born: 25 July 1956,
Pittsburgh, PA, USA
Prize motivation: "for the directed evolution of enzymes."
Prize share: 1/2



George P. Smith
Born: 10 March 1941,
Norwalk, CT, USA
Prize motivation: "for the phage display of peptides and antibodies."
Prize share: 1/4



Sir Gregory P. Winter
Born: 14 April 1951,
Leicester, United Kingdom
Prize motivation: "for the phage display of peptides and antibodies."
Prize share: 1/4

#### THEY HARNESSED THE POWER OF EVOLUTION

"The power of evolution is revealed through the diversity of life. The 2018 Nobel Laureates in Chemistry have taken control of evolution and used it for purposes that bring the greatest benefit to humankind. Enzymes produced through directed evolution are used to manufacture everything from biofuels to pharmaceuticals. Antibodies evolved using a method called phage display can combat autoimmune diseases and, in some cases, cure metastatic cancer."

Since the first seeds of life arose around 3.7 billion years ago, almost every crevice on Earth has filled with different organisms. Life has spread to hot springs, deep oceans and dry deserts, all because evolution has solved a number of chemical problems. Life's chemical tools – proteins – have been optimised, changed and renewed, creating incredible diversity.

This year's Nobel Laureates in Chemistry have been inspired by the power of evolution and used the same principles – genetic change and selection – to develop proteins that solve mankind's chemical problems.

One half of this year's Nobel Prize in Chemistry is awarded to **Frances H. Arnold**. In 1993, she conducted the first directed evolution of enzymes, which are proteins that catalyse chemical reactions. Since then, she has refined the methods that are now routinely used to develop new catalysts. The uses of Frances Arnold's enzymes include more environmentally friendly manufacturing of chemical substances, such as pharmaceuticals, and the production of renewable fuels for a greener transport sector.

The other half of this year's Nobel Prize in Chemistry is shared by **George P. Smith** and **Sir Gregory P. Winter**. In 1985, George Smith developed an elegant method known as phage display, where a bacteriophage – a virus that infects bacteria – can be used to evolve new proteins. Gregory Winter used phage display for the directed evolution of antibodies, with the aim of producing new pharmaceuticals. The first one based on this method, adalimumab, was approved in 2002 and is used for rheumatoid arthritis, psoriasis and inflammatory bowel diseases. Since then, phage display has produced anti-bodies that can neutralise toxins, counteract autoimmune diseases and cure metastatic cancer.

We are in the early days of directed evolution's revolution which, in many different ways, is bringing and will bring the greatest benefit to humankind.



Prateek Jain 1st Year

#### GLOBAL SUMMIT ON WASTE MANAGEMENT

A global summit on waste management and waste to energy was held on 1st March 2019 at Hotel Le Meridien. Dr. Chetna Gupta and Dr. Taruna Singh took a few students along with them to attend the conference. The conference began with a debate between a few dignitaries on critical issues in the development of waste-to-energy projects in India and the way forward. The biggest issue was the constant population increase and how it's going to continue in the coming years. With increase in population comes an increase in waste volume. The next agenda was to look towards the challenges in waste disposal. It was found that only 10% of the population segregates the waste due to lack of necessary knowledge on it.

The question that arose during the debate was "What needs to be done to convert waste into energy plants and into viable and profitable goods?" Throwing light on the agenda, it was discussed that Biomass agricultural waste is an environment friendly as well as cost effective fuel and the scope of this industry is really high. But, a major problem in India is that the utilization of demolished waste is poor. It is observed that there is a lot of noise but a little show on the ground. A solution to convert waste into something useful is by recycling plastic that is available from the landfills which is cost effective as well. Even though a company tried recycling plastic by utilizing it in the construction of roads, still the non- recyclable plastic waste is a big problem in India. Banning plastics is not a solution but reconstructing it into something useful is the main goal. Majorly the hurdles that comes in way of development are the funding, technology and collaboration with the contractors. It was understood that people must start from small startups to earn a positive result rather than aiming for something big directly. Waste must be understood beyond something that is dirty. It has to be glamourized.

Also, a focus was put on waste water sector during the conference. Inter sectoral relationships are important for development. The final segment of the conference covered the various successful case studies on wind turbine blade waste, 1.0 MW power generation system in Punjab, comparative analysis of physio-chemical parameters of compost and vermicompost, nitrogen and light in fed-batch system towards biodiesel application.

The conference put a light on various steps, schemes and models that are being made for the development of the cause. The students learnt a lot front the summit and would surely take the required steps for the same. The highly successful conference ended with a vote of thanks by the convener. All the students who attended the summit are surely going to start a project soon implementing eco-friendly initiatives.



Shruti Jain (2<sup>nd</sup> from right) 1<sup>st</sup> Year

# THE JOURNEY TO SUCCESS

I am one of those lucky students who got a chance to study in the north campus of Delhi University. I was asked to share my experience and success of getting AIR-2 in IIT JAM entrance exam. So here it is.

I was not that regular in college, but I remember each and every lovely moment that I have spent there and these moments will remain with me for a lifetime in the form of memories. I got some friends who will be with me throughout my life. Getting a good rank in IIT JAM was my dream.

It is only and only you who have to travel the distance to reach your goal. Teachers are just mentors or you can say guide who will tell you about right and wrong. In the end, it is only your hard work which matters. It is the process of self-study which will pay you more. Interpreting things on its own without any help gives different happiness. It is not only knowledge which helps to crack any exam, but a person should also be mentally strong so that he can face that much pressure in the exam. I have also done a DBT project in the college under the guidance of Dr. Shampa Ma'am. This project will be very helpful for me in further research. I learned a lot of things from this project.

Nothing is difficult to crack, but your mind should be focused. Each and every person can do it. Life in the Hansraj college was awesome for me and I feel very happy about sharing this with you. I will miss all these things like Chemotsav, Sudama ki chai and night outs on the roads of north campus.

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Ankush Goyal 3<sup>rd</sup> Year (IIT-JAM AIR 2)

### THE THREE YEARS THAT PASSED...

Entering college with shivering legs, anxious voice, nervousness in the heart, worried thoughts and eyes full of dreams.

Going out of college with steady legs, calm voice, love in the heart, eyes full of tears and having a lifelong bunch of Friends beside you.

So, my experience at Hansraj college has taught me one fundamental thing - life is unpredictable. It might be good, it might be bad, it might be weird and it might not interest you, but expect anything to happen.

From giving our introduction on the first day of college to fighting all the odds to create our own identity we all grow throughout our college life.

It didn't take me much time to realize that chemistry is not my cup of tea. So, what came as a turning point in my college life was Society of General Awareness (SGA), which gave me the platform to interact, to grow and to be involved in extracurricular activities. SGA has been my inseparable part giving me opportunity to explore myself and my potentials and giving me my own identity in college.

The two most fun loving and exciting, for me I would say seasons of joy were elections and college fests. Struggling hard for campaigning during elections and attending all the college fests even during internals would make adrenaline rush through my body.

I have learned one thing and that's to quit worrying about things that probably won't matter 5 years down the line. The three years of college are meant to figure yourself out and gain experiences, not stress and cry about small things. These three years won't come back again and once passed, will be dearly missed.

When we started our college, we all somewhere in our minds were thinking about how to spend these 3 long years of our life, but here we are bidding goodbye to each other. The flight which took off and showed us the most beautiful and amazing journey of our life is just going to land on the runway of the real world. And even if you don't have any regrets in your life, not living each day of the last 3 years will be one.

Ayush Vishnoi 3<sup>rd</sup> year

### THE UNIDENTIFIED

Cheers, Celebrations, blessings, the commencement of new life. Clearing high cut-offs, got the way to a dignified college!

New friends, a whole new phase,
so much crowd, each new face.

Freshers fun, lovely seniors, the tremendous fests, celebs,
cool societies...

Oh! What a damn glam life!!

But... wait what's next?

Waking the conscious of all of a sudden, found a heap of burden.

Switching to academics, sleepless nights, that coffee mug. Finally enter the stereotype.

Getting into the race, yes, THE RACE, with those heavy eyes, which lost their glitter,

Accepting which was quite bitter.

But this not supposed to be done...
Those shiny eyes, with dreams a ton.
Where does that uniqueness hide?
The goodwill to which thy abide.
Let's dwell oneself to humanity.

Equations balanced with love.

That electron of fun inside.

Moving with the degeneracy.

Happiness multiplied to infinite.

Not you, not I,

but let's together identify 'The Unidentified'.



Anju Yadav 3<sup>rd</sup> Year

#### **MASKS**

Take off your mask Yes you! Right there! Unveil what's there Behind that plastered smile Behind all those pictures Filled with uncontrolled laughs The world in awe, Admiring the perfect couple You sliding your hand into hers Telling everyone, yes darling You are the one my love. The scars under her dress. Screaming about your lies The blue marks on her back Her cries, every night. Shushed, hushed By that picture with A perfect filter And a cheesy caption.

Hey you! Throw that mask Of happiness, while The demons Clinging to you All those nights The fan staring at you "What would happen If I hang right up there?" You've just completed that Presentation, which no one is Going to listen For that monotonous job Day by day, Sucking the life out of you. The demons Under your cape That you wear every morning Unleashing themselves At dead hours Dissolving you And someday Taking you away With them. The fan hanging up. And you hanging from it.

Hey there! Take off your mask Yes gentleman, you You, pleasing her

With your wittiness Planning every step Making her comfortable Saying all the things Which she wants to hear Impressing her With your cute talks Decency at your best. She, with a nice man Sipping wine, Overlooking those Piercing glances Lustful hands Waiting to rip her off Like brutal animals, Digging into their prey. Courteous man Dropping her home. Mask left at the table.

The masks All around us In multitude Flooding, faking Loving, caring Touching us The truths covered Under layers Guarded by Familiar faces Friendly and sweet With hidden intentions The truth; only one Naked, bare Is not so beautiful Hence our masks Flawless, perfect Adaptive Stop!!! This is not me). Hey, we love to wear them. Right?



Tanya Gupta 3<sup>rd</sup> Year

#### आग्य

'अ' से शुरु हुआ था कारवां... 'ग्य' पर कहां खत्म होने वाला था, मुझे मिला एक शिक्षक जो अभी बहुत कुछ सिखाने वाला था. बचपन में तो के,का, की भी बड़े मुश्किल लगते थे. किसे पता था,वह सारी मुश्किलें हल करने वाला था. गणित,रसायन, भुगोल, विज्ञान, भौतिक, इतिहास, सिखाते-सिखाते.. वह हमारा भविष्य स्वार्ने वाला था. कभी दान्ट कर कभी हस कर वह हमारी आदतें बदलने वाला था. कभी हुम ना सम्झे उन्हे तो कभी वो चूके हुमे स्म्झने मे.. मगर फ़िर भी वो सीख दे जाने वाला था. हमने बोले कयी झुठ छुपाई कयी बातें... मगर वो आंखों से सब स्म्झने वाला था. ज़मने के सथ पीपल और खुले आसमान कि जगह छत और कुर्सि तो आई... मगर वह गुरु शिश्य कि परम्परा निभाने वाला था. समय के साथ्, साथ भी चूट गया... मगर वो अब भी हर पल ज़िन्दगी के मायिने बद्लने वाला था. मुझे मिला एक शिक्षक जो अभी बहुत कुछ सिखाने वाला था. मुझे मिला का सलिका सिखाने वाला था...

सलिके मे जीवन देने वाला था.

मुझे मिला का सलिका सिखाने वाला था.....!



Anju Yadav 3<sup>rd</sup> Year

### READING THE LINES

You don't feel like doing anything. You are a bit anxious, irritated and stressed (pile of assignments). You are scrolling through your feed and find an article "10 signs of depression". Surprisingly, you relate with 6. Does that mean that you are depressed? Chill, you may be just bored.

#### Another example.

Your date didn't let you pay anything. Does that mean that she is a Feminist Nazi who will dominate you in every aspect and this is the beginning? Or is he a male chauvinist who doesn't believe that we are in 21st century and WOMEN CAN PAY THEIR BILLS?

Well, I know you have mastered your psychology through the buzz feed articles and all brilliant sources. But hold on. Maybe he/she is genuinely nice and a little nervous. Period.

This is just an example. We interpret a lot. We give a lot of thought in things which don't even require. We build our own theories. And above all, when we are done; we believe it's right.

We forget to differentiate between facts and opinions.

And to support us there is a lot of misleading information in the form of articles, bullet points about everything on earth, genius classes, motivation gurus; so confident in themselves.

I am telling you a secret that they won't tell. They miss one thing. All of them. That's context, background. Every story is unique. No single line can define everything going on in your life. Because your background, your history, the context of your situation is way different from anybody.

So, think before you draw conclusions about anybody or anything around you or even about yourself. As these are going to linger in your mind long enough and they are hard to change. You know it better than anyone can.

It's good to acquire knowledge. But it's also our supreme responsibility to process it. You may read 10 articles (from irrelevant sources), then judge people and start believing that you are suffering.

It can be the opposite. The people around you may be suffering because of your habit of reading between the lines even if there was nothing ever there. Think.

At times, reading the lines instead of reading between them is all we need to keep us sane.



Tanya Gupta 3<sup>rd</sup> Year

### The Birthday Cake

"*Didi*, can you give me my wages on the third instead of 14th next month?" She asked anxiously with a tinge of excitement in her voice. All of fourteen, she stood there, clad in a pair of slightly oversized and worn out turquoise *salwaar kameez* waiting for the reply, her tired eyes fixed on the broom and her scratchy fingers toying with its fibers.

"Yes Neetu, you can", I said with escalating curiosity, "but is there any special reason for that?"

"*Ji didi*, It's my younger brother's birthday. He is turning four this year. I want to celebrate his birthday like everyone else does."

"When is his birthday", I was already smiling inside.

"It is on the third", she shifted her gaze from the broom to my face.

"Third...third of which month?", I asked mischievously.

"The month in which it is very cold", she said thoughtfully trying to dodge the question.

"What is that month called?"

I was in no mood of letting her slip away.

She finally gave in.

"May, is it called May didi?"

She grinned nervously exposing her yellow tobacco stained teeth.

I had recently found out about this notorious habit of hers. Three days back, while coming out of the bathroom I had seen her taking some brown substance from her palm and keeping it between her gums and the lower lip. On approaching, she had hastily tried to hide it behind her back, but had to show it when I sternly asked her to do so. She had tried to make up stories of it being *chooran*, a type of sweat-sour powder made from tamarind but my unyielding stare had gotten over her nerves. It was followed by a futile lecture on tobacco and it's ill effects, having elements of advice and anger.

\* \* \* \* \*

The clanking of utensils was accompanied by few oddly pronounced English words in a low husky voice. On listening closely, I could make out that it was a distorted version of a nursery rhyme.

"Neetu, from where did you learn that?"

There was silence for some time. Even the clanking stopped.

"Have you started going to the school", I asked again.

"No *didi. Madam ji* has taught this. She comes to the slums and collects the children and teaches them. She even organises *menhdi* (tattoos made using henna) competition. And.." "And what?" I asked.

"What do you call that. That comes on TV. In which girls dress up and walk. Show...", she was trying hard to recall.

"Fashion show. Ramp walk?"

"Yes, yes! Fashion show", she affirmed.

"That's really good. Do you enjoy doing that?"

"Yes. I wore a saree. But *Didi* I am afraid of one thing", she remarked in a low, concerned voice.

"What is that Neetu?"

"What if someone takes a picture of me in the saree and uploads it on the Internet?"

\* \* \* \* \*

"Didi, which cake should I buy for the birthday", she asked while rubbing soap on a steel plate.

"Which flavour do you like", I asked smilingly.

"Mango", she answered. It was probably the only flavour she knew other than chocolate.

"I think black <u>forest</u> would be better, Neetu. It has chocolate and cream both", I said while calculating the price in my head.

Although it was a new name for her, she seemed happy on hearing the term.

"It will be costly. From where will you get the money", I asked her in a soft tone, hoping not to disappoint her.

"I have saved a lot of money *didi*. I haven't told at home that I work in this house. So, they don't take this money from me. I have been planning for this birthday since the past six months", her dull, tired eyes betrayed the excitement of her voice.

I was stupefied at her capacity to love. Hardly four and a half foot tall, with skin tightly hugging the bones, she hid inside her love in the most unadulterated form. Love that didn't shy away from making sacrifices. Love that dared to dream.

I could only manage a cursory nod at that moment.

"*Didi*, I will also ensure that my brother goes to the school." Inside the kitchen, the clanking continued with a humming of *Rozy lips*, *chubby cheek...is that you?* 

Yes!

Yes!

Yes!



Satyam Srivastava 2<sup>nd</sup> Year

## GASES IN THE AIR

There are four main gases in the air, the first  $\mathcal{CO}_2$  is very rare, there is 0.03% in the atmosphere, when mixed with lime water, it's not clear. It's used in our coke and lemonade, until all the bubbles slowly fade. It puts out the most thing that are burning, see how fast I am learning.

The second least gas is Argon on its own. Only one little atom, all alone. It's used in bulbs that give us light. It makes 1% of the air, that's right.

The next gas along is well-known Oxygen, the next after that is high quantity Nitrogen. Oxygen is used to help our breathing, If the air was without it, we should be wheezing. It is 21% of the world air, almost done, I am nearly there. It lights a glowing splint, makes it a flame, that's all for Oxygen, what a shame.

Now on to Nitrogen, the one with no set test, but Nitrogen makes 78%, so it's better than rest. It's used in fertilizers, farmers put on crops. It's also used to freeze foods, so it doesn't rot.

Now that is my poem about gases in the air. There are ones with high quantity and ones that is quite rare.



Meenakshi 1<sup>st</sup> vear

### **TAPPUTI**

The history of women in science doesn't just go back to tales of female scientists and philosophers such as Hypatia of Alexandria; it also extends some 6,000 years back to ancient empires in Mesopotamia, the cradle of civilization. Many of these women's names have since been lost in time and all that remains of them are depictions of their likenesses in stone carvings. But one of the first known chemist was a woman: Tapputi (c.1200 BCE).



Tapputi is also known as Tapputi-Belatekallim. "Belatekallim" means "female palace overseer", indicating Tapputi held a position of importance at the Mesopotamian court. A Mesopotamian cuneiform tablet from the second millennium B.C. describes Tapputi, a perfumer and palace overseer who distilled the essences of flowers and other aromatic materials, filtered them, added water and returned them to the still several times until she got just what she wanted. This is also the first known

reference to the process of distillation and the first recorded still.

Tapputi also worked with tinctures, scent extraction, and cold enfleurage. She wrote the first treatise on making perfume, but this chemistry text is now lost. The cuneiform tablet says she worked with another woman named Ninu (the first part of the name cannot be read). One of Tapputi and Ninu's recipes survived to the present day. The recipe is for a perfumed salve made using calamus, myrrh, oil, and flowers, intended for use by the king.

In ancient Babylon, perfumes were not just cosmetic scents for beauty purposes: they were fragranced substances that were required for medicinal purposes and religious rituals i.e., perfume and burning incense was considered to form a bridge between gods and men, and offered the possibility of communing with the divine. In addition, it was believed that sweet scents were pleasing to the gods, and so bodies prepared for the afterlife needed to be treated with a variety of perfumes.

She describes the process of refining the ingredients in her 'still': a chemical apparatus for distilling and filtering liquids. Advanced versions of such equipment remain in use in labs today, but Tapputi's reference to a still is the oldest in human history. That makes her one of the earliest chemical engineers that we know of.

As any modern-day perfumer will tell you, the creation of perfumes, even for cosmetic reasons alone doesn't just entail mixing up scents to see what smells nicest. It requires an intimate knowledge of chemistry and an understanding of technical processes such as extraction and sublimation. Tapputi wielded these skills well over a millennium ago. She is genuinely an inspirational icon for female perfumers, scent chemists and the weirdo little girls that dream of becoming perfumers and chemists.



Abhishek Saini 1st Year

# HOW YOUR ROUND YELLOW MANGO TASTES?

Summer! Savour a round yellow mango and appreciate the taste. No thing, is safe and dangerous to health. What is use of having less or more wealth? Urea and chemicals added to milk powder, Nothing can be found and everything in order.

Masses may be dying of cancer and hunger, Why? No steps and action of anger, Are we all used to subjugation and slavery? Adding to sufferings and worsening misery, Tomorrow may be difficult and things out of hand Health may be in despair with infertility of land,

Even sweets are not spared,
A child's health is not cared,
No one can deny and not even dare
Silence on part lead us nowhere,
Where does it matter where millions boom?
Population increasing with not enough rooms,
No shed, no cloths with enough power looms.
It is not progress but living hell and doom,

This is but try for awakening the millions. It doesn't require any special classes
Mass assurance of appeals and rejection of goods
May it then happen when out of woods?

What is happening all around?
Nothing seems well and sound,
Anarchy, fraud witness and found,
All taking we to down ward bound,
Health hazard and playing with food
Toxins mixed with milk and served as good
Trees treated with chemicals at root,
Yield is more but day time loot,

Country's fortune is at stake,
Fishes are dying and extinct in lake
Can this be not stopped for God's sake?
Even butter and milk are poisoned in cake,
Vegetables are nurtured with poisonous waste.
Now! How your round yellow mango tastes?



Tushar Sharma Banstola 1<sup>st</sup> Year

#### RSC

Life is a journey which certainly has a destination and college life is the best time to choose one. Being a research enthusiast, Royal Society of Chemistry is the ultimate destination for me.

The Royal Society of Chemistry (RSC) is a learned society (professional association) in the United Kingdom with the motto of "Pro scientia et humanitate (For the sake of knowledge and for the benefit of mankind)". It was formed in 1980 from the amalgamation of the Chemical Society, the Royal Institute of Chemistry, the Faraday Society, and the Society for Analytical Chemistry with a new Royal Charter and the dual role of learned society and professional body. The headquarters the Society at Burlington are House, Piccadilly, London. It is the professional body for chemistry in the UK, with the ability to award the status of Chartered Chemist (CChem) and, through the Science Council the awards of Chartered Scientist (CSci), Registered Scientist (RSci) and Registered Science Technician (RScTech) to suitably qualified candidates.

The organization carries out research, publishes journals, books and databases, as well as hosting conferences, seminars and workshops. One of the oldest journals still being published is "Analyst(1876)" featuring articles like Direct glucose detection in whole blood by colorimetric assay based on glucose oxidase-conjugated graphene oxide/MnO2 nanozymes and Iron(III)-selective materials based on a catechol-bearing amide for optical sensing while "Molecular Omics(2018)" is one of latest journals featuring articles like Lipidomics reveals insights on the biological effects of copper oxide nanoparticles in a human colon carcinoma cell line and Investigating the intracellular effects of hyperbranched polycation-DNA complexes on lung cancer cells using LC-MS-based metabolite profiling. However, the most popular journal is "RSC Advances((2011)" featuring articles like The use of a sucrose precursor to prepare a carbon membrane for the separation of hydrogen from methane and NiFe<sub>2</sub>O<sub>4</sub>@ nitrogen-doped carbon hollow spheres with highly efficient and recyclable adsorption of tetracycline but my favourite is "Reaction Chemistry and Engineering (2016)" because of the way it bridges the gap between chemistry and chemical engineering featuring articles like Development of an automated kinetic profiling system with online HPLC for reaction optimization and Enhanced reactive CO<sub>2</sub> species formation via V<sub>2</sub>O<sub>5</sub>-promoted Ni/KCC-1 for low temperature activation of CO<sub>2</sub>methanation. I don't get the most of the articles right now but I am determined to get them one day.

Apart from conducting ground-breaking research and publishing incredible articles, RSC also works in promoting and extending the reach of chemistry in the world. Firstly, by providing the knowledge about wide range of career options to recent chemistry graduates and making them explore the available career options in academic and non-academic fields after PhD. They also guide individuals in teaching and consultancy fields or moving into management by giving them a detailed info about what goes in these professions. They not only provide great job opportunities but also show one how to make a successful transition from working to being retired. In short, RSC is not an organization working only towards great developments in chemistry but it also ensures that the people working for the same have a healthy environment to dwell into making it an ideal destination for any chemistry enthusiast including me.

#### FUTURE PROSPECTS IN CHEMISTRY

Studying chemistry opens doors to a range of sectors and opportunities, meaning your future career isn't restricted to the lab.

#### Jobs directly related to B.Sc. Chemistry degree:

- Analytical chemist
- Scientific laboratory technician
- Biotechnologist
- Chemical engineer
- Healthcare scientist
- Clinical biochemistry
- Nanotechnologist
- Pharmacologist
- Research scientist
- Toxicologist.

#### You can apply for the Scientific Assistant post at:

- Defense Research Development and Organization (DRDO)
- Council of Scientific and Industrial Research (CSIR)
- Bhabha Atomic Research Centre (BARC)

If you want to go for a post graduate course in the field of chemistry, then you can opt for anyone of the following as per your interest.

- MSc in Chemistry
- MSc in applied chemistry
- MSc in pharmaceutical chemistry
- MSc in biochemistry Integrated
- MSc and Ph. D in chemistry
- MSc in industrial/ analytical chemistry
- Post graduate diploma in analytical chemistry (PGDAC)

#### The top universities are-

IITs	NITs
JNU	DU
CU	BHU
Tezpur University	Presidency University
Jadavpur University	TIFR
JNCASR	NBRC

# Some of the major entrance exams held in the country for admission to M.Sc. Chemistry course are:

UNIVERSITY	TEST
IIT	IITJAM
Acharya Nagarjuna University	M.Sc. Chemistry Entrance Exam
Annamalai University	M.Sc. Chemistry Entrance Exam
Banaras Hindu University (BHU)	M.Sc. Chemistry Entrance Exam
Calicut University	M.Sc. Chemistry Entrance Exam
Cochin University of Science and	Common Admission Test
Technology	
Department of Chemistry, University of	M.Sc. Chemistry Entrance Exam
Pune	
Indian Institute of Science	M.Sc. Chemistry Entrance Exam

#### You can also prepare for exams such as:

- UPSC
- CSE
- Staff Selection Commission (SSC)
- RAS
- Bank Exams etc.

# Making bad chemistry jokes because all the good ones ARGON!!

- Did you know that you can cool yourself to -273.15°C and still be 0k?
- If the Silver Surfer and Iron Man team up, they'd be alloys.
- Why do chemists like nitrates so much? They're cheaper than day rates
- What is the chemical formula for "coffee"? CoFe2
- What do you do with a sick chemist?

  If you can't helium, and you can't curium, then you might well barium
- Two chemists go into a restaurant.

  The first one says "I think I'll have an H2O."

  The second one says "I think I'll have an H2O too" -- and he died.
- Why was the mole of oxygen molecules excited when he walked out of the singles bar?
   He got Avogadro's number!
- A proton and a neutron are walking down the street.

  The proton says, "Wait, I dropped an electron help me look for it."

  The neutron says "Are you sure?" The proton replies "I'm positive."
- We have recently been discovered to be a not-yet-identified super heavy element. The proposed name is:

  Un-obtainium,
- Anions aren't negative, they're just misunderstood.
- The optimist sees the glass half full.

  The pessimist sees the glass half empty.

  The chemist sees the glass completely full, half in the liquid state and half in the vapour state.
- If H2O is the formula for water, what is the formula for ice? #20 cubed

- A neutron walks into a bar. He asks the bartender, "How much for a beer?" The bartender offers him a warm smile and says, "For you, no charge".
- Old chemists never die, they just stop reacting.
- A small piece of sodium that lived in a test tube fell in love with a Bunsen burner. "Oh Bunsen, my flame," the sodium pined. "I melt whenever I see you," The Bunsen burner replied, "It's just a phase you're going through."
- What do you call a clown who's in jail?

  A silicon
- If H20 is water, what is H204?

  Drinking, bathing, washing, swimming, etc.
- What is "HIJKLMNO"?
- What element is a girl's future best friend? *Carbon*
- Little Willie was a chemist. Little Willie is no more. What he thought was 420 was 42504.
- What is the name of 007's Eskimo cousin? Polar Bond
- What kind of dogs do chemists have?
   Laboratory Retrievers
- What kind of fish is made out of 2 sodium atoms? 2 Na

We would like to apologize for not adding more jokes... but we only update them.... periodically!

# WORDOKU

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	T		S	Ν	L		Е		С
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Υ				Е			1	С	١
А	30 - 5		Т	С	S		8	Е	S
			Е		Α				Т
U								S	U
	Υ	Ν				L	С		Υ

Solve this wordoku in the same way as a sudoku with letters instead of numbers (each of the nine letters in each row, column and nine-square cell). Once solved, one of the overall diagonals can be rearranged into the name of a gas present in Titan's atmosphere.

# **WORD GRID**

Si	C	Υ
Со	S	Te
In	Ν	N

Using each element symbol in the grid only once, combine them together to make a single word of 12 letters.

Word	d

#### SCIENCE SCRAMBLE

Similar to a word ladder, each answer provides letters that must appear including duplicates—in the answer immediately following it. The puzzle's final answer is a scientist or someone who contributed to science.

For example:

- 1 sail
- 2 snail
- 3 saline
- 4 minerals
- 5 Neil Armstrong

1	Cure (3)
2	Alloy of iron and other elements (5)
3	Snuggle (6)
4	Components of the periodic table (8)
5	Co-discoverer of nuclear fission (4, 7)

