

V.P. & R.P.T.P. SCIENCE COLLEGE

VALLABH VIDYANAGAR

Excellence 2013-14

(Annual College Magazine)

PETRONS

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Prin. S. M. Patel, Secretary, CVM
Dr. J. D. Patel, In-Charge Secretary, CVM

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Dr. Bhavesh Patel, Principal

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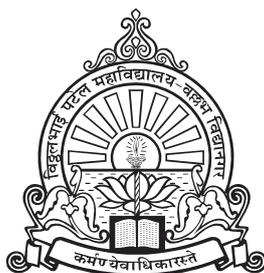
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V. P. & R. P. T. P. SCIENCE COLLEGE

Vallabh Vidyanagar - 388 120

Re - Accredited " A " Grade by NAAC

Recognized By UGC As College With Potential For Excellence
(CPEPhase - II Upto 2019)

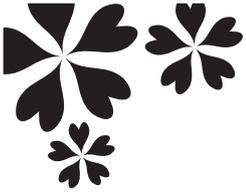
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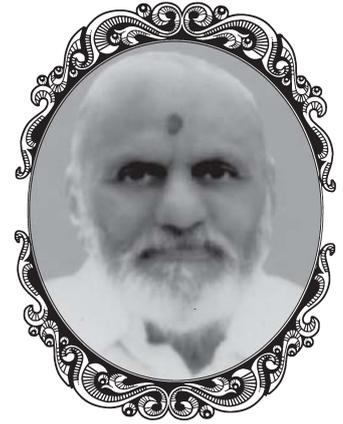
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Index

Sr. Article	Pg. No.	Sr. Artical	Pg. No.
1. Message from Chairman	03	36. Let's focus on Nanotechnology	47
2. Message from Hon. Secretary	04	37. Somebody with us	48
3. Message from Hon. In-Charge Joint Secretary	05	38. Satyendra Nath Bose	49
4. Message from Principal	06	39. The Brain of Albert Einstein	50
5. Editor's Note	07	40. ऋषीमुनी यों क विज्ञानमें योगदान	50
6. Message from the Vice President	08	41. Magical Star : Sun	51
7. Message from General Secretary	08	42. Green Chemistry	53
8. Words by Magazine Secretary	09	43. Women Empowerment	55
9. Message From Student Vice Secretary	09	44. When I Was Younger	57
10. 67th Annual Report of the College 2013-2014	10	45. My Chemical World	58
11. Report of The Students' Central Committee	17	46. STUDENT	59
12. ABCD of Life	19	47. Biophysics	60
13. Report of Activities of VPM IAS STUDY CLUB	20	48. Microbiology	62
14. Friend	20	49. Let Me Cry	63
15. My experience - Summer School in Physics and Astrophysics	21	50. I WANT....	63
16. Mind Body Connection	21	51. Green Chemistry : An Environment Friendly Technology	64
17. What is Green Chemistry?	22	52. ज्ञान प्राप्त क्वा शुं क्शो ?	65
18. ऋषीमुनी यों क विज्ञानमें योगदान	22	53. मेणवता शीभो	65
19. Aids Awareness	23	54. How to Improve Your Reading Abilities ?	66
20. College Life a Golden Period	26	55. No One Can Hear Me	68
21. Biodegradable Polymers	27	56. The Adventure	68
22. Result of Article Writing Competition	29	57. वक्त	68
23. Report of One Day seminar entitled "Industrial Motivation Campaign"	29	58. वेरठर्न क्त्वर	68
24. Antibiotic	30	59. स्वाभी विवेकनंद	69
25. Thoughts	32	60. ऋषीमुनी यों क विज्ञानमें योगदान	69
26. Cloud Computing	33	61. आत्मसंतोष	70
27. Microbial Disease	36	62. मूळवण	70
28. Floriculture	37	63. नवा विचारो	71
29. ऋषीमुनी यों क विज्ञानमें योगदान	38	64. ऋषीमुनी यों क विज्ञानमें योगदान	71
30. What Is Instrumentation?	39	65. इलोरीक्त्वर (आधुनिक पद्धतिना नभरे)	72
31. Faith & Efforts	41	66. ज्णवनां मजेली तड	73
32. ऋषीमुनी यों क विज्ञानमें योगदान	41	67. मन होय तो माणवे ज्वाय	73
33. The Role of Computers in Chemistry	42	68. ...तो ज्णओ	74
34. Protect yourself	44	69. क्खिरो नहीं, क्खिरी !	74
35. 4G - 4th Generation	45	70. ज्णुंणीनी सइरमां	74
		71. में क्वा क्कुं ? (हुं शुं क्कुं ?)	74
		72. Staff List 2013-14	75



Message from Chairman

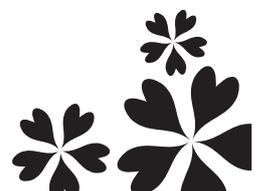


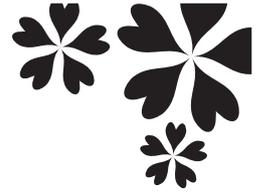
It is matter of pride moment for me to know of the publication of your College Magazine for the year 2013-2014. Creativity is the heart of development. Every moment of life is to be invested for digging out something novel from within to make life meaningful and cherished. V P and R P T P Science College has a great tradition of training the students in the art of expression through varied activities including putting their ideas in black and white that makes the embodiment of the college magazine. I congratulate everyone who has strived to make it possible.

Dr. C. L. Patel

Chairman

Charutar Vidya Mandal





Message from Hon. Secretary

Everyone agrees three are major influences in an excellent education system; the quality of students, the quality of faculty, and the quality of enabling resources deployed to promote learning. There is also a fourth overarching factor that gets buried under all the noise around faculty and placements - the academic environment.

There is no question that the quality of students in India is excellent - it is borne out by the fact that Indian students have consistently done and are doing well in universities of repute across the globe. They get placed in the best jobs. The quality of teaching in Indian institutions is accepted as better than many other parts of the globe. However, the academic environment and resources base in the Indian context inhibits the full realisation of their potential. The quality of governance and accountability structure in performance measures in Indian institutions imparting higher education has also impeded innovation and risk-taking.

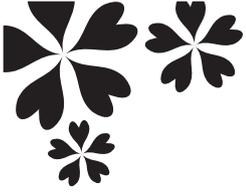
Leading and progressive educational institutions have to nurture this creativity and to form innovative ideas through varied student's activities.

I am pleased to know that the **oldest science college** of the Gujarat State publishes its annual magazine for the academic year 2013-2014. A college magazine provides platform for creative expression and put one's thinking on the paper. It also reflects the highlights of the college and its achievements during the academic year. This practice of publishing annual magazine helps to bring out and develop the hidden capacities of the students. The process of thinking, arranging in order, putting on the paper in the lucid language will make the students powerful in the communication skill. This helps very much to curve one's own personality at the young age.

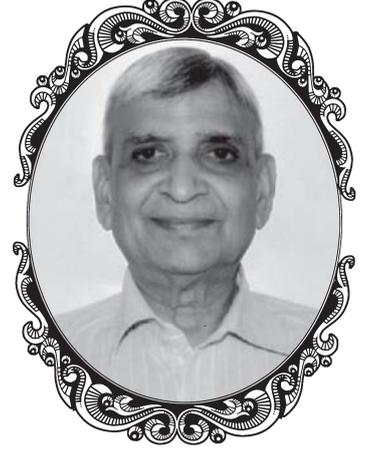
I convey my best wishes to everyone in their endeavour and for bright future of the institute.

Principal S. M. Patel
Hon. Secretary
Charutar Vidya Mandal





Message from Hon. Incharge Joint Secretary

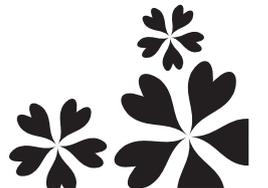


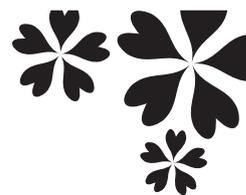
I always get delighted with something that opens up the wings of creative ideas of the students, be it be sport, singing, painting, speaking, presentation of research work or pen-down a few meaningful words on paper. Your College magazine that is being published must have provided such gliding opportunity to the students and the faculty. My congratulations to all of you who put in their might.

Dr. J. D. Patel

Hon. In-Charge Secretary

Charutar Vidya Mandal



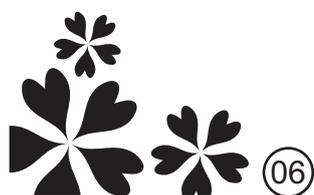


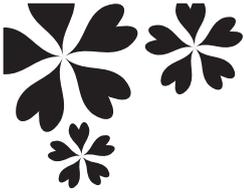
Message from Principal

It gives me an immense pleasure in releasing the annual magazine of college for the year 2013-14. V.P. and R.P.T.P. Science College has a rich tradition of publishing its yearly magazine regularly. I am happy to quote that even in its first year of establishment i.e.1947 college had published its magazine which is now available as prestigious document of college. College magazine means many things; in a way it is mirrors that reflect the real picture of the college.

In the last year the college achieved a milestone by getting “A” grade from NAAC, Bangalore. Also college one again has been awarded the status of “College with Potential for Excellence” (CPE) by UGC for the next five years. I dedicate these achievements to the founder, entire management of CVM and the staff members of College.

Dr. Bhavesh Patel
Principal





Editor's Note



I am very happy to put forward College Annual Magazine titled "Excellence" for the year 2013-2014. At the end of every year we publish our college magazine which is really a creative document of the talents of our college students. It provides a platform to young students to show their talents in writing. The magazine also reflects the college activities like academic, literacy, sports, cultural etc. and achievements of the students in various fields.

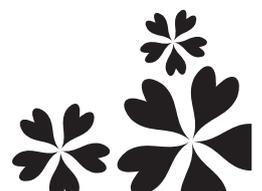
All students have talents in different fields. The college organized many activities throughout the year for the overall development of the students. There are many opportunities to express your talent. This is one type of training for the students which enhances confidence, expression power etc. The talent which is developed during college life will be very helpful to success in any field of life.

The college magazine provides the platform to the young writers to express their ideas in writing, chance to write on some topics. This is one of the best ways for improving imagination, thinking capacity, vocabulary and writing skills. I am happy to say that many students submitted their articles related to varieties of topics to publish in the magazine. The Magazine Club organized an Article Writing Competition, to enhance the writing skill on particular topics.

In many competitive examinations conducted by UPSC, GPSC etc., candidates are asked to write essays on national and international topics, and thus if you are preparing for any of them, it becomes mandatory for you to improve your writing skills at an early date.

I extend warm wishes to all our readers. I would like to take this opportunity to wish all the students the very best for their Examinations.

Dr. A. R. Jivani
Editor



Message from the Vice President



College life means different things to different students. One thing all agree is that it is once in a life time opportunity to learn new skills, mould one's personality and make new contacts through the several programmes- both curricular and co curricular. It has been our endeavour to increase participation in more and more programmes because we are of the opinion that this will boost confidence, increase self esteem and prepare students for the life ahead. This e-Magazine is also one such humble effort in the same direction where students try their hand at writing. I am glad to see articles on different topics. I do hope that you continue to develop this skill constantly strive to improve.

My best wishes for all your efforts in your quest for excellence.

Dr. Charudutt Gurjar

Vice-President

Students' Central Committee



Message from General Secretary



Dear friends,

You are about to have a glance of the reflection of our wonderful college through this magazine. It's a journey of our college of the year 2013-14 and the activities, thoughts and achievements made by our students and teachers in this year.

Our college is well-known for conducting all the curricular and extracurricular activities successfully. This magazine contains all the information about our creativity and development with a pleasant photo gallery and articles full of knowledge. It's an outcome of hard work done by innovative Dr. A. R. Jivani Sir, Dr. T. H. Patel Sir and talented magazine secretary Jugal Patel.

My deep sense of gratitude and indebtedness are due to our inspiring principal Dr. Bhavesh Patel and Dr. Charudatt Gurjar, the Vice President of Students Central Committee for always guiding me. I am also grateful to all the ex-officio teachers, faculties, non-teaching staff, all the members of Students' Central Committee and the students of our college.

Wishing you a magnificent experience of reading.

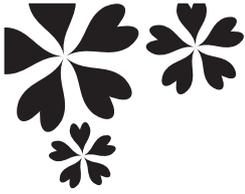


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Ankur J. Dabhi

General Secretary,

Student Central Committee.



Words by Magazine Secretary



Its indeed pleasant to work as a Magazine Secretary for V.P & R.P.T.P. Science College. Through this portfolio seems to be a silent one but it is the most effective one as it as a whole reflects all others.

The Magazine contains records of all academic, non-academic activities and various reports of our college. We also had the Magazine flexible by introducing an e-Magazine which one can get it on our college website.

I would like to thank Dr. Bhavesh Patel (Principal and President), Dr. C. R. Gurjar (Vice President) and my Ex-Officio Dr. A. R. Jivani and Dr. T. H. Patel for in a way or other supporting and helping me in my works. Lastly I would like to thanks my fellow friends for sparing enough time for writing articles, poems etc, without which the magazine would lack its essence.

To conclude I would really like to thank for selecting me and thanking me eligible enough to become "THE MAGAZINE SECRETARY". Hope while going through "EXCELLENCE" one will find it informatory rich and enjoyable enough.

Have a good time with it.

Jugal Patel

Magazine Secretary



Message From Student Vice Secretary



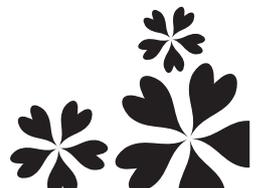
It is good luck for me to present the college magazine committee. The magazine gives an insight into the cultural and academic records of the college.

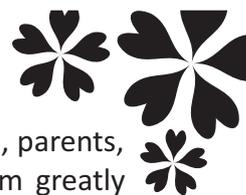
I express my immense gratitude to respected Principal Dr. Bhavesh Patel (President), Dr. C. R. Gurjar (Vice President) sir, all members of the central committee and student who supported me in this magazine. I specially thank Ex-Officio Dr. A. R. Jivani Sir and Dr. T. H. Patel Sir for guiding and encouraging me throughout the making of this magazine.

With full hopes, I wish you a happy reading this magazine.

Jay Godhasara

Magazine Vice Secretary





I am privileged to welcome all the dignitaries on the dais, off the dais, invited guests, parents, faculty members and my dear students to the 67th Annual Day celebrations. I am greatly honoured to address this august audience and to present the Annual Report of VP Mahavidyalaya, its performance and achievements for the academic year 2013-2014.

VP & RPTP Science College is one of the premier institutes run by Charutar Vidya Mandal (popularly known as CVM). This college is one of the prestigious Science Colleges of state of Gujarat, inaugurated by Sardar Vallabhbhai Patel in 1947. The college is recipient of best science college award thrice in succession by state government. Keeping the same tradition on the College has been Re-accredited "A" by NAAC, Bengaluru. (This was our promise to our last year chief guest Dr. G. Srinivas from UGC, Poona)

It is matter of pride for that college has recently been awarded CPE status again. The college was selected for CPE I phase in 2010 and was due for CPE II Phase. The UGC allocated fund of Rs 130 lacs to the VP Science College. This is one of the few colleges in the state to receive CPE II phase. The college is affiliated to Sardar Patel University and offers under-graduate courses in Pure and Applied Sciences. We also run vocational courses like Industrial Chemistry, Instrumentation. The college is a recognized research centre for Microbiology, Chemistry, Industrial Chemistry, Physics and Biology.

A total of 59 teaching faculties are working in different disciplines, out of this 32 have Ph.D. as highest qualification and 13 have M. Phil. as highest qualification.

The college is recognized for its well equipped laboratories, ICT enabled classrooms, library infrastructure, Canteen, hostels for boys and girls, play grounds, Gymnasium and above all an environment for overall growth and development of its students.

The academic year started on 17th June 2012. A total of 1496 students were enrolled which included 843 boys and 653 girls. On the very first day, an orientation program was organized to make the students aware about the rules and regulations of College. They were also given detailed information about the college so that they understand the system and perform better from very beginning of the session. The orientation program was graced by the presence of Dr. J. D. Patel. This was followed by a Counselling meeting with the students and their parents.

Result Analysis, Gold Medals or Awards Won:

The CBCS was introduced in the year 2010 and the results are very promising. The results of the examinations held in April 2013 of BSc [Semester I] 42 % (Uni. results 32%), BSc [Semester III] 57 %, BSc [Semester V] 78 % (Uni. results 77%), BCA [Semester I] 56% (Uni. results 40%), BCA [Semester III] 65% (Uni. results 57%) and BCA [Semester V] 81% (Uni. results 83%). All the results of college are above the University average result. We are committed for the better performance of students in future.

Seven gold medals of Sardar Patel University for scoring highest percentage in external theory examinations are received by our students. The gold plated medal winners are:



- **Ms. Rosy Alphons Sequeira** won three gold plated medals for being first in Chemistry.
- **Ms Divya L. Negi** won award for being first in Electronics.
- **Ms. Khyati B. Bhatt** was awarded first position in Botany
- **Ms. Binal A. Patel** in Zoology.



-
- **Mr. Jay Gopalbhai Patel** was awarded gold plated medal for securing highest marks in SY and TY B.Sc. taken together.
 - **Mr. Brijesh P. Bamaniya** awarded gold medal in Instrumentation (Vocational).

Achievements of the Students:

Minaxi-Lalit Science Award Test-2013 and 2014

This is a state level competition conducted by Gujarat Science Academy once a year. In 2013, three students won this prestigious award. **Solanki Karishman** Stood First in Maths, **Bhatt Khyati** Stood First in Botany and **Patel Aesha** Stood Second in Chemistry from all over Gujarat

In 2014, **Sohan D. Kansagra** stood First in Microbiology and **Jinal P. Patel** stood First in Botany from all over Gujarat. It is a matter of great pride to the college and I heartily congratulate all the winners!

PhD completed

- **Mr. Satish Vanparia** completed Ph. D. under the Guidance of Dr. B. C. Dixit.
- **Mr. Hitesh Dholariya** and **Mr. Jiten Patel** were awarded Ph.D. degree in subject of Chemistry under the guidance of Dr. K. D. Patel.
- A student of Dr. H. N. Patel, **Ms Shilpa Jani** was awarded a Ph.D. degree in Microbiology. Congratulations to all.

Achievements of the Staff Members:

Ph.D. Pursuing under research Guides:

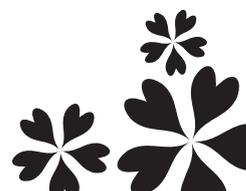
- 16 students doing PhD under the guidance of Dr J K Baria, Dr M V Kumar, Dr VK Sinha, Dr PM Patel (IC), Dr BC Dixit, Dr HN Patel, Dr KD Patel.

Research Projects undertaken by Faculty:

- Dr. J K Baria, Dr. H. M. Patel and Dr. Minaxi Vinodkumar are pursuing different Major project funded by DST/UGC.
- Dr. AR Jivani, Dr. M. K. Valand, Ms. SP Shukla and Dr. A. K. Vishwakarma have received minor research project from UGC.

Seminar / Conference Paper Presented.

- 36 staff members attended and presented research papers in State/National/International Level conferences:
- Dr PM Patel (1), Dr JK Baria (2), Dr PS Vyas(2), Dr AR Jivani (2), Dr TH Patel (3), Ms SP Shukla (2), Ms JN Batra (1), Dr MV Kumar (3), Dr BC Dixit (2), Dr KD Patel (1), Dr RH Parab (1), Dr TB Darji (2), Dr GM Patel (1), Dr HR Mardiya (2), Dr HM Patel (1), Mr HB Madhwani (1), Dr JP Patel (2), Ms Medha Patel (2), Dr AK Vishwakarma (1), Dr Dali Varghese (1), Ms Raxa Solanki (1), Dr VK Sinha (4), Mr. Tirth M. Panchal (4), Mr Mandar Karve (3), Mr LM Katara (4), Dr HN Patel (1), Dr CR Gurjar (3), Mr Nisarg K Prajapati (3), Mr Chirag M Patel (5), Mr Amit A Barot (2), Mr RH Sadhu (4), Mr Dhavat Shah (1), Dr PM Patel (IC) (4)
- Dr PS Vyas presented research paper in the International Conference organized by American Physical Society, USA.
- Various staff members attended International / National Conference.
Dr G M Patel, Dr M K Valand, Ms. P. B. Patel, Ms. S. K. Menon, Ms. V. M. Patel, Mr. A. A. Shukla, Mr. S. A. Shaikh and Ms. V. M. Patel, Dr. R. Z. Bhatti.



-
- The IQAC of the college organized a NAAC sponsored one day seminar on nurturing quality in higher education through IQAC on 11/01/2014. Total 153 participants attended the seminar and out of that 33 staff members of this college attended the seminar. Dr. R. H. Parab secured First prize in research paper presentation at the seminar.
 - Mr. PK Panchal and Mr. SB Gildar attended orientation program. Mr. Ashish Joshi attended Refresher Programme



Research Publications of Faculty Members:

- During this year staff members published 40 research papers in National as well as International reputed journals.
Dr JK Baria (2), Dr AR Jivani (4), Dr PS Vyas (3), Dr TH Patel (2), Dr Minaxi Vinodkumar (15), Dr JP Patel (1), Dr Nikunj Bhatt (1), Dr BC Dixit (3), Dr HM Patel (2) Dr KD Patel (3), Dr VK Sinha (3), PM Patel (IC) (2) research papers in National/International level Journals and books.

Books Published:

- Dr Nikunj Bhatt published two books and Dr. Minaxi Vinodkumar published a proceeding book by Narosa Publishers.

Prize for best Research Papers presentation by faculties

- Dr PM Patel of the (IC Dept) Received First Position in poster presentation of research paper in a National Conference at GCET, Vallabh Vidyanagar.
- Mr. Nisarg K. Prajapati & Mr. Chirag M. Patel & Dr. V. K. Sinha, won First prize for best poster at "Science Manthan" at Changa.
- Mr. Chirag M. Patel, Mr. Amit A. Barot & Dr. V. K. Sinha, won Third prize for best poster in International Symposium at Ahmadabad.

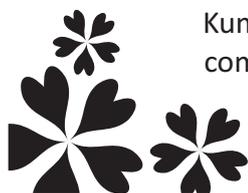
Miscellaneous

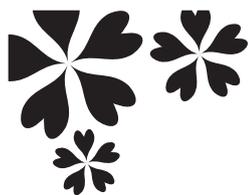
- Dr JK Baria was selected by MHRD New Delhi for E-Content preparation under ICT Project.
- Dr. Minaxi Vinodkumar secured highest points in half yearly Academic Audit conducted by V. P. Science College. She was the convener of the National Conference organized by Electronics Department. She was invited to attend International meeting held between INDIA and UK on 'VAMDC' and she also chaired a session in that meeting.
- Dr Nikunj Bhatt was the convener of the National Conference organized by IQAC
- Mr. L M Katara voluntarily offered his services for the bar-coding of the Library books of the 8 other institutes of CVM.
- Dr. R. Z. Bhatti worked for Harrier bird census at Velavadar.
- Dr. K. D. Patel Stood as technical chairperson at National Conference at (GCET), Vallabh Vidyanagar.

Reviewer

- Dr JK Baria, Dr AR Jivani, Dr. Minaxi Vinodkumar, Dr BC Dixit worked as reviewer of research papers published by well reputed International Physics Journal.
- Dr. Minaxi Vinodkumar refereed Thesis of Chaudhari Charan Singh University, Meerut
- Dr P M Patel (Physics Department) / Dr. R. Z. Bhatti/ Dr. B. C. Dixit/ Dr. RH Parab/ Dr. H. N. Patel/ Dr. Vijay Kumar Sinha and Dr Charudutt Gurjar were invited as judges in various Oral & Poster competitions organized by various institutes.

- Dr. Vijay Kumar Sinha appointed as External referee for Research Progress Committee at DDU Nadiad and one of the Member in interview committee for Faculty Promotion at ISTAR.





Keynote Speaker

Dr Nikunj Bhatt was invited to deliver Keynote address at Two day workshop at Petlad Science College.

Dr CR Gurjar was one of the four main speakers at the national seminar organized by IQAC

Resource Person

- Dr PM Patel (IC)/ Dr Nikunj Bhatt worked as Resource Person at various events.
- Dr PM Patel (IC) / Dr. B. C. Dixit/ Ms PB Patel/Mr. Dhavat Shah/ Dr. R. Z. Bhatti/ Mr. L. M. Katara delivered expert lectures at various institutes.
- Dr K D Patel Conducted Pre-Ph.D. Course on “Green Techniques in Synthetic Chemistry” at VP Science College, Vallabh Vidyanagar for Ph. D. students.
- Mr. H. B. Madhwani was appointed as visiting faculty to teach Biostatistics to M.Sc. Home science students at SPU, Vallabh Vidyanagar.

Departmental Activity

Physics Department

- Organized inter-college ELOCUTION competition on the topic “Great Indian Physicist”. Four science colleges and 20 students participated in this competition.
- About 70 students of Physics and three faculty members visited Physical Research Laboratory (PRL), Indian Space Research Organization (Space application Centre)-(SAC ISRO) and Science City at Ahmadabad.
- Department arranged an expert lecture, A senior scientist Shri Rajeshbhai Upadhyay, ISRO, Ahmadabad, delivered the talk.

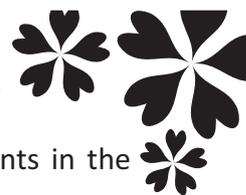
Chemistry Department

- Organized one day seminar on “Entrepreneurship development”.
- Arranged three Guest lectures by Dr. D. I. Brahmbhatt, Dr. V. D. Bhatt and Dr VK Patel.
- 63 students along with faculty members Dr. G. M. Patel, Dr. M. M. Morekar and Dr H R Maradiya visited four chemical factories at Vadodara and Nandesari.
- Campus interview: Reliance Industries Ltd., Jamnagar conducted campus interview. Four students of TY Chemistry were selected for the post of plant operator.
- 13 students took part in the poster presentation competition at “Science Manthan” at Changa. Ms Palak Patel and Ms Bansi Patel received prize.
- 15 students of T Y B Sc chemistry attended one day Hands on Training programme on Chemi-Informatics at ARIBAS New Vallabh Vidyanagar on 22/02/2014"

Mathematics & Statistics Department

- The department organized Guest Lecture by Prof. M. H. Vasavda on Applications of Mathematics in real life.
- A group of 54 students with Mr. N. Y. Patel, Mr. R. P. Solanki and Ms. C. V. Soni visited Diu, Somnath, Gir and Junagadh.
- Organized “Prof. A. R. Rao Mathematics Competition” for B. Sc. students in which students from various colleges of Vallabh Vidyanagar, Anand & Nadiad participated.
- Organized seminar for awareness of “Master in Product and Quality Management (MQPM)” program for T. Y. B.Sc. students.
- Students & faculty members participated in National Level one day seminar and a workshop.





Biology Department

- Biology department and Forest department jointly conducted inter college quiz competition on wildlife.
- Botany students celebrated teacher's day by planting about 30 different plants in the campus on 5th Sept-2013
- Botany and Zoology students visited Gandhinagar, Santokpura, Lingda, Pawagadh and Jambughoda, Nandeshari, Arya Biotech etc.
- Students of Botany attended the programme "Digitalization of herbarium" organized by NIF, Ahmedabad.
- Botany staff and students attended lecture on commercial applications of tissue culture at Anand Agriculture University.
- 9 students of Biology department attended one day workshop at ISTAR.
- 14 students of Biology department participated in poster making competition organized by CHARUSAT.
- Students of biology department participated in various competitions like poster making, oral presentation, science quiz and model exhibition organized by our college on the eve of science day-28th Jan-2014. Students won prizes in various events.

Microbiology Department

- Dr. Udayan Bhatt and Dr. U. B. Trivedi delivered guest lecture for the students.
- Dr. H. N. Patel and Ms. P. B. Patel delivered lecture on BISAG on Antigen and its characteristics.
- Dr. H. N. Patel, Ms. P. B. Patel, Ms. S. K. Menon, Mr. A. A. Shukla and Mr. S. A. Shaikh and Microbiology students attended a talk by Dr. Rajani Nadgouda on Commercial Applications of Plant Tissue Culture organized by Anand Agriculture University on 06.09.2013.
- Dr. H. N. Patel was appointed as a counsellor at BVM Engineering College for ME, Environmental Sciences.
- Mr. A. A. Shukla was appointed as a counsellor at IGNOU for teaching food Microbiology at home Science College.

Industrial Chemistry

- Arranged Guest lecture: Dr. D.K. Raval delivered a lecture on NMR Spectroscopy.
- 2 Seminars organized by the department.
- The students of the department visited Amul, Champion Paints, Glass Coat industries & the Sardar Patel institute of renewable energy.
- Student's seminar: All the T.Y. students delivered a seminar on scientific topics individually.
- Students job placements: Two students were appointed by Reliance Industries, Jamnagar.
- Few students were attended the conference, seminar at Ahmedabad, Changa etc.. Anik Patel, Dipesh Savalia, Majid Pathan got the 3rd prize in Science exhibition at V.P. Science College. Anik Patel, Dipesh Savalia, Majid Pathan got the 2nd prize in Science exhibition at state level Anveshan VIGYAN UTSAV 2014 at Sardar Patel University.

Electronics/Instrumentation Department

- Organized National Conference. Dr. Minaxi was the convener and Mr. PA Lashkari was Coordinator of the conference.
- Harshvardhan Jha, Jay Popat and Kashyap Padariya, students of Instrumentation stood first in district level science project competitions organized by CC Patel Community Science Center, VVN.





Computer Science Department

- Pratik and Apeksha participated in paper presentation at NVPAS, Vallabh Vidyanagar.
- Nirali, Monika, Payal and Shikha of Computer Science attended the national level one-day seminar at SPU.

BCA Department

- BCA department and Computer Science department jointly organized two seminars “Compu-Carnival 2013-14” and “Cyber Security”.
- Department of BCA and CS jointly organized industrial visit to Ahmedabad and Udeipur. A total of 73 students benefited from the trip and became aware about the industrial visit. Mr. R. H. Sadhu, Mr. Ashish Joshi, Mr. Akshar Parekh, Ms. Priya Patel accompanied the student

English Department

- Dr C R Gurjar Worked as member IQAC Core Committee for NAAC Accreditation, Organizing Secretary, in One Day NAAC Sponsored Seminar organized by IQAC, Worked as Language Trainer in Six Weeks on Research writing and Oral Presentation at Vallabh Vidyanagar.
- Invited to be part of Programme Advisory Committee by (DIET) District Institute of Education and Training, Valasan.
- Organized an English skills Programme for Non Teaching Staff of the College.
- Coordinated with CDC to organize a 12 hour Faculty Training Programme.

Office: Ms Harsida Parmar resigned due promotion at Gandhinagar.

Other Activities:

- The college has an active counseling cell. The faculty members are zealous in helping the students not only with their academic work but also by looking after their overall development. The parent teachers meeting was held twice in a year.
- As a part of looking after the overall development of our students a special package of personality development program is offered by CVM to them. Internet facility is available to students. The college now has WIFI connection.
- The college has an active women cell which looks after the requirements of our girl students.
- The college publishes the student magazine where the literary skills of our students flourish. College published Annual e-Magazine ‘Expressions’ of Year 2012-2013. This year we plan to have an e-magazine. 60 articles on various topics are submitted by the students.
- The college started VPM IAS Study Club for the preparation of the competition examinations for administrative posts. Dr. A. R. Jivani looked after this activity. During the year the club organized various programmes to guide and inspire the students. Free coaching for IAS classes was started with the cooperation of CDC, Vallabh Vidyanagar.
- Add on Courses: The College conducted 10 add on courses during the last year and 145 students participated in the said courses.

Various Funds:

- Financial support from CVM scholarship fund and Bhaikaka foundation scholarship fund is provided to the poor and needy students.
- Scholarship is also to be given to SC, ST and OBC students. A total of Rs 22, 17,993/- was distributed to these students.





Golden Jubilee Fund Function:

This year Golden jubilee fund organized the 'Vir Vitthalbhai Patel Memorial lecture' on 27th September. Dr Gaurang Jani (Associate Professor of Social Science from GU, Ahmedabad) was the chief guest. 17 gold plated medals will be awarded in this function to meritorious students.

Library:

- The college library has a total of around 50,000 books.
- We subscribe 50 periodicals and magazines and 5 news papers.
- The library is enriched with INFLIBNET N-LIST facility providing access to 75,000. e-books and 3000. e-journals to faculties, research scholars and students.
- The library is fully computerized with INFLIBNET SOUL 2.0 Software. All the books are circulated with barcode system.
- This year many books for competitive examination such as: IPS, IAS, Defense, GPSC, L.I.C., Banking, Railways etc were purchased.

In a Nutshell - The Important Achievements Are

1. Re-accredited with "A" grade by NAAC
2. CPE II phase is awarded by UGC with a grant of Rs.130 lacs
3. College has applied for the Model College under RUSA with a detailed Institutional Development Plan of worth Rs. 2.00 Cr.
4. Renovation work worth of Rs.50 Lacs has been completed.
5. Successfully introduced 12 Add-on certificate courses for imparting employable skills in the students.
6. IAS training club is running successfully with more then 150 students.
7. Successfully organized two Parent Teacher Meets.
8. Updated the website
9. No ragging incidence at campus.

Future Plans

1. More project proposals are to be submitted to various funding agencies.
2. XII plan of UGC is ahead, we need to procure funds for construction few class rooms on the first floor of library building.
3. We are planning to introduce post graduate classes in Physics and Chemistry.
4. We are planning to organize more conferences/ workshops/ seminar etc.
5. We are also in the process of strengthening the endowment fund of college.

I express my heartfelt thanks to the chairman Dr C. L. Patel for his support and guidance. I also thank the Honorary Secretaries, Vice Chancellor of Sardar Patel University, Registrar of the University, Heads of the Postgraduate Departments and the Principal of sister institutions for their valued support and suggestions.

The success of this college is due to the selfless, dedicated and devoted staff members. I thank them all whole heartedly. I also thank the Vice President, General Secretary, Ex-officio, secretaries and representatives of the students' central committee, conveners and members of various other committees for their cooperation and support in making this function a grand success.



- (Dr. Bhavesh Patel, Principal)



Report of The Students' Central Committee

Respected Dr CL Patel, Pujya Jasbhai sahib Prin SM Patel, Dr JD Patel Dr Bhavesh Patel, other secretaries of CVM, Invited guests, GS Ankur Dabhi Members of the Central committee, My colleagues and student friends.

Good evening and a warm welcome to all of you.

Education in the real sense aims at holistic development of the individual. Academics as well as extra and co curricular activities play an important role in doing so. They complement each other well. The Students' central Committee not only provides a platform to students to participate in various activities but also gives them an opportunity to accept and handle responsibility to help in conduction of the events and in the process, grow. This Prepares them for the tough life ahead.

Please allow me to apprise you about the activities of the student's central committee carried out in this year.

The student's central committee of the college comprises of 10 clubs that include Fine Arts, Nature club, Science Association club, Sports club, Excursion & Study Tour club, Women's cell, Debate & Elocution club, NCC and NSS. Many students participated enthusiastically in all the activities and many won the prizes too.

However the list is too long to elaborate due to constraint of time, so please allow me to highlight the activities and achievements of each club in brief.

Knowledge And Science Association :

The Knowledge and Science Association of our College, Ex OFFICIO Dr. Vijay Sinha, Dr. J.P. Patel, Dr. K.D. Patel, Dr. Pragna Patel, Dr. Paresh Vyas, and Student secretary Mr. Akul Patel, celebrated science day & organized various events on 28th Jan' 2014 in which a large number of students participated with great enthusiasm.

The events organized were: Science project Exhibition. Poster competition Oral presentation and Quiz competition.

Large number of students from different colleges & schools in Vallabh Vidyanagar visited the science exhibition, & gained insight into different aspects of science.

Nature Club :

Under Ex officio Dr Mehul Mehta and student secretary, Ms Urvi Dave, The nature Club organized Bird watching trip, A slide show on the Effects of Kite Flying on Birds, and an inter Collegiate Quiz competition in association with Dept of Forests, Govt of Gujarat.

Fine Art Club:

Under Ex officio: Lincoln Chauhan, Student secretary: Ms. Kajal S Patel, the Club (a). Poster making competition: (b). Collage making competition: c). Rangoli competition: Fine Art Club had organized Rangoli competition. 16 students participated. Following students got prizes for the same..Ms. Riddhi R Patel of TYBSc (Physics) stood Second in Collage making competition in UDAAN-2013





Music & Dance Club :

Under Ex- officio Mr Kamlesh Raval and Dr Rajiv Bhatti and student secretaries Saurabh Solanki ,Ashish Macwan , Sreyansh Gilder, Nirali Fadke and Vidya Nair ,The club organized students participated in many events like Independence Day Celebration, Navratri celebration, UDAAN Youth Fest in which Khubsoo Zalawadiya got 2nd prize in non percussion instrumental, Volcano and Talent Hunt in which 100 students were auditioned and 40 were selected to perform in group song, solo song, dances, short plays, traditional and western costume fashion shows etc

Drama Club :

Under Ex officio Dr Minaxi Vinodkumar and Student secretary Mr Yash Joshi, students participated in mime, mono acting and skit competition in the Youth Festival organized by United Progressive colleges headed by CVM.In the Talent Hunt of the college, four skits were presented

Magazine club :

Under Ex-Officio Dr A. R. Jivani and student secretary Mr Jugal Patel and Jay Godhasara, the club is in process of bringing out the College E magazine. The club also organized an article writing competition in which more than 30 students took part. The prize winning articles will be published in the college magazine. The club also keeps a record of the photographs of various events.

Debate Club :

Under Ex Officio Mr R P Solanki and student secretary Ms Devanshi Joshi, the club organized an Debate competition on the topic ' Is the Semester System beneficial for the students? More than 25 students took part in the event that was won by Mr Milan Rathod.

Tours and Excursion :

Under Ex-Officio Dr PM Patel of IC Dept, and student secretary Mr Mr Akash S Rana, the club organized a one day tour to Nalsarovar in which 58 students joined.

N.S.S. Activities:

The NSS Unit organized Blood Donation Camps were organized two times this year, with the help of the A D Gorvala Blood Bank; Karamsad and Total 72 units of blood were collected. The students also participated in Poster making competition on the celebration of National Voter's Day Chief election Commissioner (Gujarat Govt.)

Mr. Priyank Patel of and Mr. Akul Patel were selected as CAMPUS Ambassadors FOR YOUTH VOTERS by S P University & Election Commissioner (Guj. Govt.)

Red ribbon club had organized Inter collegiate Essay writing competition. 40 students of various colleges of Anand- Vidyanagar area. Out of them our FYB.Sc. student Ms. HIMANI PATEL won first prize.

Mr. Yash B. Joshi of TYBSc. and Mohit S Patel of SYBSc. were declared as The Best N.S.S. Volunteers of the academic year 2013-14.

Womens' Cell :

Under the convenership of Mrs. Medha K. Patel and members Ms. R H. Solanki, Mrs. Pragna ben B. Patel, Ms. Vanita. M. Patel & Mrs. Truptiben B. Darji conducted an orientation programme for girl students to make them aware of the activities done by





Women Cell, what is harassment, types of harassment, how to protect themselves, what precautions are to be taken etc.

Karate classes have also been started for girl students.

NCC:

Under NCC officer Capt MM Morekar, the NCC Cadets conducted the Independence day Celebration in the college, actively participated in the Republic day celebration and giving Guard of Honour to the Hon'ble Governor on the convocation day.

The NCC Cadets also participated in National Integration camps at Ahmedabad, Jammu and Chennai and won first prizes in Firing and group dances and second position in quiz.

Sports:

Under Dr J K Chauhan and members and Ms Raksha Solanki H B Madhwani Dr Rajiv Bhatti and student secretaries Mr Neel R Talati Mr Jigar J Chaudhari Mr Saiyad Matin Ms Ruchi C Thakkar ,this year has been extremely good .The boys won inter collegiate tournaments in Kho Kho, Tennis, Kabbadi and Athletics. While the girls won inter collegiate tournaments in badminton, volleyball and were runners up in Kabbadi and athletics. Many students represented the University in inter university tournaments in basket ball kabbadi , kho kho and volleyball

Discipline Committee:

No function can be conducted smoothly without discipline. Under Dr. JK Baria and student secretaries Mr Priyank A Patel, Mr Vimal B Patel, Ms Ami Soni, Ms Nishita Mistry, Mr Darsh G Patel, Mr Odedra Rambhai K, the committee was involved in all the college activities tirelessly. They in fact are the unsung heroes of the college success story.

To conclude, I congratulate all the participants and winners in various activities. I take this opportunity to thank the President of the student central committee and Principal Dr. Bhavesh Patel for his reposing faith in me and for constant support throughout the year. I also thank all my ex-officios, student secretaries, and all other faculty staff , the office staff whose guidance and motivation steered the students in the right direction and helped in the smooth and successful conduct of the activities. And of course, a very big thank you to all the students who responded to my call even at odd hours.

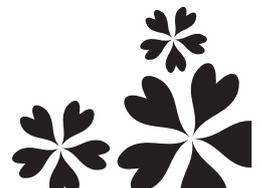
Thank You All



ABCD of Life

A lways	B e	C ool	D o not have	E go with
F riends and family.	G ive up	H urting	I ndividuals.	J ust
K eeP	L oving	M ankind	N ever	O mit
P rayers.	Q uietly	R emember God	S peak	T ruth.
U se	V alid	W ords	X press	Y our
Z eal.				

Vijay Pijwala, Admin Office
sharvishant@yahoo.co.in





For success in any type of competitive examinations conducted by UPSC, GPSC, Banking etc is not easy task. It is important to set goal in the starting years of graduation and start work accordingly. The preparation of such types of examinations will be faster if a group of students prepare together. VPM IAS STUDY CLUB is formed for the benefit of student of our college to aware about such types of examinations. Various activities organized throughout the year by the club.

Lecture of Dr Satishkumar organized by the club :

A lecture of Dr Satishkumar was organized by the club for the benefit of the students of our college. About 80 students attended this lecture. Dr. Satishkumar had successfully cracked the UPSC Civil Service Examination with 280 AIR and hence he guided and inspired the student about the preparation of examination to be an IAS officer. Considering the revised syllabus and the new pattern of the IAS preliminary examination he suggested few very useful tips to crack the IAS examination.

Seminars by students:

To increase presentation skill and convincing power seminars on various topics were organized as a part of the preparation of the competition examinations by the club. Topics were selected related to current affairs to enhance the knowledge of the students.

Coaching Classes for selected students:

With the coordination of Career Development Center, Vallabh Vidyanagar started Coaching Classes for selected students.

Various MCQ Tests conducted by the club:

The club organized various activities for the preparation of competitive examinations after graduation. Due to more weightage on the General Studies in UPSC examinations, the club organized periodically practice test on different themes like General Science, Geography, History etc.

As per the new format of most of the competitive examination, reasoning questions incorporate in the paper. The club also organized reasoning test frequently. There were various types of questions (Verbal, nonverbal, logical etc.) asked in the test.

Orientation Programme :

To provide information and guidance of the competitive examinations after graduation, an orientation programme was organized by the club. Two speakers Mihir Patel and Jentilal Solanki from SPIPA delivered the lectures.

Co-ordinator : Dr. A. R. Jivani

Co-coordinator : Dr. A. K. Vishvkarma



Friend



A friend doesn't ignore your fault's but accepts them as a part of you, A friend is a shoulder to lean on when you need support, a put on the back when you do well and a sympathetic ear when you fail.



My experience - Summer School in Physics and Astrophysics

I attended summer school organized by Indian Institute of Astrophysics during 14 to 24 May-2013 at Kodaikanal Solar Observatory, Kodaikanal.

The summer school was basically on introductory sessions relating to the fields of Physics and Astrophysics.

Large number of students from all over the country applied for the summer school and only few selected students have the better chance to be a part of such summer school.

On my part, I have gain knowledge about the stuffs relating to Physics and Astrophysics . We also have a chance to have visit in the solar observatory which have twin telescope , gravitational telescope and many others. I have also got chance to have a look over the 100 years of data on sunspots collected by the observatories itself. I have get chance to interact with well known scientists from reputed Institute like IIA, IISC, RRI even we had a chance to interact with the different students all over INDIA from different universities and Institutions who were from different science field i.e. Physics, Mathematics and Engineering.

Well, in summer, we generally have fun time in our home or in other tourist place; but why not invest our time in a proper way ? Where one will be getting experience and also will get paid here more over. This will also act as a touring agent as one can enjoy the lovable sceneries of the famous hill station of India.

I had been given travel allowance and also get paid to attend the summer school. I wish that my junior should apply for such types of summer and winter programmes.

Jugal Patel

T.Y.B.Sc. (Physics)

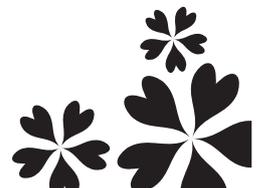


Mind Body Connection

We believe that part of the problem underlying this confusion is a loss of connection between mind and body. People are so busy thinking about what to eat that they have lost the ability to hear what their body is asking for this breakdown in communication probably began in childhood. when orders to 'Finish everything on your plate' were obeyed even when you may not have been hungry. Most of us were thought do eat when it was time to eat and eat as much as was in our plate. Considering how many children were encourage to disregard the signals of their body, it does not surprise the overeating and obesity are at epidemic level

Aesha M. Vyas

F.Y.B.Sc.



What is Green Chemistry?



What is Green Chemistry?

- The design of chemical products and processes that reduce or eliminate the use and generation of hazardous substances.
- Green Chemistry is a subset of design for environment applying innovative scientific solutions to product manufacturing.

Green Chemistry Supports Sustainability by:

- Making chemicals safe for our health & environment.
- Using industrial processes that reduce or eliminate hazardous chemicals.
- Designing more efficient processes that minimize waste.

Principles of Green Chemistry :

1. **Prevention:** it is best to prevent pollution/waste.
2. **Atom Economy:** synthetic methods should maximize the incorporation of all materials used in the process into the final product,
3. **Less Hazardous Chemical Syntheses:** synthetic methods should use and generate non toxic substances.
4. **Designing Safer Chemicals:** products should be nontoxic & designed to effect their desired function
5. **Safer Solvents and Auxiliaries :** auxiliary substances (e.g., solvents, separation agents) should be avoided and innocuous when used.
6. **Design for Energy Efficiency:** Run chemical reactions at ambient temperature and pressure ,
7. **Use of Renewable Feedstock:** raw material or feedstock should be renewable rather than depleting.
8. **Reduce Derivatives:** Avoid unnecessary derivatization (use of blocking groups, protection/deprotection, temporary modification of physical/chemical processes) because such steps require additional reagents and can generate waste.
9. **Catalysis:** Catalytic reagents (as selective as possible) are superior to stoichiometric reagents which are used in excess and work only once.
10. **Design for Degradation:** Chemical products should be designed so that at the end of their function they break down into innocuous degradation products.
11. **Analyze in real time to prevent pollution:** Include in-process real-time monitoring and control during syntheses to minimize or eliminate byproducts.
12. **Minimize accidents:** Design chemicals and their forms (solid, liquid, gas) to minimize the potential for chemical accidents, releases, explosions, and fires.

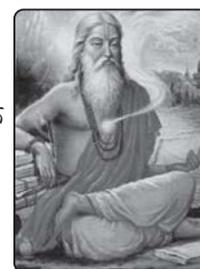
Jay Godhasara

S.Y.B.Sc. (Chemistry)

ऋषीमुनी यों क विज्ञानमें योगदान

आचार्य कणाद,

कणाद परमाणु की अवधारणा के जनक माने जाते हैं। आधुनिक दौर में अणु विज्ञानी जोन डाल्टन के भी हजारों साल पहले महर्षि कणाद ने यह रहस्य उजागर किया कि द्रव्य के परमाणु होते हैं। उनके अनसक्त जीवन के बारे में यह रोचक मान्यता भी है कि किसी काम से बहार जाते तो धर लोटते वक्त रास्ते में पड़ी चीजों या अन्न के कणों को बटोरकर अपना जीवनयापन करते थे इसीलिए उनका नाम कणाद भी प्रसिद्ध हुआ।





This Article was selected as best article in the Essay Writing Competition organized by NSS and it is worth reading.

AIDS- Acquired Immuno Deficiency Syndrome is a diseases of the human immune system caused by infection with human immune deficiency virus (HIV). AIDS has killed more than 30 million people world wide, making it one of the most destructive epidemics in record history.

AIDS was first observed in 1981 in the United States. The initial cases were a cluster of injecting drug users and homosexual men with no known cause of impaired immunity who showed symptoms of pneumocystis carinii pneumonia, a rare opportunistic infection that was known to occur in people with very compromised immune system. In the early days, the centres of disease control did not has an official name for the disease, often referring to it, the disease after which the discovers of HIV originally named the virus.

Both HIV-1 and HIV-2 believed to have originated in non-human primates in west-central Africa and were transferred to humans in the early 20th century. There is evidence that humans who participate in bushmeat activities, either as hunters or as bushmeat vendors, Simian Immune Deficiency Virus (SIV). However, SIV is a weak virus which is typically suppressed by the human immune system within weeks of infection. It is thought that several transmissions of the virus from individual to individual in quick succession are necessary to allow it enough to mutate into HIV. Specific proposed high-risk transmission channels allowing the virus to adapt to humans and spread throughout the society, depend on the proposed timing of the animal to human crossing.

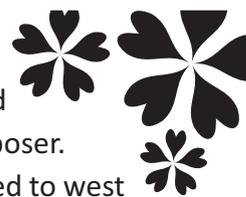
The earliest well documented case of HIV in a human dates back to 1959 in the congo. The virus may have been present in the United States as Early is 1966 but the vast majority of infections occurring outside sub-saharan Africa can be traced back to single unknown individual who became infected with HIV in Haiti and then brought the infection to the United States same times around 1969. The epidemic then rapidly spread among high-risk groups.

HIV is a retro virus that primarily infects components of the human immune system such as CD4⁺T cells, macrophages and dendritic cells. It directly and indirectly destroys Cd4⁺T cells. HIV is a member of the genus LENTIVIRUS part of the family RETROVIRUDAE. Lentivirus share many morphological and Biological characteristic. Many species of mammals are infected by lentiviruses which are characteristically responsible for long-duration illness with a long incubation period. Lentiviruses are transmitted as single stranded, positive sense, enveloped RNA virus.

Upon entry into the target cell, the viral RNAGENOEME is converted into double stranded DNA by a virally encoded reverse transcriptase that is transported along with the viral Genome in the virus particle. The resulting viral DNA is then imported into the cell Nucleus and integrated into the cellular DNA by a virally encoded dintegrase and host co-factors once integrated, the virus may become LATENT, allowing the virus and its host cell to avoid detection by the immune system. Alternatively, the virus may be transcribed producing new RNA genomes and viral proteins that are packaged and release from the cell as new virus particles that being the replication cycle a new.

Two types of HIV have been characterized HIV-1 and HIV- 2. HIV-1 is the virus





that was originally discovered. It is more virulent, more infective and is the cause of the majority of HIV infections globally. The lower infectivity of HIV-2 as compared with HIV-1 implies that fewer people exposed to HIV-2 will be infected per exposor. Because of its relatively poor capacity for transmission, HIV-2 is largely confined to west Africa.

After the virus enters the body there is a period of rapid viral replication, leading to an abundance of virus in the peripheral blood. During primary infection, the level of HIV may reach several million virus particles per millilitre of blood. This response is accompanied by a marked drop in the number of circulating $Cd4^+T$ cells. The acute viraemia is almost invariably associated with activation of $Cd8^+T$ cells, which kills HIV infected cells, and subsequently with antibody production. The $Cd8^+T$ cell response is thought to be important in controlling virus levels, which peaks and then declines as the $Cd4^+T$ cell counts recover. A good $Cd8^+T$ cells response has been linked to slower disease progression and better prognosis through it does not eliminate the virus. Ultimately HIV causes AIDS by depleting $Cd4^+T$ cells. This weakens the immune system and allows opportunistic infections. T cells are essential to the immune response and without them, the body cannot fight infections or kill cancerous cells.

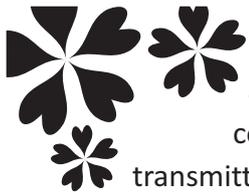
AIDS is diagnosed via laboratory testing and then staged based on the presence of certain signs and symptoms. HIV screening is recommended by the United States preventive service task force for all people 15 years to 65 years of age including all pregnant women. Additionally testing is recommended for all those at high risk, which includes anyone diagnosed with a sexually transmitted illness.

Most people infected with HIV develop specific antibodies within three to twelve weeks of the initial infection. Diagnosis of primary HIV before seroconversion is done by measuring HIV-RNA or P24 antigen. Positive results are obtained by antibody HIV infection can only be diagnosed by PCR testing for HIV RNA or DNA or via testing for the p24 antigen. Much of the world lacks access to reliable PCR testing and many places simply wait until either symptoms develop or the child is old enough for accurate antibody testing.

The initial period following contraction of HIV is called acute HIV, primary HIV or acute retroviral syndrome. Many individuals develop an influenza like illness or a mononucleosis like illness 2-4 weeks post exposure while others have no significant symptoms. Symptoms occur in 40-90% of cases and most commonly include fever, large tender lymph nodes a rash, headache, and/or sores of the mouth and genitals. The rash, which occurs in 20-50% cases presents itself on the trunk and is maculopopular. Classically gastrointestinal symptoms such as nausea, vomiting or diarrhea may occur as may neurological symptoms of peripheral neuropathy. The duration of symptoms is usually one or two weeks. During the initial infection a person may experience a brief period of influenza like illness. This is typically followed by a prolonged period without symptoms. As the illness progresses, it interferes more and more with the immune system, making the person much more likely to get infection including opportunistic infections and tumours that do not usually affect.

The most frequent mode of transmission of HIV is through sexual contact with an infected person. The majority of transmission worldwide occur through heterosexual contact. However the pattern of transmission varies significantly among countries. As regards





unprotected heterosexual estimates of the risk of HIV transmission per sexual act appear to be four to ten times higher in low-income countries than in high income countries. Risk of transmission increases in the presence of many sexually transmitted infections and genital ulcers. Genital ulcers appear to increase the risk approximately five fold other sexually transmitted infections such as gonorrhoea, chlamydia, trichomoniasis and bacterial vaginosis are associated with somewhat smaller increase in risk of transmission.

The second most frequent mode of HIV transmission is via blood and blood products. Blood borne transmission can be through needle sharing during intravenous drug use, needle stick injury, transfusion of contaminated blood or blood product or medical injections with unsterilized equipment. HIV is transmitted in about 93% of blood transfusion involving infected blood. In developed countries the risk of acquiring HIV from a blood transfusion is extremely low where improved donor selection and HIV screening is performed unsafe medical infections play a significant role in HIV spread in sub-Saharan Africa. The world health organization estimates the risk of transmission as a result of a medical injection in Africa at 1.2%. It is not possible for mosquitoes or other insects to transmit HIV.

HIV can be transmitted from mother to child during delivery or through breast milk, pregnancy. This is the third most common way in which HIV is transmitted globally. In the absence of treatment, the risk of transmission before or during birth is around 20% and in those who also breast feed 35% with appropriate treatment the risk of mother to child infection can be reduced to about 1%.

AIDS can be prevented by: Consistent condom use reduce the risk of HIV transmission 80% over the long term.

When condoms are used consistently by a couple in which one person is infected, the rate of HIV infection is less than 1% per year.

Whether it protects against male to female transmission is disputed and whether it is beneficial in developed countries and among men who have sex with men is undetermined.

Treating people with HIV whose CD4 count ≥ 350 cells/ μ L with antiretrovirals protects 96% of their partners from infection. Pre-exposure prophylaxis with a daily dose of the medications tenofovir, with or without emtricitabine is effective in number of groups. A course of antiretrovirals administered within 48 to 72 hours after exposure to HIV positive blood or genital secretion is referred to as post-exposure prophylaxis. The use of the single agent zidovudine reduces the risk of a HIV infection five fold following a needle stick injury.

There is currently no care of effective HIV vaccine. Treatment consists of high active antiretroviral therapy (HAART) which slows progression of the disease and as more than 6.6 million people were taking them in low and middle countries.

Benefits of treatment include a decreased risk of progression to AIDS and a decreased risk of death. In the developing world treatment also improves physical and mental health. Additional benefits include a decrease risk of transmission of the decrease to





sexual partners and a decrease in mother to child transmission.

Vaccination against A and B is advised for all people at risk of HIV before they become infected. People with HIV, use various forms of complementary or alternative medicine even though the effectiveness of most of these therapy has not established. There is not enough evidence for support the case of herbal medicines.

AIDS is global pandemic 40 million people have HIV worldwide with the number of new infection that year being about more than that life expectancy has fallen in the worst affected countries due to HIV/AIDS.

HIV/AIDS affects the economics of both individuals and countries. The gross domestic product of the most affect countries has decreased due to lack of human capital without proper nutrition health care and medicine large numbers of people die from AIDS related complication. At the household level AIDS causes both loss of income and spending on health care.

Every year world AIDS day is observed on 1st December to dedicate raising awareness of the AIDS.

Patel Himani A.

F.Y.B.Sc.



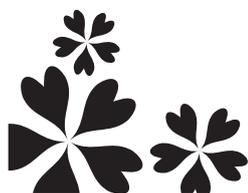
College Life a Golden Period

You often heard from your elders who were passed out of their colleges life that "Wow ! these were the golden days of the college" Yah ! it's true, A college is the large school of the youngsters.

College is the place from where we not only educate but we also develop our ability in various field. We can know about our potential to handle any situation, show our creativity and talents.

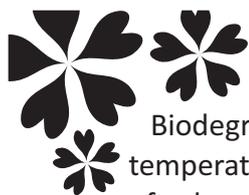
In school, we have to learn many subjects but in college we have to study only the subjects in which we are interested. if you are good in other activity like dance, singing etc., you can go in that particular field after graduation. By participating in debates & elocutions we can express our thoughts and the confidence also grow in ourselves. After passing college you can perfectly know about you likes & dislikes.

Really, after college you can find a true friend who is yourself. Yes, the true friend of yourself is only you.



Pipaliya Ami B.

S.Y.B.Sc. (Chemistry)



Biodegradation is the degradation of a material by environmental factors such as sunlight, temperature changes or the action of microbes. In polymer science and engineering, the design of polymers susceptible to biodegradation is of increasing importance for two reasons - polymers that degrade naturally in the body to harmless products may be used in biological devices and in drug delivery, and polymers that break down in the environment are significantly 'greener' than traditional plastics.

Biodegradation is key to the suitability of materials for use in drug delivery devices or in temporary structures within the body, such as sutures. For these applications, the ability of the body to naturally break down the material used either as part of the application or post-event is very important, making the removal of the polymer simply a case of allowing the natural process of degradation to occur. Many materials are being investigated for these.

The landfill crisis has made the production of non-polluting polymers for packaging and engineering uses a high priority. These materials need to be able to perform their function, but also break down in the environment with time, a difficult proposition. For these materials, the rate of degradation and therefore the lifetime and performance of the polymer in the natural environment is related to the length of the polymer chains in the material, with degradation leading to scission of the polymer chains and a shortening of their length.

Gel permeation chromatography (GPC, also known as size exclusion chromatography, SEC), a well-known technique for determining the molecular weight distribution of polymers, is therefore key to studying biodegradable materials by giving an insight into the rate at which a material might degrade, and revealing the presence of degraded polymer chains in a sample. This application notebook shows examples of GPC applications involving different biodegradable polymers, derived from synthetic and natural sources.

Synthetic polymers:

- Poly(lactide-co-glycoside)
- Polyvinyl alcohol
- Polycaprolactum
- Polyethylene glycol

Naturally-occurring Polymer :

- Natural rubber
- Chitosan
- Polyacrylic acid
- Cellulosic polymer

Synthetic Polymers: Polyvinyl Alcohol

Application areas: Adhesive, surfactant, surface properties Fully or partially hydrolyzed grades of polyvinyl alcohol are normally specified according to their viscosity in solution. Aqueous SEC can be used to characterize these polymers in terms of molecular weight distribution. Three samples with the same degree of hydrolysis were compared by overlaying their molecular weight distributions.

This is a convenient method of fingerprinting materials for quality control, and is more informative in production control and end-use performance evaluation than single point viscosity measurements

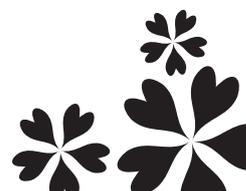
Calibrants: Pullulan Polysaccharides

Columns: 2xPL aquagel-OH 408 mm, 300 x 7.5 mm (PL1149-6840)

Eluent: 0.25M NaNO₃, 0.01M NaH₂PO₄, pH 7

Flow Rate: 1.0 mL/min

Detector: RI





Naturally-occurring Polymers: Chitosan:

Application areas: Drug delivery, paper production. Chitosan is a naturally-occurring polysaccharide made by alkaline N-deacetylation of chitin which is believed to be the second most abundant biomaterial after cellulose. The term chitosan does not refer to a uniquely-defined compound, but merely refers to a family of copolymers with various fractions of acetylated units containing both chitin and chitosan monomers.

The main interest in chitosan derives from its cationic nature in acidic solutions which provides unique properties relative to other polysaccharides, which are usually neutral or negatively charged. Application areas of chitosan include biomedical (e.g. wound healing, burn treatment and use as a hemostatic agent), paper production, textile finishes, photographic products, cements, heavy metal chelating agents and waste removal. GPC/SEC can be used as a quality control tool for the determination of MW and MWD.

Different molecular weights would be appropriate to particular applications, Three grades of chitosan were analyzed using a column set comprising 2xPL aqua gel-OH MIXED 8 mm columns. These columns offer resolution over a wide molecular weight range (up to 10,000,000 relative to PEO/PEG).

Due to the cationic nature of the samples, they were prepared in strong acid and were allowed to stand overnight to aid dissolution They were analyzed in 0.5M sodium nitrate buffer and at low pH.

Columns: 2xPL aquagel-OH MIXED-H 8 mm, 300 x 7.5 mm (PL1149-6800)

Eluent: 0.5M NaNO₃, 0.01M NaH₂PO₄, pH 2

Flow Rate: 1.0 mL/min

Detector: RI

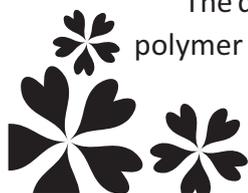
Applications

Applications of biodegradable polymers include sutures, controlled drug release, and tissue engineering. Biodegradable polymers also could be implemented in drug delivery. The polymer slowly degrades into smaller fragments, releasing a natural product, and there is controlled ability to release a drug. The drug slowly releases as polymer degrades. Biodegradable polymers have been used to coat a stent and release drugs in a controlled way. A holy grail is to create organs, such as the kidney from basic constituents. A scaffolding is necessary to grow the entity into a functioning organ. The scaffolding should dissolve away and needs to be biocompatible. Another application involves the breakdown in landfills after being strong during its useful lifetime.

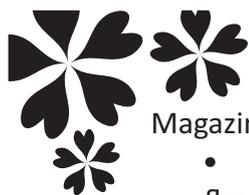
Required properties

Biodegradable polymers should be 1) non-toxic, 2) capable of maintaining good mechanical integrity until degraded, and 3) capable of controlled rates of degradation. A goal is not to illicit the immune response, and the products of degradation also need not be toxic. With regard to controlled degradation, is it possible to trigger degradation? A goal is to control the rate at which water can get into polymers. Factors controlling the rate of degradation include: 1) percent crystallinity, 2) molecular weight, 3) hydrophobicity.

The degradation rate depends on the location in the body. The environment surrounding the polymer is different depending on the location in the body.



Aesha D. Patel, T.Y B.Sc. (Chemistry)



Magazine Committee

- The college publishes the student magazine where the literary skills of our students flourish. College published Annual e-Magazine 'Expressions' of Year 2013-2014. This year we plan to have an e-magazine. 60 articles on various topics were submitted by the students.

Result of Article Writing Competition

The College Magazine organized an Article Writing Competition. The results of the competition:

Sr No.	Title of the Article	Name of Student	Class	Roll no.	Position
1	Sun-Magical Star	Ankita J.Gurjar	T.Y.B.Sc (Physics)	234	First
2	Nanotechnology	Bansi M Patel	S.Y.B.Sc (Physics)		Second
3	Biophysics	Sindha Krishna R.	S.Y.B.Sc(Chemistry)	50	First
4	Floriculture	Parmar Khayati D.	S.Y.B.Sc (Botany)	467	Second
5	The role of computers in Chemistry	Panchal Chirag P.	T.Y.B.Sc (Chemistry)	16	First
6	What is an antibiotic?	Yogesh Bhola	T.Y.B.Sc (Chemistry)	118	Second



Report of One Day seminar entitled "Industrial Motivation Campaign"

The Chemistry and Industrial chemistry Department organized a One Day seminar on "Industrial Motivation Campaign" for the students of T. Y. B. Sc. on 5th September, 2013. 197 students took part in the seminar.

It was inaugurated by Dr. J. D. Patel, (Hon. Joint Secretary, Charutar Vidyamandal), Dr. B. C. Dixit coordinated the programme. Dr. V. K. Sinha gave introduction of the guest. Principal Dr. B. D. Patel welcomed the guests and participants. Dr. J. D. Patel blessed and inspired the students for their keen interest in such entrepreneurs development seminar. He expressed his view that we should be job providers rather than job seekers.

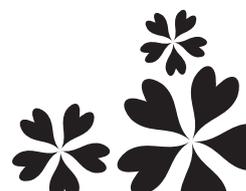
Mr. P. N. Solanki, (Assistant Director, M.S.M.E.) discussed the motto behind the seminar. He also gave a presentation on various schemes of government of India to start a small large Industry. Shri Mukesh Sharma (Lead Bank Manager, Bank of Baroda, Anand) explained about various funding scheme of Bank. Dr. R. V. Vyas, (Head, BDPU (NAIP-I)-ICAR), explained about various business ideas. Shri P. H. Mallick, (General Manager, District industrial Centre, Anand) explained about entrepreneurship motivation with suitable illustrations.

After the presentation one to one discussion with selected students was done. About six students took interest in setting up their own business units. They have been invited at MSME, Ahmedabad for further guidance. Vote of thanks was proposed by Shri. Ashis Kumar Padhi (Asstt. Director (Met.), MSME-DI, Ahmedabad).

At the end all the students were awarded certificate of participation.

Dr. B. C. Dixit, Head, Chemistry

Dr. V. K. Sinha, Head, I. C. Department





General Information What Is An Antibiotic?

An antibiotic is any substance produced by a microorganism, i.e. bacteria or fungi that it sends outside its cell to harm or kill another microorganism. The benefit is easy to see. If an organism is able to produce chemicals that inhibit or kill other nearby organisms, it has an advantage in competing for local resources.

Technically, antibiotics are microbial or fungal products. However, we are able to synthesize and mass produce these chemical substances in the laboratory to use against harmful microorganisms in our environment. There is a distinction between natural and synthetic antibiotics, but in practice most drugs used to combat microbial and fungal infections are grouped under the general heading "antibiotics".



The degree of selective toxicity is expressed in terms of:

- 1) therapeutic dose, which is the amount of antibiotic needed for clinical treatment of an infection.
- 2) toxic dose, the level at which the drug is toxic for the host.

Classification

- 1) their range of effectiveness, are they broad or narrow spectrum, i.e. do they effect many pathogens or only a few select strains?
- 2) the general microbial group they act against: antibacterial, antifungal, or antiprotozoan
- 3) size and shape: bacteria can be rods, or spherical, and exist as chains or single individuals
- 4) how they stain in a procedure called a Gram stain.

Antibiotic Functions

There are various ways in which antibiotics exert their antimicrobial activity. An antibiotic can be bactericidal, killing microorganisms directly, or bacteriostatic, inhibiting growth of microorganisms.

Five Modes of Bacteriostasis

- Inhibition Of Cell Wall Synthesis
- Some Information On Bacterial Cell Walls
- How Penicillin Works
- Injury To Plasma Membranes
- Inhibition Of Synthesis Of Essential Metabolites
- Penicillin And Inhibition Of Cell Wall Synthesis
- Penicillin Structure
- Inhibition Of Protein Synthesis
- Inhibition Of Nucleic Acid Synthesis

Penicillin And Inhibition of Cell Wall Synthesis Bacterial Cell Walls

Bacterial cell walls are composed of a substance called peptidoglycan. Individual strands of peptidoglycan are composed of alternating N-acetylglucosamine(NAG) and N-acetylmuramic acid(NAM). These strands are linked together by an enzyme called transpeptidase. Transpeptidase acts by cleaving the bond between the two terminal D-alanine residues on the NAM unit of the short peptidoglycan chains, then linking the individual chains of peptidoglycan together via B1-4 linkages to form a rigid structure for support.

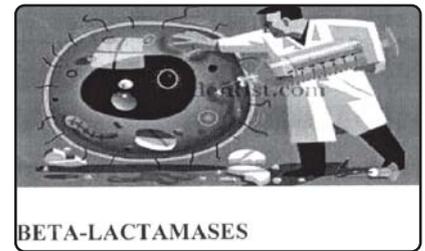


How Penicillin Works

The most wide spread cause of resistance to beta-lactam antibiotics, like



penicillin, is the production of enzymes called beta-lactamases. Apparently, these enzymes have a 3-D shape similar to the enzyme penicillin binds, transpeptidase. Therefore, it is reasonable to assume that penicillin binds instead to the beta-lactamases rather than the target transpeptidase enzyme. The beta-lactamases then catalyze the hydrolysis of the antibiotic to a biologically inactive form by breaking the labile bond in the beta-lactam ring responsible for penicillin's function.



Inhibition of Protein Synthesis

A notable difference between prokaryotic and eukaryotic cells is the structure of their ribosomes. The difference in ribosomal structure accounts for the selective toxicity of antibiotics that effect protein synthesis. The prokaryotic ribosome is composed of two subunits, a small and a large, or the 30s and 50s ribosome respectively. There are several steps in nucleic acid translation to protein: DNA to mRNA, which interacts with the ribosome and tRNA protein. Different classes of antibiotics effect different steps in this sequence.

Injury to the Plasma Membrane

All cells are bound by a cell membrane. And although the membranes of all cells are quite similar, those of bacteria and fungi differ from eukaryotic cells. These slight differences allow for selective action of antimicrobial agents. Certain antibiotics, like polymyxins, act as detergents to dissolve bacterial cell membranes by binding to phospholipids present in the membranes.

Inhibition of Nucleic Acid Synthesis

Differences between the enzymes used to synthesize nucleic acids in prokaryotes and eukaryotes provide the means for selective action of antibiotics that take their effect by inhibiting nucleic acid synthesis. Antibiotics of the rifamycin family inhibit RNA synthesis because they bind to RNA polymerase, which is responsible for transcribing bacterial DNA to RNA.

Inhibition of Synthesis Of Essential Metabolites

An antimetabolite is a substance that prevents a cell from carrying out a metabolic reaction. Antimetabolites function in two ways: 1) by competitive inhibition of enzymes, and 2) by erroneous incorporation into nucleic acids.

Competitive Inhibition

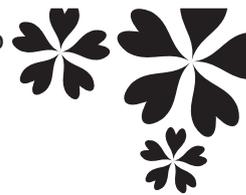
In this type of inhibition, an enzyme is inhibited by a substrate that binds to its active site but cannot react. This slows or completely stops the enzyme function. An example of this type of inhibition can be seen with the antimetabolite sulfanilamide and its reaction with para-aminobenzoic acid (PABA). In many microorganisms, PABA is the substrate for an enzymatic reaction leading to the synthesis of folic acid.

Antibiotic Resistance

Almost all bacteria that were once susceptible to antibiotics are resistant to at least one, if not more antibiotics today. Thought to be miracle drugs when discovered in the earlier part of this century, antibiotics cured many previously fatal infections. We learned how to mass produce these substances in labs, and drug therapy was status quo for treating microbial diseases.



However, an over-reliance on these miracle agents soon developed, and we began to treat symptoms normally handled by our body's own immune system with antibiotic drugs.



Mechanisms of Drug Resistance

- Inherent Resistance
- Alteration Of Antibiotic Target
- Inactivation Of Drugs
- Mutations

Transmission of Drug Resistance

- Bacterial Plasmids
- Bacteriophages
- Transposons

Uses of Antibiotics

Antibiotics are used in medicine to treat diseases that are caused by bacteria, while some are also effective against fungi and protozoa. The majority of bacteria are harmless to human body but the rest of them are pathogenic and responsible for numerous diseases and infections throughout the world many of which are still fatal in some parts of the world, especially in Sub-Saharan Africa. Bacteria are a large group of unicellular microorganisms, which are invisible with the naked eye.

There are many species of bacteria which are either harmless or pathogenic in human body. Pathogenic bacteria are usually divided into Gram-positive which have no outer membrane and Gram-negative bacteria in which outer membrane is present. Most pathogenic bacteria in human body are Gram-negative microorganisms, while only six Gram-positive bacteria are pathogenic in humans. Either way, any pathogenic bacterium is harmful for human health and if left untreated it can be fatal.

Yogesh O. Bhola

T.Y.B.Sc. (Chemistry)

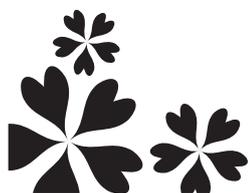


Thoughts

- ☞ Luck is matters of preparation meeting opportunity.
- ☞ Be careful with your thoughts they may anytime become words on your mouth.
- ☞ The first step to becoming a really great manager is simply common sense.
- ☞ Hate cannot destroy hate but love can and does.
- ☞ An idea that is develop and put into action is more important than an idea that exists only as an idea.
- ☞ Life Is Like Riding A Bicycle To Keep Your Balance You Must Keep Moving.

☞ A Hug Transfers Positive Vibrations.

It is true that a hug helps to transfer positive vibrations. It makes us more loving and caring, something all humans look for, but we Indians are very shy of showing such emotions. A hug can make the other person feel loved and cherished. So why hesitate - go ahead and hug your dear ones.



Aesha M. Vyas
F.Y.B.Sc.



- Cloud computing is concepts that involve a large number of computers that are connected through a real-time communication network (typically the Internet). Cloud computing is a jargon term without a commonly accepted non-ambiguous scientific or technical definition. In science, cloud computing is a synonym for distributed computing over a network and means the ability to run a program on many connected computers at the same time.
- The phrase is also, more commonly, used to refer to network based services which appear to be provided by real server hardware, but which in fact are served up by virtual hardware, simulated by software running on one or more real machines. Such virtual servers do not physically exist and can therefore be moved around and scaled up (or down) on the fly, without affecting the end user -arguably, rather like a cloud.
- The popularity of the term can be attributed to its use in marketing to sell hosted services in the sense of application service provisioning that run client server software on a remote location.

Basic cloud characteristics

- The "no-need-to-know" in terms of the underlying details of infrastructure, application interface with the infrastructure via the APIs.(application programming interface)
- The "pay as much as used and needed" types of utility computing and the "always on!, anywhere and any place" types of network based computer
- In general, they are built on clusters of PC servers and off-the-shelf components plus open source software combined with in-house application and system software.

Growth and popularity

- The development of the Internet from being document centric via semantic data towards more and more services was described as "Dynamic Web". This contribution focussed in particular in the need for better meta-data able to describe not only implementation details but also conceptual details of model-based applications.
- The present availability of high-capacity networks, low-cost computers and storage devices as well as the widespread adoption of hardware virtualization, service-oriented architecture, autonomic, and utility computing have led to a growth in cloud computing.

Cloud storage

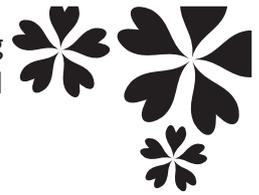
- An online network storage where data is stored and accessible to multiple clients. Cloud storage is generally deployed in the following configurations: public cloud, private cloud, community cloud, or some combination of the three also known as hybrid cloud. In order to be effective, the cloud storage needs to be agile, flexible, scalable, multi-tenancy, and secure.
- Amazon's Elastic Computer Cloud(EC2) and Simple Storage Solution (S3) are well known Examples
- Unlimited Storage.

Service models

- Cloud computing providers offer their services according to several fundamental models: infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS) where IaaS is the most basic and each higher model abstracts from the details of the lower models. Other key components in anything as a service (XaaS) are described in a comprehensive taxonomy model published in 2005 such as Strategy-as-a-Service, Collaboration-as-a-Service, Business Process as a Service, Database-as-a-Service, etc. In 2012, network as a service (NaaS) and communication as a service (CaaS) were officially included by ITU



(International Telecommunication Union) as part of the basic cloud computing models, recognized service categories of a telecommunication-centric cloud ecosystem.



Infrastructure as a Service (IaaS)

- In the most basic cloud-service model, providers of IaaS offer computers - physical or (more often) virtual machines - and other resources. (A hypervisor, such as Xen or KVM, runs the virtual machines as guests. Pools of hypervisors within the cloud operational support-system can support large numbers of virtual machines and the ability to scale services up and down according to customers' varying requirements.) IaaS clouds often offer additional resources such as a virtual-machine disk image library, raw (block) and file-based storage, firewalls, load balancers, IP addresses, virtual local area networks (VLANs), and software bundles. [57] IaaS-cloud providers supply these resources on-demand from their large pools installed in data centres. For wide-area connectivity, customers can use either the Internet or carrier clouds (dedicated virtual private networks).
- To deploy their applications, cloud users install operating-system images and their application software on the cloud infrastructure. In this model, the cloud user patches and maintains the operating systems and the application software. Cloud providers typically bill IaaS services on a utility computing basis [citation needed]: cost reflects the amount of resources allocated and consumed. Examples of IaaS providers include: Amazon EC2, Google Compute Engine, HP Cloud, Joyent, Linode, NaviSite, Rackspace, Windows Azure Cloud Services, ReadySpace Cloud Services, and Internap Agile. Cloud communications and cloud telephony, rather than replacing local computing infrastructure, replace local telecommunications infrastructure with Voice over IP and other off-site Internet services.

Platform as a Service (PaaS)

- In the PaaS model, cloud providers deliver a computing platform, typically including operating system, programming language execution environment, database, and web server. Application developers can develop and run their software solutions on a cloud platform without the cost and complexity of buying and managing the underlying hardware and software layers. With some PaaS offers, the underlying computer and storage resources scale automatically to match application demand so that the cloud user does not have to allocate resources manually.
- Examples of PaaS include: AWS Elastic Beanstalk, Cloud Foundry, Heroku, Force.com, Engine Yard, Mendix, OpenShift, Google App Engine, AppScale, Windows Azure Cloud Services, OrangeScape and Jelastic.

Software as a Service (SaaS)

- In the business model using software as a service (SaaS), users are provided access to application software and databases. Cloud providers manage the infrastructure and platforms that run the applications. SaaS is sometimes referred to as "on-demand software" and is usually priced on a pay-per-use basis. SaaS providers generally price applications using a subscription fee. In the SaaS model, cloud providers install and operate application software in the cloud and cloud users access the software from cloud clients. Cloud users do not manage the cloud infrastructure and platform where the application runs. This eliminates the need to install and run the application on the cloud user's own computers, which simplifies maintenance and support. Cloud applications are different from other applications in their scalability—which can be achieved by cloning tasks onto multiple virtual machines at run-time to meet changing work demand. Load balancers distribute the work over the set of virtual machines. This process is transparent to the cloud user, who sees only a single access point. To accommodate a large number of cloud users, cloud applications can be multitenant, that is, any machine serves more than one cloud user





organization. It is common to refer to special types of cloud based application software with a similar naming convention: desktop as a service, business process as a service, test environment as a service, communication as a service. The pricing model for SaaS applications is typically a monthly or yearly flat fee per user, so price is scalable and adjustable if users are added or removed at any point.

- Examples of SaaS include: Google Apps, Microsoft Office 365, Petro soft, On live, GT Nexus

Network as a Service (NaaS)

- A category of cloud services where the capability provided to the cloud service user is to use network/transport connectivity services and/or inter-cloud network connectivity services. NaaS involves the optimization of resource allocations by considering network and computing resources as a unified whole. Traditional NaaS services include flexible and extended VPN, and bandwidth on demand. NaaS concept materialization also includes the provision of a virtual network service by the owners of the network infrastructure to a third party (VNP - VNO).

Purpose and Benefits

- Cloud computing enable companies and application, which are system infrastructure dependent, to be infrastructure-less
- By using the cloud infrastructure on "pay as used on demand", all of us can save in capital and operational investment
- Client can
- Put their data on the platform instead of on their own desktop PCs and on their own servers.
- They can put their application on the cloud and use the servers within the cloud to do processing and data manipulations etc.
- **Advantage of cloud computing**
 1. Lower computer costs
 2. Improved performance
 3. Reduced software costs
 4. Instant software updates
 5. Unlimited storage capacity
 6. Increased data reliability
 7. Universal document access
 8. Latest version availability
 9. Device independence

Disadvantage

1. Requires a Constant Internet connection
2. Does not work well with low-speed connection
3. Features might be limited
4. Can be slow
5. Stored data might not be secure
6. Stored data can be lost

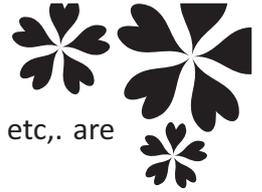
The future

- Many of the activities loosely grouped together under cloud computing have already been happening and centralised computing activity is not a new phenomena
- Grid Computing was the last research-led centralised approach
- However there are concerns that the mainstream adoption of cloud computing cloud cause many problems for users
- Many new open systems appearing that you can install and run on your local cluster
- Should be able to run a variety of application on these systems.

Reference

Frank E. Gillett, "Future View: The new technology ecosystems of Cloud, cloud services and cloud computing" Forrester Report, August 2008.





Microbial disease caused by microorganism. Algae, Fungi, bacteria, Protozoa, virus etc., are known as microorganism. Microbiology field is related with this microorganism.

First, the discovery of the world of microorganism came about as investigators developed microscope. Anatomy van Leeuwenhoek first to observe and accurately record and report microorganism. Microorganism are so important in fermentation process, industry, agriculture field and many other fields. Because of population and pollution microbial are increase day by day. And they cause disease. Louis Pasteur, Robert Koch, Joseph Lister, Edward Jenner, Oliver Wendell Holmes, Ignaz Philipp and so many other scientist were played very important role to discovered a microbial disease.

In 1762, Van Plenciz stated that living agents are the cause of disease and also stated that different germs were responsible for different disease and then, so many new information discovered of a microbial disease. In the eighteenth century, Silkworm disease was running an important French industry and Pasteur's success in solving the problem of it. He continued to make discoveries concerning the cause and prevention of infectious disease. About 1880, he isolated the bacterium responsible for chicken cholera. At the same time, Robert Koch was busy with the anthrax problem in Germany. He developed the bacteriology, and also developed new bacteria in cultures. He gave a Koch's postulates, which provided guidelines to identify the causative agent of an infectious disease.

Many organism are plant pathogenic, animal pathogenic and also responsible to create disease in human body. In plant, many fungi and algae are cause plant disease. *Saprolegnia ferax* cause salmon disease, *Pythium ultimum* and it's other species are caused damping of seedlings, cause foot rot of wheat fruit rot disease of sugar beets etc., *Albugo Candida* and it's species are obligate parasiter occurring in higher plant. *Pteronospora parasitica* cause the downy mildew disease in plant. These are types of fungi. They are very pathogenic in plant. Many other example or microbial are present that are cause different disease in plant. In agricultural field, there microbial disease's study are most important.

Bacteria and virus are cause disease in human body. Here, many examples are given that cause disease in human body Anthrax cause *Bacillus anthracis*, Borrelia infection cause by *Borrelia* genus, cholera cause by *Vibrio cholerae*, Dengue fever cause by Dengue virus - flaviviruses. AIDS cause by HIV (Human Immuno deficiency virus) and other so many organism responsible to cause human disease. Respiratory trace, Digestive trace, Cavity infection trace, reproductive trace etc., are different disease. Microorganism transmitted by person-to-person contact, blood to blood products, Direct contact with animals, wound infection etc., They cause disease by thousand of methods and so microbial disease are spread very fast in short time.

Viral pathogens that are restricted mainly to animals or plant may cause great economic loose in agriculture viral pathogens is more difficult that identification of bacterial pathogens. Study of Microorganism are more important in medical field, because they are in medical field, because they are in large number and also responsible for different disease in plant, animal and insects, Today, in medical field many research going on against the microbial disease.



Microorganism are useful as well as harmful. But there pathogenic characteristic are very harmful.

Ankita Patel
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Floriculture, or flower farming, is a discipline of horticulture concerned with the cultivation of flowering and ornamental plants for gardens and for forestry, comprising the floral industry. The development, via plant breeding, of new varieties is a major occupation of florists.

In recent decades there has been increasing demand for floriculture and floriculture products with increasing income. It is soaring industry in Asian countries including India. Floriculture is an emerging area with great potential both in the domestic as well as export market. In India, commercial floriculture is ongoing development but has a long tradition of various types of flowers. Flowers have been representing in ancient painting, mural and coins.

From 2001, there has been tremendous growth in floriculture production in terms of area, production and export. All states in India have a tradition of growing flowers. The export of floricultural products has been increasing tremendously since 2001. The history of gardens connected with the history of the people and their culture, includes their science, art and literature.

Indian History of Gardening

India has a long history of flowering plants. In the area of Mahabharata, there was famous tree named Kadamba, which associated with Lord Krishna. Vastyaana (A.D.300-400) described four kinds of gardens, which were made for the queens, kings, countries and ministers. Famous poet Bana Bhatta described the number of flowering plants in his famous book the 'Harsh Charita'. Status of gardening had mentioned in Ramayana written by Valmiki and Tulsidas. The lotus being a native of India found everywhere; Aryans started the use of flowers in religious and social ceremonies. They appreciated the beauty of flowering plants, lakes, mountains, flowers like kamal, Champa, Madhavi, Bela, Chameli, Rukmani, etc.

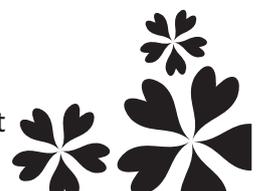
There are many evidences found that trees and ornamental plants were associated with the Harappa civilization. In Mogul era, Badar had founded of gardens. He made gardens at Panipat and Agra. Mogul gardens are synonymous of formal style of gardening. King Hyder Ali established most famous Lal Bag Garden at Bangalore. In North India, Maharaja Ranjit Singh made garden at Amritsar. Britishers had managed well gardens in India.

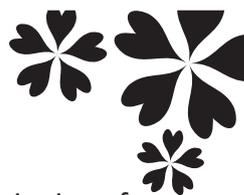
Britishers established Royal Agri-Horticulture Societies and botanical Gardens in India i.e. Royal Agri-horticultural Society Garden, Calcutta, Lloyd botanical garden, Darjeeling, Botanical garden Saharanpur, National botanical garden, Lucknow, Botanical garden of the forest research garden, Ootacamund; etc.

In India, 160.72 thousand hectare area under flower cultivation in year 2007-2008 and produces 870 thousand MT of loose flowers and 4341 million numbers of cut flowers. West Bengal was the India's leading state at higher area under flowers follow by Tamil Nadu, Andhra Pradesh, Karnataka, and Maharashtra.

West Bengal showed rapid growth of flower cultivation in 2007-08. It is observed loose flower production, Tamil Nadu tops with 25 percent in year 2007-08, followed by Karnataka 19 percent, Andhra Pradesh 14 percent, Punjab 9 percent and Maharashtra occupies fifth place with 8 percent.

It showed 48 percent growth in the year 2007-08 over the year the year 2005-06 cut flower production. State wise production that west Bengal tops with 45 percent,





followed by Maharashtra got second place with 13.19 percent, Karnataka third with 13 percent.

Export of floriculture

The government of India has identified floriculture as high export potential. At the beginning of current decade, India's flower export to world market was about \$50 billion crore per annum which was less than 0.1 per cent. The export of flower from India in 2006-07 fetched a foreign exchange of Rs.649.83 crore, which is more than 9 times over the year 2002-03 onwards. However, between 2005-06 net growth was 16 per cent. Export units are mainly concentrated around Pune, Nasik, Bangalore, Delhi, Gurgaon, Coimbatore, Faridabad, Chandighad, Lucknow, Chennai, Calcutta, Vadodara, Jalpaiguri and Amritsar. The major important for India cut flower are Europe and Japan.

The union government has recognized floriculture as a thrust area for export and announced several concession/ incentive for its development in the country. Main features of government incentives and schemes as below. Zero import duty in seedbulbs, cut on import duties for machinery, flower, and tissue culture seed on OGL: fifty per cent domestic sales allowed for EOUs, simplification of plant quarantine procedure and airfreight subsidiary. The Ministry of Commerce, Government of India has identified four states, viz Kerala for orchids, Maharashtra for carnation and roses, Karnataka for chrysanthemums, Andhra Pradesh for roses to organized flower production.

Recently the second International Flora Export 2006 organized by Indian Flowers and Ornamental Plants Association in Delhi inaugurated by the President of India Dr. A.P.J.Kalam. He addressed as the following 1) An annual target of the one billion Dollars (Rs-5000cr) of floriculture export by the year 2010. 2) Quality and standard of floriculture produce with enhanced shelf life must be maintain with active participation from research institutions and Bureau of Indian standard. 3) Infrastructure development. 4) Development of better and high yielding varieties of flowers and ornamental plant for domestic market. 5) Establishment of Special Floriculture Zones (SFZ) in various part of the country to provide economical as well as technical support to farmers. It is inappropriate to discuss floriculture development without knowing the role of supporting agencies such as NHB, APEDA and NABARD, give support through various programmes to develop floriculture.

Finance is one of the most critical inputs particularly for floriculture development. The developments of floriculture have needed more finance for various activities for its cultivation. The development of land, drip irrigation, machinery and equipment, green house cold storage, planting material, post-harvest handling and others.

"Thank you"

Jinal P. Patel

T.Y.B.Sc.



ऋषीमुनी यों क विज्ञानमें योगदान

ऋषि भारद्वाज



आधुनिक विज्ञान के मुताबिक राइट बंधुओने वायुयान का आविस्कार कीया। वही हिन्दु धर्म की मान्मता ओ के मुताबिक कह सदीयों पहले की ही ऋषि भारद्वाज ने विमान शास्त्र के जरिए वायुयान को गायब कर ने के असाधारण विचार से लेकर एक ग्रह से दूसरे ग्रह व एक दुनिया से दुसरी दुनिया में लेजानेके रहस्य उजागर कीया इसी तरह ऋषि भारद्वाजके वायुयान का आविस्कार भी माना जाता हैं।

38





What Is Instrumentation?

Instrumentation is defined as the art and science of measurement and control of process variables within a production or manufacturing area.

- **Why instrumentation?**

An enormous amount of modern technology, is based on fundamental physics research this is particularly true of the science of measurement. It is also true to say that the advancement of all other science, including the medical field, and engineering, relies on the development of new measurement. Non-destructive testing is a specialisation of the course, this is the science of testing material and systems without or damage, utilising x-rays, ultrasound, scanning electron microscopes,

- **Job Description:**

An instrumentation subject is responsible for designing, developing, installing, managing and/or maintaining equipment which is used to monitor and control engineering systems, machinery and processes. Instrumentation candidates ensures that these systems and processes operate effectively, efficiently and safety. They usually work for the companies who manufacture and supply the equipment or for the companies who use it, such as nuclear and environmental agencies. Instrumentation candidates read a through understanding of the operational process of an organisation. They have a multi disciplinary role, working closely with colleagues across a number of functions, including operations, purchasing and design.

- **Typical Work Activities:**

Instrumentation student develop skills in specific control disciplines such as advanced process control (APC), distributed control system (DCS), programmable logic control (PLC), and supervisory control and data acquisition (SCADA). The use of there disciplines will depend on the exact nature of individual job roles.

In general however, task and responsibilities can include:

- Designing and developing new control systems;
- Testing, maintaining and modifying existing systems;
- Analysing data and presenting findings in writer reports;
- Managing operations;
- Working collaboratively with design engineers, operation engineers, purchaser and other internet staffs
- Liaising with clients, suppliers, contractors and relevant authorities.
- Project management within cost and time constrained environments;
- Troubleshooting and problem-solving;
- Understanding and ensuring compliance with the health and safety regulations and quality standards of the country in which work is undertaken;
- Providing advice and consultancy support;
- Purchasing equipment;
- Writing computer software and test procedures;
- Developing new business proposals;
- Accepting responsibility and a level of accountability that is proportioner to the seniority of the position.

Requirement:

An instrumentation and control engineer is expected to learn subject like industries instrumentation, system dynamics and process control.





Some basic required for this job include in-depth knowledge of physics and exceptional logical ability. Those willing to make a successful career in this domain and find applicability in both software and hardware domains should master subjects like microcontroller-based instrumentation, microprocessor-based instrumentation, VLSI, computer architecture and embedded system design. They should also be thorough with computer languages like fortran and 'C'. The job requires a lot of precision, so the person should have a close-to-perfection attitude.

Like in the case of all the other engineering domains, instrumentation and control engineering are expected to be inquisitive by nature. They should have the knack of finding out the way things are made. If you look at the Indian scenario, there are many people who are willing to make a career in this stream. There are many colleges that provide education in this field, and to top it all there are 'well-paid' jobs as well.

Sharing this view on how instrumentation students are picking up as a preferred career choice. Nowadays almost all the industries are going for automation. So instrumentation students have a role to play in all the fields where there is automation. The industries are switching almost all their processes to automation. Students are interested in making a career in this stream of engineering because there are job opportunities in this domain.

Instrumentation and control engineering is a specialised stream of engineering that deals with measurement and control of process variables in a production process. This discipline finds its origin in covers subjects related to electronic, electrical, mechanical, chemical and computing streams. In short, it deals with measurement, automation and control processes.

A talented instrumentation student need not worry about getting a job because he has a sky full of opportunities to explore.

Courses:

Almost all the universities (whether general or deemed) offer a bachelor's course in this stream.

In course, you have various options to choose from:

- i. BE in instrumentation engineering (four-year programme).
- ii. ME in instrumentation engineering (two-year programme) after BE.
- iii. B.Sc in instrumentation engineering (three-year programme).
- iv. M.Sc in instrumentation engineering (two-year programme) after B.Sc.
- v. Diploma in instrumentation engineering (three-year programme).

Pay Package:

Like any other industry, the instrumentation students are paid according to their abilities and norms of the company.

Instrumentation students are offered decent pay packages if they are talented enough. But this depends upon the company and nature of job as well. In average, these students are offered money varying from Rs 100,000 per annum to Rs 400,000 per annum. Of course, the payment is comparatively better in private sector.





Faith & efforts are two different things

The misconceptions of blind faith prevalent in our day today life. Many times people get confused between faith and efforts and this may result in failure. Yes, faith and efforts are completely two different things. To achieve anything we must believe that we have the potential to achieve it and keep the faith that we can do that. But only by keeping faith no one can ever turn mountain into stones. Because efforts are necessary nothing can be done without our efforts. Of course, one must have faith that he or she can do it. But without our efforts nothing can be possible.

Even a small bird has to make effort swallows its food. When the mother bird goes in search of food the baby birds are hungry and they know or they have the faith that their mother won't let them starve and the mother does comes with the food but in allowing the bird has to make effort. Just like that we can not completely depend on mighty power that without even moving our finger we will become such in one night we should keep the faith that efforts will give the result but without effort nothing can be done.

And now it is been observed that in holy places people receive positive vibes & feels good & believes that everything is possible but my dear it is only possible if you make an effort to do it. Just by learning everything to God and faith well take two no where. So while praying keep the faith that he will help and bless you to get over that. Never disappoint you if you have worked hard but we can not lean that God is there he will do everything. So prayers are the nutrition the additional values which we can.

But we must not completely get into prayers and forget the world so both the things should be kept in balance. Prayers is important because it established a link with the almighty and that belief that he is with us gives us strength. Faith is the nutrition to our mental strength which enable us to keep working and not give up. So for keep the this we have to keep oiling it with faith and prayers. Faith gives us the confidence and self motivation to desire & achieve the heights and our potential.

However, many people do nothing but pray thinking that God will take care of everything. In fact God will be happy and proud of his creation if he uses even a fraction of the capabilities he has blessed with. Of course one must be optimistic in a achieving his or her dreams but be also ready for the result occurring to your efforts.

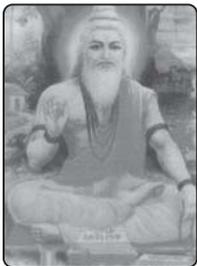
It is said that keep hope for the best but he prepared for the worst. It is also said God helps those who helps themselves.

Merlina Kith

F. Y. B.Sc.



ऋषीमुनी यों का विज्ञानमें योगदान



ऋषि बौद्धयन

भारतीय त्रिकोणमित्तिज्ञ के रूपमे जाने जाते हैं । कइ सदियों पहले ही तरह तरह के आकार प्रकर की यज्ञवेदीयां बनाने की त्रिकोणमितिय रचना पद्धति बौद्धयनने खोजी । दो समकोण समभूज चौकोन के क्षेत्रफलो का योगकरने पर जो संख्या आएगी उतने क्षेत्रफलका समकोण समभूज चौकोन बनाना और उस आकृतिका उसके क्षेत्रफलके समान के वृत मे बदलना इस तरह के कइ मुश्कील सवालौ का जवाब बौद्धयनने आसान बनाया ।





As we all know that the technology of computers has become like breath of every fields and subjects and has improved in leaps and bounds. Computers have become faster and easier to use, taking milliseconds to do the calculations which once had to be done by hand. So in all the fields including chemistry ,the technology has achieved vital place. With advanced programs, features and devices ,the human efforts are reduced in calculating and analysing the information.

Now we shall see the uses of computers in particular fields of chemistry. In synthetic chemistry it is very important to know what compounds you have created. Chemists rely on spectroscopic techniques to analyze compounds they have made. Nuclear magnetic resonance, mass, infra red and ultra violet spectrometry all depend on computers to control the sensitive equipment and obtain and record detailed measurements. These analytical techniques have allowed chemists to identify the exact structure of compounds, which was previously guesswork based on observations from chemical properties. Molecular masses are known to the microgram, which would be impossible without the aid of the computer.

Now, It is obvious that computers are important in taking measurements but they can also be used to predict measurements. There is some very powerful software available for predicting physical properties of compounds. Bond lengths, melting points, vibrational frequencies and properties such as solubility can be predicted using dedicated software based on theories known. Software like this can help you to 'design' a molecule to the specific needs of the chemist. Without the software, it would take hours of calculations to predict the properties.

Another important area of chemistry is analyzing data obtained from experiments, to look for patterns to prove theories. This can be done by hand, but involves a lot of calculations, which is time consuming and liable to mistakes. Analyzing data is often best done using a spreadsheet. Spreadsheets can quickly work out calculations and plot graphs showing a pictorial representation of the data more easily than any human could. Spreadsheets are usually very good at calculating the equation of a best-fit line of a graph, which is often important in chemistry.

There are many uses of computers in chemistry. Broadly, they are divided to the following categories and sub-categories.

- **Time-dependent differential equations**, in which the initial conditions are known, and one wants to know how they evolve forward in time: these include:
 - Chemical Reactions (evolution of concentrations with time)
 - Classical dynamics (evolution of atomic positions with time)
 - Time-dependent Quantum dynamics (atoms under lasers)
- **Time-independent differential equation**, primarily used for the (time independent) Schrödinger equation, which is solved in two main fields of chemical interest:
 - Structure of molecules and their energies (electronic structure, or ab-initio).
 - Vibrational frequencies
- **Random variables and stochastic processes** (important for diffusion, noise, and similar processes which affects chemical reactions, among other places.
- **Data-analysis**, including especially Fourier (and today Wavelet) transforms, 3-D data plotting algorithms, etc. A related area is: Bio informatic tools are emerging





for describing DMA genomics, etc.

Most if not all of these fields have extensive program suites that are quite user friendly. This is especially true for electronic structure, where suites like "Gaussian", "Spartan", and several others can give for many compounds chemical accuracy for stationary structures, predicting what is the structure that a specific organic (and increasingly inorganic) species would adopt. A second class that you may encounter is of programs for biochemical description of enzymes, proteins, and their evolution in time. In this course we'll try to give you the tools needed to program much of these problems. We will concentrate on building our own programs, to give you the experience necessary when you go to grad. School or industry; to help you I have built much of the programs so that you will, with careful choice, need just to do limited modifications to the existing programs.

Having used computers to obtain accurate data, it seems sensible to store it where it can easily be retrieved for reference. It could be stored on paper, filed away in alphabetical order. This is fine until the chemist wants to find data on a group of compounds such as the alcohols, or those with a melting point of over 100oC. This is where storage of the data electronically, using a database, becomes very useful. This makes the searching of data very easy for different criteria such as temperatures, solubility or mass. For example if a mass spectrum produced a parent ion mass of 175, then the database could be searched for all those with the corresponding mass to attempt to find a match. If you couldn't find the correct data in your database, could you look at someone else's? This leads us on to communications and the sharing of data.

Networks are very useful in large companies. They allow communication between different computers, and more importantly, the exchange of data. This means a company could have a central database with all the records. This has several advantages. Firstly, the consistency of data. There aren't 50 copies of the same database spread around the company, which can be altered and updated independently of each other leading to inconsistencies. Accessing the same database means everyone gets the same data. Also, because it is on a network server, it can be accessed from any computer connected to the network.

Network size can range from a few computers in a room connected to a server, to a company with several sites worldwide. The most extensive network is the World Wide Web, or Internet. This has also provided a valuable communication link, effectively connecting lots of networks together. The Internet has allowed the transfer ideas, with on-line conferences being held across the world without anyone ever having to leave their computer screens. Large companies usually have their own web page. It provides information about the company and contacts but also doubles up as a form of advertising.

Computers and their application in contemporary teaching of Chemistry

The new aspects of the utilization of computer teaching aids in the teaching of natural sciences (Chemistry) are a result of the long lasting work and the conducted practice in the field of Computer Science and Chemistry. The innovative methods of the utilization of computer aids in chemistry teaching are based on the advantages of the use of the computer. They also facilitate and advance the work of the-teacher and the student in both theoretical and practical aspects. The computer offers plenty of possibilities in the theoretical aspect of teaching, as a result of which students are shown various chemical processes, and natural phenomena on the computer, and vividly presented with principal chemical laws as well. The structure of molecules, atoms and crystal systems (cubic system of sodium chloride, NaCl) is much clearer if shown in 3D on the monitor of the computer instead of a two-dimensional diagram.





Moreover, organic reactions undergoing intricate mechanisms become clearer to students when using computer programs adopted to chemistry teaching. These are programs which show certain phases of particular reactions as well as the entry of the parameters of the development of reaction mechanism (temperature, pressure, various quantities of reactants, catalysts) within organic chemistry (reactions of halogenation, oxidation, reduction, substitution, addition and elimination). Practical work with the help of the computer represents simplification of procedures when applying chemicals and laboratory equipment during experiments. Arranging the apparatus when conducting experiments becomes easier when performed with the help of the computer. The position and order of the laboratory equipment are clearly displayed on the monitor, the only task of the student being to follow the instructions on the monitor, which leads not only to independence while conducting an experiment but also to enabling students to conduct various more complex experiments. In addition, students may revise and practise certain quantitative analysis methods a number of times, by the use of a so-called computer virtual laboratory in order to optimize caution and precision in work and reduce the number of possible injuries when conducting experiments and using toxic substances, especially when using: sulphur dioxide (SO_2), white phosphorus (P_4), nitric acid (hard acid, HNO_3), sodium metal (Na); nonmetals, red liquid bromine and iodine (Br and I); in volumetric analysis (methods), and titrations with standard solutions of sulphuric acid (hard acid, H_2SO_4) and sodium hydroxide (hard base, NaOH) [9]. Students revise experiments and procedures many times with the help of the virtual laboratory until they reach desired results, simulating conducting an experiment in laboratory conditions. The position of the computer may be determined by the teacher himself. The computer can be placed on the teacher's working desk in the cabinet, in the facility for experiment preparation, but certainly not in the laboratory. Hence also used in teaching of chemistry.

In the last decade the storage capabilities of media has greatly increased. Gone are the days of 5.25" disks, now we are into CD-ROM'S and DVD's which can hold vast amounts of data. Multimedia presentations have given us a new way of learning. They include a wide range of media types (hence multimedia) such as video, graphics, sound and text, also allowing the user to interact with the program and hopefully provide a better way of learning.

As the speed of computers has increased, the rate of progress in research has increased too, showing how important the use of computers in chemistry is. Without them we would not have such a good understanding of chemistry. Computers have increase speed of our learning and understanding enormously.

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Protect yourself

Those who keep warm visitors by putting up a sign saying 'Beware of dogs'. Humans too can behave like animals sometimes as they are not aware of their own emotions, feelings and thoughts. We never blame a dog for being what he is or doing what he does; we are just aware of its nature and protect ourselves from it so that it doesn't hurt us.



Aesha M. Vyas
F.Y.B.Sc.



4G - 4th Generation

G in 2G, 3G and 4G stands for the "Generation" of the mobile network. Nowadays, mobile operators have started offering 4G services in the country. A higher number before the 'G' means more power to send out and receive more information and therefore the ability to achieve a higher efficiency through the wireless network. Before we get to start about 4G, let's see 1G, 2G, 2.5G and 3G first.

- **1G** : 1G network (NMT, C-Nets, AMPS, and TAGS) are considered to be the first analog cellular systems, which started early 1980s. There were radio telephone systems even before that. 1G networks were conceived and designed purely for voice calls with almost no consideration of data.
- **2G** : 2G network (GSM, CDMAOne, D-AMPS) are the first digital cellular systems launched early 1990s, offering improved sound quality, better security and higher total capacity. GSM supports circuit-switched data (CSD), allowing users to place dial-up data calls digitally, so that the network's switching station receives actual ones and zeroes rather than the screech of an analog modem.
- **2.5G** : 2.5G networks (GPRS, CDMA2000 1x) are the enhanced versions of 2G networks with theoretical data rates up to about 144kbit/s. GPRS offered the first always-on data service.
- **3G** : 3G networks (UMTS FDD and TDD, CDMA2000 1x EVDO, CDMA2000 3x, TD-SCDMA, WCDMA, EDGE, IMT-2000 DECT) are newer cellular networks that have data rates of 384kbit/s and more. The UN's International Telecommunications Union IMT-2000 standard requires stationary speeds of 2Mbps and mobile speeds of 384kbps for a "true" 3G.

What is 4G?

4G technology refers to the fourth generation of mobile phone communication standards. LTE and WiMAX are marketed as parts of this generation, even though they fall short of the actual standard.

4G services should make it much quicker to surf the web on your mobile, tablets and laptops - speeds will be nearer to what you currently experience with home broadband. Because of this, 4G is ideally suited for services which demand more capacity like video streaming, mapping and social networking sites. For the typical user, download speeds of initial 4G networks could be around 5-7 times those for existing 3G networks. This means a music album taking 20 minutes to download on a 3G phone and just over 3 minutes on 4G. This is based on existing 3G speeds being 1Mbit/s on average and 4G speed being 6Mbit/s (average of 5-7 times faster than 3G).

The two top contenders are LTE and WiMAX, both of which are IP based networks that are built from similar, yet incompatible, technologies.

Sprint and Clearwire are currently offering 4G WiMAX service in the USA, while Verizon and AT&T have committed to the use of LTE and are trailing their own 4G networks. There are 4 types available in 4G

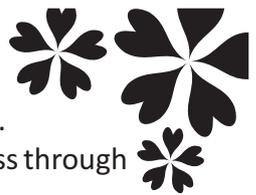
- WiMAX
- LTE
- WiMax-2
- LTE-2 (LIE Advance)

WiMAX

WiMAX stands for Worldwide Interoperability for Microwave Access. WiMAX is based upon The IEEE 802.16 Standard. WiMAX is a wireless communications standard designed to provide 30 to 40 megabit-per-second data rates, with the 2011 update providing



up to 1 Gbit/s for fixed stations. It can be used in both point to point and the typical WAN type configurations that are also used by 2G and 3G mobile network carriers. WiMAX can provide at-home or mobile Internet access across whole cities or countries. In many cases this has resulted in competition in markets which typically only had access through an existing incumbent DSL (or similar) operator.



WiMax-2

WiMAX 2 is the planned sequel to the WiMAX system for high-speed wireless Internet access. It has a maximum possible speed of around 200 times more than that currently offered via WiMAX. As of late 2010, WiMAX 2 was expected to be in commercial use at some point in late 2011 or early 2012.

LTE

LTE, short for Long Term Evolution, is considered by many to be the obvious successor to the current generation of UMTS 3G technology, which is based upon WCDMA, HSDPA, HSUPA, and HSPA. LTE is not a replacement for UMTS in the way that UMTS was a replacement for GSM, but rather an update to the UMTS technology that will enable it to provide significantly faster data rates for both uploading and downloading. Verizon Wireless was the first U.S. carrier to widely deploy LTE, though Metro PCS and AT&T have also done so, and Sprint and T-Mobile USA both have plans for LTE. In fact, Sprint is phasing out its WiMAX network in favour of LTE. Verizon Wireless and AT&T currently have incompatible LTE networks, even though they both make use of 700MHz spectrum. AT&T and Verizon Wireless LTE customers often see download speeds that exceed 15Mbps, and upload speeds in the 10Mbps range.

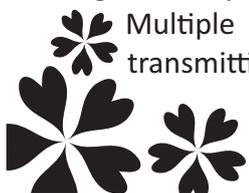
LTE Advance (Long Term Evolution Advanced)

LTE-Advanced is a revision meant to bring earlier LTE technology into full compliance with the fourth generation or "4G" family of wireless technologies as defined by the International Telecommunication Union's Radio communication Sector (ITU-R). The ITU-R's 4G specifications, which the group formally refers to as International Mobile Telephony Advanced (IMT-Advanced), call for theoretical peak data rates of 100 megabits per second (Mbps) under high mobility situations or 1 gigabit per second (Gbps) in fixed or low mobility environments. Early revisions of both LTE and WiMAX®, although touted as 4G by some carriers, do not meet the requirements of IMT-Advanced and are more appropriately be called "pre-4G" or "3.9G" technologies.

In order to achieve higher data rates while preserving compatibility with older LTE standards, the designers of LTE-Advanced had to use some relatively advanced techniques. Larger amounts of radio frequency spectrum may be utilized in addition to new techniques for more efficient use of limited spectrum. Devices compatible with the new technology are likely to feature a number of antenna arrays, and a process called beam-forming can turn would-be interference into a tool to boost signal.

Using a scheme known as carrier aggregation, a cellular base station can break apart a stream of data and transmit it through multiple radio frequencies to a user's device, which then reassembles these multiple pieces into the original data stream. Another technique known as coordinated multipoint transmission/reception employs multiple base stations to simultaneously send and receive data to a single device. This can be especially beneficial to customers who are on the edge of a particular base station's coverage area; by combining two base stations, a faster and more reliable connection can be achieved.

Multiple LTE-Advanced base stations can even be used in a relay, with each base station transmitting information to the next.





"There is a time for some things and a time for all things; a time for great things, and a time for small things."

Over the past few years, a little word with big potential has been rapidly known itself into the world's consciousness and that word is 'Nano'. Do you know about Nano ?? Nanotechnology and Nanoscience are two of the hottest fields in science business and the news today.

The word 'Nano' means one billionth One nanometer is $1/1,000,000,000$ of a meter, which is close to $1/1,000,000,000$ of a yard. The prefix 'nano' being derived from the Greek word 'nanos' which means 'dwarf'. Nanotechnology is the area of science and technology where very small structure play a critical role, but how small is 'small' ?

To get a sense of the 'Nano' scale a human hair measure about 80,000 nm wide , a red blood cell is approximately 7,000 nm wide, and a water molecule is almost 0.3 nm across. People are interested in the nanoscale because it is at this scale that the properties of materials can be very different from those at a large scale.

Nanotech Generation

- 1st Generation** : Passive nano structure in coatings, nano particles bulk materials polymers, ceramics ~ 2001
- 2nd Generation** : Active nano structure such as transistors, amplifiers, actuators, adaptive structure ~ 2005
- 3rd Generation** : 3D nano systems with heterogeneous nano components and various assembling techniques ~ 2010
- 4th Generation** : Molecular nanosystems with heterogeneous molecules, based on bio-mimetics and new design ~ 2020

Nanomaterials are in different different dimensions. One dimensional nanomaterials, such as thin films and engineered surfaces. Two dimensional nano materials like carbon nanotubes, nanohorns, Inorganic Nanotubes, Nanowires, Bio-polymers and Nanoribbons etc., and Three dimensional nano materials are Fullerenes (Model C_{60}) and Dendrimers.

Nano technology is used in many fields in day-to-day like,

1. Nanotechnology in Medical field.

- Nanodevice are small enough to enter cells.
- Nanodevices can improve cancer detection and diagnosis.
- Nanodevice can improve sensitivity.
- Nanodevice can make cancer tests faster and more efficient.
- Drug delivery is to be easily forms.

2. Nanoelectronic Devices

- Radios
- Computers
- Energy Production
- Medical Diagnostic

3. Social impacts of Nanotechnology

Ambient sensors systems can provide useful information such as traffic conditions,



pollution levels and transmit this rapidly to portable device but it can also transmit information about individuals activities.



4. Scanning Tunnelling Microscope (STM) : The STM device that allows scientist to observes molecule close up as in the atomic level. The microscope plays on the concept of quantum tunnelling which involves individual sub-atomic particles tunnelling in between two forces. The STM does not tell us what is there but rather what is not there.

Many potential applications of nanotechnology are as under.

Medicine : The health care industry is predicated to receive the first significant benefit of nanotechnology.

Security : Engineering nanotechnologies are expected to play a critical role in helping to maintain national security.

Nanotechnology is likely to be particularly important in the developing world, because it involves little labour, land or maintenance; it is highly productive and inexpensive; and it requires only modest amount of materials and energy.

Nanotechnology could prove to be a "transformative" technology emparable in its impact to the stream engine in the 18th century, electricity in the 20th century, and the Internet in contemporary society.

At last, as the components of technology get smaller and smaller world-wide interest in developing them gets bigger and bigger.

Nanotechnology is truly a portal opening on a new world.

Bansi M. Patel

S.Y.B.Sc. (Physics)



Somebody with us

"God is always with us" that we believe. specially , when we are in problem, always pray to the almighty. We feel that, we have some powerful energy and find solution of our problem. We can't see god that way we feel and believe.

After my 12th result, I came in Vidyanagar to get admission in V. P. Science college. At that time we got a information that the admission was almost completed. Only few seats were left. I was with my family, we just visited college so we have only few amount of money and it was last day for admission we completely disappointed. Time was also limited. At that time, we have only one way to pray god, then my papa remembered that my cousin sisters was staying in V. V. Nagar. We called her and told about our condition. We borrow some money from her and filled the form to get admission. That is how B.Sc. admission in V. P. Science college was got confirmed.

I realize at that time , that god is always with us



48

Ankita D. Patel,
S.Y.B.Sc. (Microbiology)



Satyendra Nath Bose

Born : 1st January, 1894 [Calcutta]
Residence : India

Died : 4th February 1974 [Calcutta]
Fields : Physics and Maths

Satyendra Nath Bose was an Indian Physicist specialising in Mathematical Physics. He was born in Calcutta. He is best known for his work on quantum mechanics in the early 1920 s, providing the foundation for Bose - Einstein statistics and the theory of the Bose - Einstein condensate. A fellow of the Royal society the government of India awarded him India's 2nd highest civilian award, the Padma Vibhushan in 1954.

The class of particles that obeys Bose - Einstein statistics, bosons was named after him by Paul Dirac. A self-thought scholar and a polyglot, he had a wide range of interests in varied fields including Physics, Arts, Mathematics, Chemistry, Biology, Literature and Music. He served on many research and development committees in independent India.

Research Career : Bose attended Hindu school in Calcutta and later attended presidency college, also in Calcutta earning the highest marks in each institution, while fellow student Megnand Saha came second, he came in contact with teachers such as Jagdish Chandra Bose. Nagar Prafulla Chandra Ray and Naman Sharma who provided inspiration to aim high in life.

From 1916 to 1921, he was a lecturer in the Physics department to the University of Calcutta. Along with saha, Bose prepared the 1st book in English based on German and French translation of original papers on Einstein's special and general relativity in 1919.

In 1921, he joined as Reader of the department of Physics of the recently founded university of Dhaka, by the Vice-chancellor of uni. Of Calcutta. Sir Ashutosh Mukherjee, himself a distinguished Mathematician, a high court judge and with strong interest in physics.

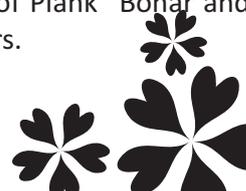
Bose set up whole new department including laboratories to teach advanced courses for M.Sc. and B.Sc. honours and taught thermodynamics as well as James Clerk Maxwell's theory of electromagnetism. Satendra Nath Bose, along with Saha, presented several papers in Theoretical Physics and Pure Mathematics form 1918 Onwards. In 1924, while working as a Reader at the Physics department of university of Dhaka. Bose wrote a paper deriving Plank's quantum radiation law without any references. To Classical Physics by using a novel way of counting states with identical particles. This paper was seminal in creating the very important field of quantum statistics.

Honours : In 1937, Rabindranath Tagore dedicated his only book on science Visva-Parichay, to Satendra Nath Bose was honoured with little Padma Vibhushan by the Indian government in 1954.

In 1959, he was appointed as national professor, the highest honour in the country for a scholar, a position he held for 15 years. In 1986, the S. N. Bose National Centre for basic Sciences was established by an act of parliament, Government of India in Calcutta. He was wise president and then the president of India statistical institute.

In 1958, he became a fellow of the Royal Society. He was nominated as member of Rajyasabha. Parth Ghoshe has state that, "Bose's work stood at the transition between the old quantum theory of Plank Bohar and Einstein and the new quantum mechanics of Schrödinger Heisenberg, born Dirac and others.

Bansi. M.Patel, S.Y.B.Sc. (Physics)



The Brain of Albert Einstein



Most of the people know that Albert Einstein was a famous scientist who came up with the famous formula $E=mc^2$. But do you know about the Albert Einstein's brain??

In his last years of life Albert Einstein knew he was ill and refused operation that would save his life. He made his wishes clear "I want to be cremated so people want to worship at my bones." He died on April 18, 1955 at the age of 76.

During the autopsy his brain was removed by Dr. Thomas Harvey at Princeton Hospital after a few hours of his death. It was largely preserved, although Harvey sliced out some pieces for study in 2010. The remaining parts of the brain were donated to the national museum of Health and Medicine, 14 unique photographs were also given to the museum.

Remember friends, this is the brain that had given the world such a revolutionary thoughts as $E=mc^2$, the theory of relativity and understanding of speed of light and the idea that lead to the competition at the atomic bomb. Harvey held the brain that produced these thoughts in his hands, and then he took it up.

Now, China has also joined in the research. The group of scientist from East China Normal University, Shanghai analyzed his brain images which were provided by their colleagues from US .They found a significant difference, never noticed before.

The research shows that," the left & right hemispheres of Einstein's brain were unusually well connected to each other and may have contributed to his brilliance according to new study." East China Normal University department of Physics developed a new Einstein's brain. This gives the details of Einstein's corpus callosum. The brain's largest chain of fibre that connects the two hemispheres very well and also facilitated inter hemispheric communication.

The current research shows the right hemisphere of the brain involved in processing to form structures and it has direct link to emotions. While the left hemisphere handle complex rapidly changes, it also contains regions responsible for grammar, vocabulary and literal meaning of word. It also contains areas that do exact mathematical computation. The right hemisphere process on introduction of languages and general quantities. These activities are formed in Einstein's brain very accurately and rapidly than the other brains of human. It gives his extraordinary power of IQ than any other human. So, it becomes unique brain.

Palak N. Patel

S.Y.B.Sc. (Chemistry)



ऋषीमुनी यों का विज्ञानमें योगदान

गर्गमुनी

गर्गमुनी नक्षत्रो खोज कर्ता माने जाते हे । यानी सितारोंकी दुनियाके जानकार। येही थे, जिन्होंने श्रीकृष्ण एवं अर्जुनके बारे नक्षत्र विज्ञानके आधार पर जो कुछभी बताया, वह पूरी तरह साबित हुआ। कौरव-पांडवोंके बीच महाभारत युद्ध विनाशकरहा । इसके पीछे वजह यह थी कि युद्ध के पहले पक्षमें तिथि क्षय होने के तेरहवें दिन अमावसथी । इसके दूसरे पक्षमें भी तिथि क्षय थी। पूर्णिमा चौदहवें दिन आ गइ उसी दिन चंद्र ग्रहण था। तिथि नक्षत्रोंकी यही स्थिति व नतीजे गर्गमुनीने पहले बताया ।



50





Magical Star : Sun

In childhood, we have asked many questions to our elders, that “ what is sun?,” How it is like that!, why it has orange colour !, Why it is very hot !, etc..... At college level, all these questions gives the magical answers and it is very amazing to know that all about these questions and about our big star like Sun....! Let’s we know about the interesting sun and it’s formation and different part.

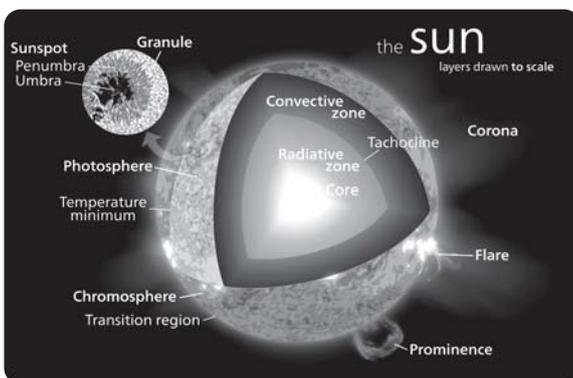
Sun :- The sun is a star at the centre of the solar system and it is a huge spinning ball of hot gas. The sun is biggest hero star for us.

Formation of sun :- The sun was actually formed from a nebula over 4 and a half billion years ago. A nebula is a cloud of dust and gas. Sun has a diameter about 1,392,684 km around 109 times of the Earth and it’s mass is 1.989×10^{30} kilograms approximately 330,000 times the mass of the Earth.

Astronomers says that the sun is to be brighter than about 85% of the other stars in the milky way. In about 5 billion years, the hydrogen in the centre of the sun will start to run out. The helium will get squeezed. This will speed up the hydrogen burning. Our star will slowly puff into a red giant. It will eat all of the inner planets, even the Earth....

Nearly 99% of all stars in the galaxy will end their lives as white dwarfs. By studying the stars that have already changed, we can learn about the fate of our own sun.

Since the sun is not solid body. Different parts of sun rotate at different rates. At the equator the sun spins once about every 25 days but it’s pole the sun rotates on it’s axis every 36 earth days.



Different layers of the sun :- Like Earth, sun has many layers like stratosphere, mesosphere, ionosphere, Troposphere etc.

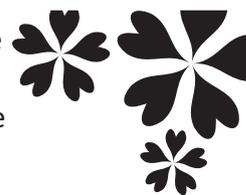
Core :- The centre of the sun where the synthesis of helium takes place through the process of fusion. Core is innermost part of the sun. In the core of the sun, the temperature is so hot that the atoms are constantly colliding and tearing apart the hydrogen atoms to form separate between proton, neutrons and electrons. These are the parts that make up an atom.

The sun’s core is one-quarter of it’s entire radius and produces 100% of it’s total energy output. The sun’s gravity is most concentrated in the core.

If the sun is very hot that the core is hot or not?

The temperature of sun’s core is 27,000,0000 °F or 15000,0000 °C But the fabric of space is something like 2000°C although that woudn’t really change much and there is so much distance between the planet and the sun. Most planets can withstand heats very high and they woudn’t just melt into nothingness.





Radiative zone :- Radiative zone is lies between the core and the convective zone. The radiative zone extends to about 70% of the sun's radius. The energy flowing from the core through the radiative zone, travelling in a very haphazard path, losing energy in the process.

Convection zone :-Convection zone is lies between the radiative zone and photosphere. Convection zone is a turbulent mass of material through which the radiation can not pass as the temperature is too low about 2 million volt at the bottom of the convection zone.

Photosphere : As we look down into the atmosphere at the surface of the sun view becomes more and more opaque. The point where it appears to become completely opaque is called photosphere. Sunlight as we know it the visible white light, is emitted from the photosphere. The photosphere is one of the coolest regions of the sun about 6000 K and here Granulation caused the bubbling gas in the convection layer and the sunspots caused by strong magnetic field.

There are four types in photosphere. :-

(1) Sunspots : These are seen as dark spot in the photosphere that have extremely high magnetic fields. They have lower temperature than their surroundings, which gives them this darkened appearance in white light.

(2) Facule : These are seen on the sun near the limb instead of appearing dark like sunspots, they show up as bright spots on the photosphere. This is because they are hotter than their surroundings.

(3) Granulation : Granulation are related to the connective zone. The granulation results of the rising and falling of hot gas that take place in connective.

(4) Chromosphere :- The chromosphere is a narrow layer above the photosphere that rises in temperature with height. The chromosphere is 2000-3000 km thick and the temperature rises from around 6000 K to 20,000 K. Chromosphere has a colour layer like color – sphere so it called chromospheres.

Atmosphere of the sun :- The visible solar atmosphere consists of 3 regions: The photosphere, the chromosphere and the solar corona. Most of the visible – white light comes from the photosphere, this the part of the sun we actually see this. The chromosphere and corona also emit white light and can be seem when the light from the photosphere is blocked out, as occur in a solar eclipse.

The sun emits electromagnetic radiation at many other wavelength as well. The different radiation such as radio, ultraviolet, X-rays and gamma rays originate from different parts of the sun. Scientists use special instruments to detect this radiation and study different parts of the solar atmosphere.

The solar atmosphere is so hot that the gas is primarily in a plasma state. Electrons are no longer bond to atomic nuclei and the gas is made up of charged particles mostly protons and electrons. In this charged state the solar atmosphere is influenced by the strong solar magnetic fields that thread through it. This magnetic fields and the outer atmosphere extend out into interplanetary space as part of the solar wind.

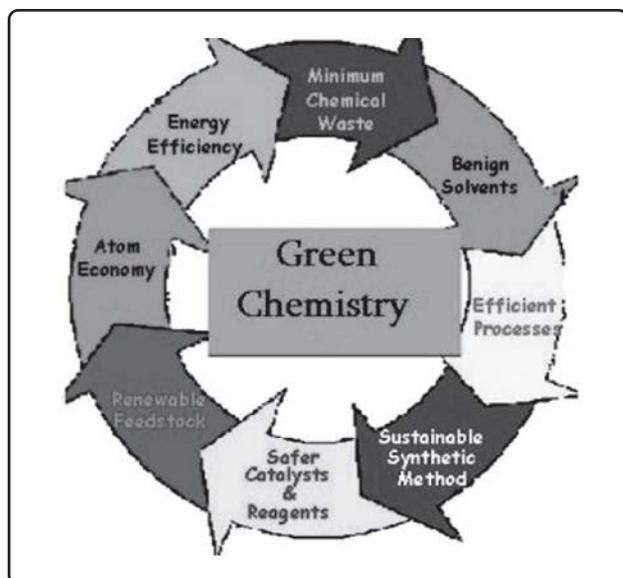


At last, I say something that “We does not live without the atmosphere of Earth, Earth's does not live without the sun, that's why we also do not live without sun”.....



Green Chemistry

“Chemistry is the science of composition, structure, properties, and reaction of matter, especially of atomic and molecular systems.”



Now, what is “Green Chemistry”?

“Green Chemistry is the design of chemical products and processes that reduce or eliminate the use and generation of hazardous substances. Fewer hazardous substances means less hazardous waste and a healthier environment.”

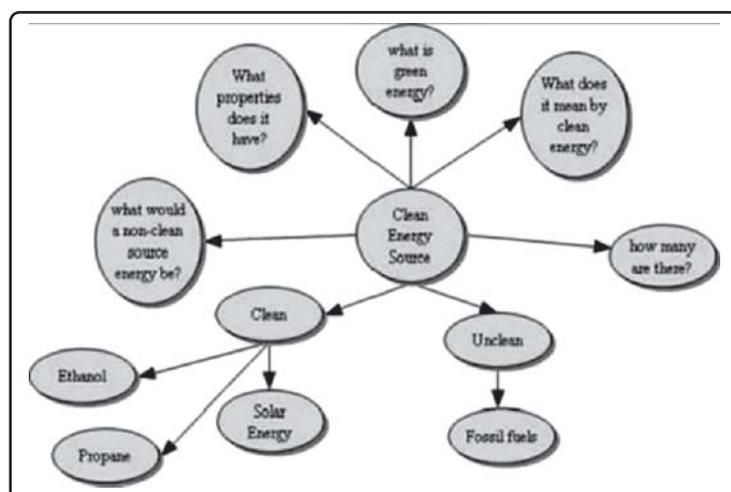
Green Chemistry applies to Organic Chemistry, Inorganic Chemistry, Biochemistry, Analytical Chemistry and even Physical Chemistry. Green Chemistry focus on minimizing the hazard and maximizing the efficiency of any chemical choice. It is distinct from Environmental Chemistry which focuses on chemical phenomena in the environment.

The term “Green Chemistry” was coined by “Paul Anastas” in 1991. However, it has been suggested that the concept was originated by Trevor Kletz in his 1978 paper where he proposed that chemists should seek alternative processes to those involving more dangerous substances and conditions.

Green Chemistry is a tool not only for minimize the negative impact of those procedures aimed at optimizing efficiency. Although clearly both impact minimization and process optimization are legitimate and complementary objectives of the subject.

Green chemistry is applicable to all aspects of the product life cycle as well. To understand this, we have to understand Risk. Risk in its most fundamental terms is the product of hazard and exposure :

$$\text{Risk} = \text{Hazard} \times \text{Exposure}.$$



A substance manifesting some quantifiable hazard, together with a quantifiable exposure to that hazard, will allow us to calculate the risk associated with that substance. Virtually all common approaches to risk reduction focus on reducing exposure to hazardous substances.

In 2005, Ryoji Noyori identified three key developments in green chemistry; use of super critical carbon dioxide as green solvent, aqueous hydrogen peroxide for clean oxidations and the use of hydrogen in asymmetric synthesis.





What can green Chemistry do?

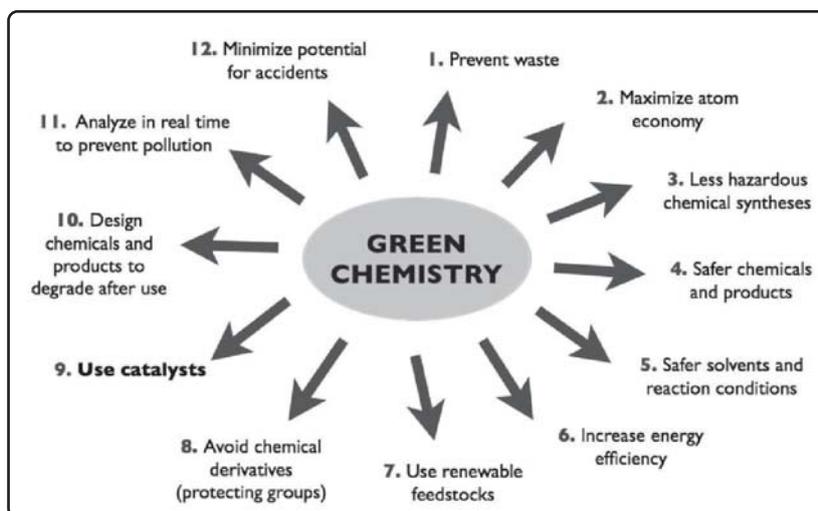
Green Chemistry is not a particular set of technologies, but rather an emphasis on the design of chemical products and processes. Sometimes green chemistry takes place at the molecular level to reduce or eliminate the use and generation of hazardous substances. This approach offers environmentally beneficial alternatives to more hazardous chemicals and processes and thus promotes pollution prevention.

What are the applications of “Green Chemistry”?

- To rebuild the foundation to advanced Green Chemistry as a new science.
- To assess the current state of art in Green Chemistry and discuss the role of chemical research and science policy in advancing global environmental protection and sustainable development.

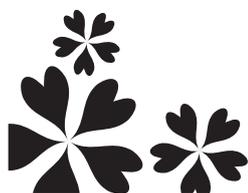
Educating students about cleaner and more sustainable greener tomorrow.

- To identify green alternatives of the worst offender chemicals.
- To reduce potentially hazardous wastes through smarter production.
- To establish green chemistry as a innovative way of thinking from a mere public relations label.
- To correct the barrier to the scientific, technical and commercial success of green chemistry through fundamental policy changes.
- To bring biologists, engineers and scientists from a range of discipline with chemists.
- To increase the amount of information about green chemistry so that anyone in industry with a specific problem can come along and look at the specific options available.



Thus, Chemistry is important part of everyday life. So, related to our life in my chemical language, I just want to say that,

Life is Chemistry,
Just dilute your sorrows,
Evaporate your worries,
Filter you mistakes,
Boil your ego & you will get crystals of Happiness!!!!





Women Empowerment

Since last few days I am getting seen into messages, newspaper articles and some other stuff all related to women empowerment in India. It's been a big topic of discussion and action for decades in India.

One day I was reading a newspaper article, wherein the topic was about women accusing men of RAPE in a relationship gone sour and filing a police complaint against them. It's true that many men lure women with false promises of marrying them and than getting into a relationship. It's in a way a kind of cheating which is absolutely not tolerable. During the course of their relationship they had consensual sex. But once the woman comes to know that the man is making excuses to marry her and all this time he was making false promises, the woman goes to the police and files a complain of rape. The newspaper article states a lawyer's argument that in such cases wherein both persons, the man and the woman are adults and since sex happened with the consent of both it cannot be termed as rape, but instead the case happens to be of cheating and fraud. The article also states that the number of such cases in recent times have gone up drastically. Many times a relationship gone sour, turns out to be like a nightmare for the man, for the woman in the relationship who doesn't want to leave the man, just files a rape complain with the police against the man, gets him arrested and he has to spend 15 days in judicial custody before being granted bail.

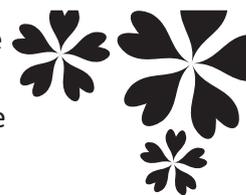
Over the years it seems like the major part of our social structure is lacking maturity. Seems like our age old conservative social structure is finally taking its toll on the young generation. Marriages and relationships are such important part of any society, that if they are not handled with maturity the society is gone come crashing down. So many questions are coming up in my mind when it comes to understanding the social structure in our country right now like

- Why have we today reached a stage where both men and women are not able to understand the intricacies of relationships?
- Why are parents not bringing up their sons and daughters in such a way that when they grow up they are mature enough to respect the opposite sex?
- Why are daughters not brought up in such a way that when they grow up they are confident enough to take care of their financial and emotional needs?
- Why is that in most families a woman is not allowed to work so that they can have their own money and if they do why they are still not given respect?
- And if woman in a family works to earn money for the family, why can't the man in the house take care of the kids and the house and help the woman?
- Why teenagers are shopped from dating and especially the girls are almost kind of banned from socializing with boys?
- Why aren't boys taught at home to respect girls?
- Why today, boys and girls if a relationship gone sour consider that the life gets finished if their relationship comes to an end?

Laws to empower women is surely a way to protect them and they should be there. But that's not the solution to the problem we are facing. Laws that empower women in India are now a days always used in false ways by women to fight innocent or genuine men. So I still feel that it's more on to our society, parents and elders to change the mind set of the new generation. But first for that our conservative society and parents will have to change their shallow mind set. And then only I feel India will have a society where in laws to empower women will be



there, but there won't be instances or cases to use them much. We call ourselves the next super-power. Comparing us with some other nations. But tell me, can we be acknowledged as a super-power or as a matter of fact, a developed nation, when there is such discrimination in the society? No.



"The greatest revolution in a country is the one that affects the status and living conditions of its women."

- Pandit Jawaharlal Nehru, Discovery of India, Page 160

The roles a woman plays in various aspects of life are many. At home, on job, in society, as mothers, wives, sisters, daughters, learners, workers, citizens, leaders. With the introduction of the National Policy for Empowerment of Women, the Government of India had declared year 2001 as Women's Empowerment Year. It was said. "Our vision in the new century of a nation where women are equal partners with men". Many new projects were launched like Swashakti and Stree Shakti for women's empowerment; Swayam Sidha to benefit 100,000 women through micro-credit programs, Balika Samrudhi Yojana for the girl child and many more.

If you think a lot has been done for woman empowerment, think again.
Cases of female-infanticides are still on rise (both reported and un-reported)
Certain section of the society does not send girls to schools once she attains puberty.
Some are not sent to schools ever.
Numbers of pre-age marriages are also significant
Sati is still being practised in many villages across the country.
The crimes against women are on the rise.
The gender disparity is at all time high

The list is long. But such attitude and gender bias is eating away a talent pool. The respect has been replaced with discrimination. More, we have come across a more image of gender differences. Each year, we notice that the headline as "Girls outshine boys" in CBSE, ICSE and State Board results as well. It arrests us showing that girls are now more confident of getting better-paid professional jobs than their flagging male counterparts. Clearly, there is an excellent amount of reason for the girls to be more confident than boys and this is because of their remarkable academic feat around the nation. This achievement of girls is an absolute reversal of what would have been expected a generation ago. This is likely to steer to higher-income jobs.

In this contemporary world, women need to gain the same amount of power that men have. Now, it is time to forget that men are the only holders of power. In India, women are still facing different obstacles in male-dominated cultures. The things are related to women's status and their future. However, I believe that Indian women are slowly getting empowerment in the sectors like education, politics, the work force and even more power within their own households.

According to Hindu mythology, the word 'Ardhanarishvara' meaning "The Lord whose half is a woman". What is the value of a man without a woman? We shouldn't forget that there are many temples in our country devoted to the Goddesses and men also use to visit the temples for worshipping them. We need both male and female each other. We must work all together and both needs each other to survive and flourish.



These days, women have established themselves that they are equal to men. They have now forsaken their homely image and are making a major contribution to



global innovation of the country. They are working in different fields with man by doing hard work.

It is said that women are the pillars of the economy of the world. We just need to think that women particularly from India who purchase the precious ornaments like gold, diamond, silver, platinum. They also pay money for cosmetics items which brings livelihood to millions. They have the most imperative role of the family who keep it together.

The Empowerment of women has become one of the most important Concerns of 21st Century not only at national level but also at the international level. Efforts by the Govt. are on to ensure Gender equality but Government initiatives alone would not be sufficient to achieve this goal. Society must take initiative to create a climate in which there is no gender discrimination and Women have full opportunities of Self decision making and participating in the Social, Political and Economic life of the Country with a sense of equality. Then only the Vedic verse "Wherever Women is respected, God resides there would come true."

Bhavik Shah

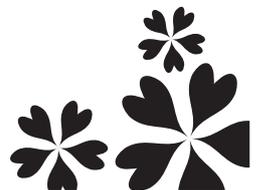
T.Y.B.Sc. (Computer Science)

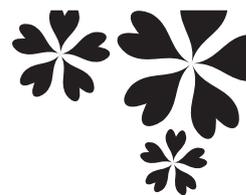


When I Was Younger

I'd put my arms in my short and told people I lost my arms,
Would restart the video game whenever I knew I was going to lose,
Had that one pen with four colours and tried to push all the buttons at once,
Waited behind a door to scare someone, then coming out because they're taking too long to come out,
Faked being asleep, so I could be carried to bed,
Used to think that the moon followed our train,
Tried to balance the switch between on / off,
Watching two drops of rain roll down window and pretending it was a race,
Swallowed a fruit seed I was scared to death that a tree was going to grow in
my stomach,
Closed the fridge extremely slowly to see when the lights went off,
Filled my shoes with water, so that I would get fever and get off from school,
The only thing I had to take care of was my school bag.

Vijay Pijwala
Admin. Office





In beginning, I just want to say that,

Life is Chemistry;
Just Dilute your sorrows,
Evaporate your worries,
Filter your mistakes,
Boil your ego & you will get the crystals of Happiness !!!

Now to begin with Chemistry is a big part of our everyday life. We find chemistry in daily life in the foods we eat, the air we breathe, our soap, our emotions and literally every object we can see or touch.

Right from the morning mouth wash to the time when we fall asleep under the effect of the tranquillisers released by pituitary gland in our brain, our life is significantly influenced by chemistry. House hold cooking, washing, cleaning and lighting involve utilisation of chemical properties of substance in our day-to-day work. Almost everything that we do during the course of a normal day involves chemistry in some way. Chemistry is all around us each and every day. From colours to odours present in nature are form of chemistry.

Elements in the human body : Our body is made up of chemical compounds which are combinations of elements. While we probably know our bodies is mostly water, which is hydrogen and oxygen.

Chemistry of love : The emotions that you feel are a result of chemical messengers, primarily neurotransmitters. Love, je always, envy, infatuation and infidelity all share a basic in Chemistry.

How sun screen works : Sunscreen uses chemistry to filter or block the sun's harmful ultraviolet rays to protect us from a sun burn, screen cancer or both.

Respiration : Breathing is the exchange of gases between an organism and its environment. Respiration is a chemical process, which is a reaction between glucose or sugars with oxygen, that release energy. It is the process in which in halation of oxygen from the air causes inflation of the lungs and then deflation of the lungs and then deflation occurs by exhaling carbon dioxide into the environment. The reaction that takes place during breathing is.

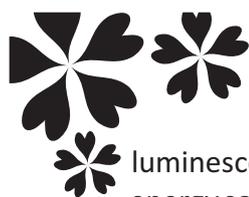


Feeling Hungry : When you feel hungry the hormone ghrelin is secreted by the stomach that triggers hunger. It stimulates the release of the growth hormone. It plays a role in the release of insulin and protection of the cardiovascular organs. So, the next time your stomach growls grab a bite because if you fast or skip meals, more ghrelin is produced thus increasing your craving for food.

How soap cleans : Soaps are sodium or potassium fatty acids salts, produced from the hydrolysis of fats in a chemical reaction called saponification. In water, the sodium or potassium ions float free, leaving a negatively-charged head. Soap is an excellent cleanser because of its ability to act as an emulsifying agent.

An emulsifier is capable of dispersing one liquid into another immiscible liquid. Chemistry spreads every where. There some examples of chemistry (or chemical) in our daily life :- drugs as medicine; oils & petroleums; fireworks; rayon & cosmetics (product of zing sulphate); milk; polymers, baking ingredients; caffeine etc.





Chemistry of fireworks : Fire works combine art and science creating firework colours is a complex endeavour, requiring considerable art and application of physical science. The two main mechanisms of colour production in fireworks, incandescence and luminescence. Incandescence is light produced from heat. Luminescence is light produced using energy sources other than heat.

Chemistry of hair colour: Hair colour is matter of chemistry! The first hair colour was created in 1909 by French chemist Eugene Schuller, using the chemical paraphenylenediamine. Hair colour is the result of a series of chemical reactions between the molecules in hair. Pigments as well as peroxide and ammonia. If present various types of alcohols and conditioners may also be present in hair colour. The conditioners close the cuticle after colouring to seal in and protect the new colour. Many of changes we observe in the world around us are caused by chemical reaction. Examples include changing colour of leaves. Cooking food and getting clean.

Chemistry is involved in acidity. When excess hydrochloric acid (HCl) is present in the inner lining of the stomach. We can recover from acidity by taking antacids like milk of magnesia. Being a base, it neutralises the effect of the excess acid.

Chemistry does really well job in preparation of fuels. Such that there are many isomerism of alkane, alkene and alkyne which is mostly used for preparation of fuel and also for preparation of diesel, petrol and it also used for black ink.

Chemistry helps us march on the civilized path of glory from 'womb to tomb'. While we appreciate the fact that chemistry overwhelms as in every bit of our daily life, it must be clearly borne in mind that it is good so long as it balances the nature. When nature is out balanced by chemicals, it becomes a disaster. It serves us in good stead but when rooks rule the roost. It assumes a devastating form. Chemistry arms us on the land of mortals to protect our body and civilized life and disarms us when our soul proceeds for heavenly abroad.

Leaving our body to disintegrate into the panch tatvas as envisaged in our hindu- my theology. At last i just want to say that.

The life without Chemistry is, Like a bird without wings....

Patel Lalita J.

S.Y.B.Sc. (Chemistry)



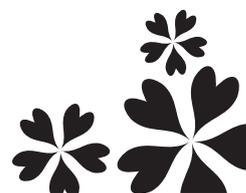
STUDENT

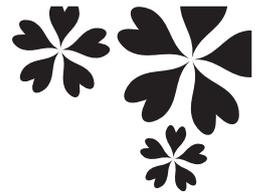
S = Simplicity, Self Reliance	= आत्मविश्वास, सादृष्ट
T = Thoughtful	= विचारशीलता
U = Utility	= उपयोगिता
D = Determination, Diligent	= उद्यमी, दृढ, निरुत्थ
E = Enthusiasms, Enlightenment	= उत्साह, ज्ञान
N = Nobility	= प्रभाविष्टता
T = Truthfulness	= सत्यनिष्ठ

Patel Kerul Nitinbhai

S.Y.B.Sc. (Botany)

59





In beginning I want to start with “Physics”.

What is Physics?

Physics is a natural science based on experiments measurements and mathematical analysis with the purpose of quantitative Physical laws for everything form a nanoworld of the microcosmos to the planets solar systems and galaxies that occupy the microcosmos. Physics is a branch of science concerned with the nature and properties of matter and energy. The subject matter of physics includes mechanics, heat, magnetism, and the structure of atoms. The laws of nature can be used to predict the behaviour of the world and all kinds of machinery. Many of the everyday technological inventions that we now take for granted resulted from discoveries in Physics. Isaac Newton and Galileo describe theory for motion of heavenly bodies and it is the beginning of “Biophysics”.

Biophysics :

“Biophysics is a bridge between Biology and Physics.”

Biology studies life in its variety and complexity. It describes how organisms go about getting food, communication, sensing the environment, and reproducing. On the other hand, Physics looks for Mathematical laws of nature and makes detailed predications about the forces that drive idealized systems. Spanning the distance between the complexity of life and the simplicity of physical laws is the challenge of Biophysics. Looking for the patterns in life and analyzing them with Maths and Physics is a powerful way to gain insights.

What do biophysicists study ?

Biophysicists study life at every level form atoms and molecules to cells, organisms and environments. As innovations come out of Physics and Biology labs, biophysicists find new areas to explore where they can apply their expertise, create new tools, and learn new things. The work always aims to find out how biological systems work. Biophysicists solves the questions like how do protein machines work? How do plants harness sunlight to make food? Etc...

Biophysics studies life at every level from atoms and molecules to cells, organisms and environments.

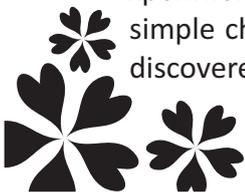
I would like to ask one question.

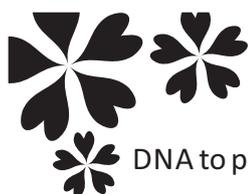
How essential is Biophysics to progress in ‘Biology’?

Protein molecules perform the body’s chemical reactions. The push and pull the muscles that move our limbs. Proteins make the parts of our eyes, nose and skin that sense your environment. They turn food into energy and light into vision. They are our immunity to illness. Protein repair what is broken inside of cells and regulate growth. They fire the electrical signals in our brain. Biophysicists are discovering how protein work. Variations in proteins make people respond to drugs differently. Understanding these differences open new possibilities in drug design, diagnosis, and disease control. Soon medicines will be tailored to each individual patients’s propensity side effects..

How Biophysics revealed the structure of DNA?

Experiments in the 1940’s showed the genes are made of a simple chemical – DNA. How such a simple chemical could be the molecule of inheritance remained a mystery until biophysicists discovered the DNA double helix in 1953.





single chemical could generate unique individuals and perpetuate their species. Biophysics showed how DNA serves as the book of life. Inside the cells, genes are opened, closed, read, translated, and copied, just like books. The translation leads from DNA to proteins, the molecular machinery of life.

During the 2000's biophysical inventions decoded all the genes in a human being. All the genes of nearly 200 different species and some genes from more than 100,000 other species have been determined. Biophysicists analyze those genes to learn how organisms are related and how individuals differ.

Discoveries about DNA and proteins fuel progress in preventing and curing disease.

What are the applications of Biophysics?

Biophysics is a well spring of innovation for our high-tech economy. The applications of Biophysics depend on society's need. In the 20th century, great progress was made in treating disease. Biophysics helped create powerful vaccines against infectious diseases. It described and controlled disease of metabolism, such as diabetes. And biophysics provided both the tools and the understanding for treating the diseases of growth known as cancers.

Biophysical methods are increasingly used to serve every day needs, from forensic science to bioremediation. Biophysics gives us medical imaging technologies including MRI, CAT scans, PET scans, and sonograms for diagnosing diseases. It provides the life-saving treatment methods of kidney dialysis, radiations therapy, cardiac defibrillators, and pacemakers.

Biophysicists invented instruments for detecting, purifying, imaging and manipulating chemicals and materials. Advanced biophysical research instruments are the daily workhorses of drug development in the world's pharmaceutical and biotechnology companies.

Biophysics applies the power of Physics, Chemistry and Maths to understanding health, preventing disease and inventing cures.

Why is biophysics important right now?

Society is facing physical and biological problems of global proportions. How will we continue to get sufficient energy? How can we feed the world's population? How do we remediate global warming? How do we preserve biological diversity? How do we preserve biological diversity? These are crises that require scientific insight for innovation. Biology and Physics, it means biophysics provides that insight and technologies for meeting these challenges, based on the principles of Physics and the mechanisms of Biology.

Biophysics discovers how to modify micro organisms for bio fuel and bio electricity. Biophysics discovers the biological cycles of heat, light, water, carbon, nitrogen, oxygen, heat and organisms throughout our planet. Biophysics harnesses micro organisms to clean our water and to produce life saving drugs. Biophysics pushes back barriers that once seemed insurmountable.

Thus, the combination of biology and physics helps us to solve so many medical problems. It makes our life as easy as possible and makes our future life bright. Thus, biophysics helps in everyday life.

Sindha Krishna R. S.Y.B.Sc (Chemistry)





Microbiology is one of the biology field, which is so interesting. 'Micro' means small and biology means life. Microbiology is related with small living organism, which known as 'microorganism'. This field is so interesting and special because we study those living organism with them we live, they are live our surrounding, out environment, they are present everywhere. And one speciality is that we can't see our naked eye, we use to see them microscope and to it is so different then other and surprise able.

First, the discovery of the world of microorganism came about as investigators developed microscopes. During the period from 1600 to 1800, the questions was arose that how microbes create, that theory known 'spontaneous generation'. After a many year, spontaneous generation was the growing acceptance of the concept that these microorganisms were the cause of many conditions that occur in every day life. Some scientist put an interest and given there contribution in this field when microscope was discovered. On them, one of the scientist Robert Koch (1843-1885) was particularly concerned with the need to develop a technique for the isolation of microorganisms in pure culture. He experiment with microorganisms and given a so much information about this field, and it was so important for microbiology. He so important for microbiology. He given a new field that was bacteriology, so he also known a "Father of Bacteriology". At same time, Louis Pasteur who was a Professor of Chemistry at the university of Lille, France, given a important information about microorganism and found about "Fermentation". To we known as a pasteurization in the dairy industry. Louis Pasteur known as "Father of microbiology". Anatomy van Leeuwenhoek first to observe microorganism. He made more than 250 microscope consisting of home ground lense mounted in brass and silver, the most powerful of which would magnify about 200 to 300 times.

The period from 1880 to 1900 was indeed a golden time for microbiology because so many research & information grew during those years. So many scientist given a best effort them in microbiology example Edward Jenner, Salvador E Luriam Joseph Lister, Paul Ehrlich, Frederick w Twort, Felis HD Herelle, Elie Metchnikoff, Hans Christian gram etc.

Many different fields have great contribution in science. Molecular microbiology, industrial microbiology, food microbiology, air microbiology, agricultural microbiology, water microbiology, soil microbiology, medical microbiology, genetic microbiology, petroleum microbiology, marine microbiology etc are different field of microbiology.

Today, environmental & agriculture science is so demanding become of different diseases and pollution. And in it microorganism contribution are so important because they are present everywhere. Microorganism are used in fermentation, food industry used to make drug etc many places. Recent advancement of microbiology is very fast & every microbial field are very important. In biological cycle (nitrogen, carbon cycle etc) in it microorganism activity are so important, so study of them, we find so much information. In dairy industry, microbial field is so important because a activity of fermentation.

In human body, many microorganism are present and medical microbiology is going to develop very fast. They also harmful as well as spread disease. In short, every where microorganism are present and so microbial field are always demanding and became our future good. We going to research in particular this field. Because in recent year, many microorganism can't discover. So we have a chances that we research & gave a great contribution.





Microbiology is field about microorganism in which we collect the information about their morphology, behaviour, activity, metabolism etc. Microorganisms have some characteristics which make ideal specimens for the study of numerous fundamental life processes. Their life time is so short, they expand their life may be within a second or days. They grow rapidly.

Serratia marcescens, *Micrococcus luteus*, *Staphylococcus aureus* etc are examples of microorganism.

Day by day, microbiology is demanding because of the activity of microorganism as well as pollution, advancement of science and technology etc.

Microbiology emerging as the key biological science.

Ankita Patel

S.Y.B.Sc. (Microbiology)



Let Me Cry

Let me cry, through my eyes,

My soul has died, but my breath strives;
It's a feeling which keeps me alive,

Like walking on the moon, Or praying for a boon;
My heart keeps pumping, after third June.

We planned many things, which never came true,
And now I lay all alone, with no clue;

Still I don't get it; what was my fault,
I just cared a lot, and didn't break a vault,

All that is in me, I cannot express;
Oh God! Release me from this stress,

I dwell in the memories, that I have from past,
How can I? Get it over so fast,

Let me cry, through my eyes,
As my soul has died, and my eyes are dry,
Let me cry till day I die.

Parvez Multani
T.Y.B.Sc. (Physics)

I WANT....

I want from LIFE... And GOD

Challenges,, And attitude to face it,

Dreams..And ability to fulfill,

Happiness.. And sorrows to experience,
Tasks..And experience to get over.

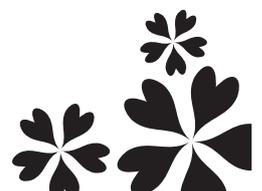
Success..And politeness to stay down-to-earth
Downfalls...And positively to get on.

Knowledge..And integrity to use it rightly
Art..And creativity to explore

Friends..And friendship to share with
Love..And trust to compliment

I want from LIFE..And GOD

Riddhi Patel
T.Y.B.Sc. (Physics)





Chemistry has improved our quality of life, and made thousands of products possible. Unfortunately, this achievement has come at a price our collective human health and the global environment are threatened. Our bodies are contaminated with a large number of synthetic industrial chemicals many of which are known to be toxic and carcinogenic while others remain untested for their health effects. So, the crucial need for the synthetic chemists is to minimize chemical pollution. During the last two decades much effort has been directed towards the design, manufacture and use of chemical products to reduce or eliminate chemical hazards through the aspects of "Green Chemistry".

Green Chemistry, also called sustainable chemistry is a philosophy of chemical research and engineering that encourages the design of products and processes that minimize the use and generation of hazardous substances. The term green chemistry was coined in 1991 by Anastas. In 1998, Dr Paul Anastas and Dr. John Warner outlined Twelve Principles of Green Chemistry to demonstrate how Chemical production could respect human health and the environment while also being efficient and profitable.

I think that

“Molecule is not Possible without bond.
Song can not heard without sound
Anything is not possible without found,
Our life is not possible without chemical.”

Benefits of Green Chemistry :

- Economical
- Lowers cost of production and regulation
- Fewer accidents
- Healthier work place and communities
- Energy efficient
- Less wastes
- Safer products
- Protects human health and the environment

Some examples of Green Chemistry in real Examples :

Polystyrene foam is a common material used in packing and food transportation. Seven hundred million pounds are produced each year in the United States alone. Traditionally CFC and other OZONE – depleting chemical were used in the production process of the foam sheets, presenting a serious environment hazard. Flammable, explosive and in some cases toxic hydrocarbons have also been used as CFC replacements but they present their own problems. Dow chemical discovered that supercritical carbon dioxide works equally as well as a blowing agent, without the need for hazardous substances, allowing the polystyrene to be more easily recycled. The CO₂ used in the process is reused from other industries, so the net carbon released from the process is zero.

Chemical transformations should be designed to utilize raw materials and feed stocks that are renewable. For green synthesis, the feed stock. E.g. cancer – causing benzene used in the commercial synthesis of adipic acid which is required in the manufacture of nylon, plasticizers and lubricants, has been replaced to some extent by the renewable and nontoxic glucose and the reaction is carried out in water.

In manufacturing of gold atom nanoparticles used diborane (highly toxic and bursts into flame near room temperature) and cancer-causing benzene. Now, diborane has been replaced by environmentally benign NaBH₄ which also eliminates the use of benzene.





with O_2 in presence of a catalyst, in place of its synthesis by oxidation of ethanol or hydration of acetylene with H_2SO_4 .

Reactions using ultrasound energy are carried out at RT with excellent yields. For example Ullmann's coupling which takes place at a higher temperature giving low yields by conventional method, gives increased yields at low temperature and in short duration with ultrasound energy.

Reactions with microwave sources have been carried out in a solid support like clay, silica gel, etc. eliminating the use of solvents or with minimum amount of solvents. The reactions take place at a faster rate than thermal heating for example, Beckmann rearrangement of oximes in the solid state with microwave irradiation give quantitative yields of the products without the use of hazardous acid catalysts.

Today chemical industry relies almost entirely on use and generation of hazardous waste. The use of alternative and renewable materials including the use of agricultural waste or biomass and non-food related bioproducts. In general, chemical reactions with these materials are significantly less hazardous than when conducted with petroleum products.

Thus, it is important for Chemists to keep in mind the values of Green Chemistry to tomorrow's chemists. They should learn to assess hazard with this knowledge and to adopt more sustainable chemical practices throughout their academic and industrial career. As our moral duty to save the environment to protect our natural resources for the future generations.

Vadaliya Vishruti
F.Y.B.Sc.



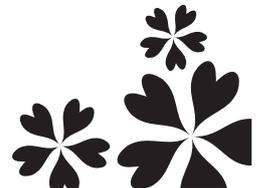
જ્ઞાન પ્રાપ્ત કરવા શું કરશો ?

I = Interest	= રસ રાખો.
N = Negotiation	= ચર્ચા કરો.
F = Finding	= હકીકત શોધો.
O = Observation	= અવલોકન કરો.
R = Reading	= વાંચન કરો.
M = Modern	= આધુનિક બનો.
A = Analysis	= પૃથક્કરણ કરો.
T = Timely	= સમયસર રહો.
I = Inquisitiveness	= જિજ્ઞાસા રાખો.
O = Open Minded	= પૂર્વગ્રહ રહિત બનો.
N = Noting	= નોંધ કરતા રહો.

મેળવતા શીખો

કીડી પાસેથી સંપ, નદી પાસેથી નિર્મળતા,
ફૂલ પાસેથી સુવાસ, પર્વત પાસેથી અડગતા,
વૃક્ષ પાસેથી શીતળતા, વાદળ પાસેથી અડગતા,
કબૂતર પાસેથી શાંતિ, શ્વાન પાસેથી વફાદારી,
માતા પાસેથી સંસ્કર, સિંહ પાસેથી નીડરતા,
સમુદ્ર પાસેથી ઉદારતા, ગુરૂ પાસેથી જ્ઞાન,
બાળક પાસેથી નિર્દોષતા, કોયલ પાસેથી મીઠું બોલતા

Ka. Patel Kerul Nitinbhai
S.Y.B.Sc.(Botany)





Education is an evolutionary process. A person starts from a School and ends up with College or University. In this evolutionary process, a person learns to read, write, express verbally and, above all, thinks analytically by synthesising numerous entities in life. A college, apart from teaching a few specific subjects to students is supposed to develop and sharpen abilities of reading and writing. The college libraries is supposed to help in the development of reading abilities of a student.

Skills in Reading :

Reading is responding. It is a stimulus to images, memories, identification of fresh and creative thought. Reading contributes to the development of values in life. It gives reassurance and makes people achieve. It generates curiosity and zest for living, and develops compassion and courage in a person's personality. Reading, like thinking or problem solving, always occurs in some context. For developing skills in reading, the students should be trained to do the following:

- (a) Accurate interpretation of facts.
- (b) Grasping of the general idea.
- (c) Identification of sequence in ideas read.
- (d) Recognition of the central theme, co-ordinate and subordinate points of the main idea.
- (e) Reaching a tentative conclusion.
- (f) Evaluation of ideas for relevancy.
- (g) Recognition of the mood, tone and intension of the author.
- (h) Interpretation of graphic materials in the text.
- (i) Identification of cause and effect relationship.
- (j) Classification of the ideas in a brief chart to visualize what is read.

Some Points For Better Reading Ability

1. Reading is a sensory process: Reading requires the use of the senses, especially vision; the reader must reach visually to the graphic symbols. The symbols themselves must be legible, the eyes must see clearly and singly, and the light must be adequate.

2. Reading is a perceptual process: Reading occurs when meaning is brought to graphic stimuli. It is a progressive apprehension of the meanings and ideas represented by a sequence of words. It includes seeing the word, recognition of the word; awareness of the word's meaning and relating the word to its context. This is perception in its fullest sense.

3. Reading is a response: Reading is a system of responses made to some graphic stimuli. These include the vocal and/or subvocal muscular responses made at the sight of the word, the eye movements during reading, physical adaptations to the reading act such as postural changes, the critical and evaluative responses to what is being read, the emotional involvement of the reader, and meaningful reactions to the words.

4. Reading is a learned response: Reading is a response that must be learned by the child and is under control of the mechanism of motivation and reinforcement.



5. Reading is a developmental task: Developmental tasks have one basic characteristic: the child's readiness for them depends on the child's general



development. Reading is a difficult task, and there is a most teachable moment for beginning reading and for each of the specific skills in reading. The child's level of achievement in reading depends on his over-all growth and development.

6. Reading can be an interest: Reading may become an interest or a role in its own right. It then may motivate other activity.

7. Reading is a learning process: Reading may become one of the chief media for learning. The child can use reading to acquire knowledge and to change his own attitudes, ideas and aspirations. Genuine reading involves integration and promotes the development of the reader. It opens up to him a world of ideas, takes him to distant lands, and lets him walk side by side with great sages of all time.

8. Reading is communication: Reading is an active process. Communication from writer to reader occurs only if the reader can take meaning to the printed page. Without the reader, communication via the printed page is impossible.

Good reading ability is based on the following processes :

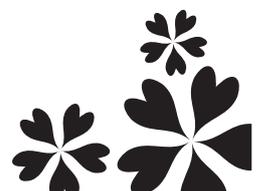
- 1) Speaking and listening skills.
- 2) Visual discrimination.
- 3) Word meaning skill.
- 4) Thinking skill.
- 5) Auditory discrimination.
- 6) Moving left to right.
- 7) Sight vocabulary.
- 8) Identification skill.

Reading-is an art

Around us today is an ocean of printed matter due to knowledge explosion. A man has to swim in this for his quest for knowledge. Reading as a part of daily life expands the horizons of an individual's awareness. It makes one to see through numerous eyes, hear with many ears and think through able minds. What a pity it is if a university graduate reads nothing after earning his degree. Such a person denounces his rare privileges and prefers to live in culture of silence. Reading as a habit is necessary in the practical management of our world -be it in an office, factory, court or any other unit. It is rightly believed that a true non-reader can only survive in a mental hospital. Yet, reading, as a part of life, is very much unattractive to majority of college graduates. Our literary and scientific heritage -the wit, wisdom and knowledge should be rightful possession of every adult educated citizen, but most of us do not claim this inheritance. Above all, reading is not merely going through a printed page, it is also an art of transmitting ideas, facts, feelings and decisions from the mind and soul of an author to the mind and soul of a person who reads them.

Mr. L. M. Katara

Librarian



No One Can Hear Me

I awake, not sure whether
I am alive or dead
I wait, for the smell of the hearth..
and baking bread
But, what greets me is the smell of the
privy next to my bed
I am like a ghost.. no one remembers
what my last words were
I listen for the clucking of hens
I listen for my goat in her pen
I listen for my little brother, my kin
I do not hear them
I well, for my mother, For my father

But no one can here me,

Not even the gods

Socha Bhavesh

T.Y.B.Sc. (Physics)



वक्त

वक्त की होती हे तेज रफ्तार,
वक्त नही हो सकता गिरफ्तार,
वक्त को ना हे किसी का इंतजार,
वक्त नही हे किसी का यार,
वक्त नही रहता हे बरकार,
और मिलता हे सिर्फ एक बार,
मगर छोड जाता हे लंबा असर,
इसी लीये करना तुम वक्त की कदर,
और कभी तुम न रहना बेखबर,
क्योंकी तुजे ही बनना हे तेरा मुकदर,
वरना तो ये जिंदगी हे समंदर,
और सबछोड देंगे तुजे तेरे हाल पर.

Simin M. Vahora

S.Y.B.Sc. (Maths)



68

The Adventure



The great unknown, an ocean away.
Goodbyes and hellos all in one day.

Travelling dreamer, searching for peace.
Freedom at last, a hopeful release.

The journey continues, new stories are made.
Free to feel joy, chains of debt paid.

A story is written, each day a new page.
full speed ahead into a new age.

Socha Bhavesh

T.Y.B.Sc. (Physics)



वेस्टर्न क्ल्यर

वाणी विचारने वर्तनमां
जुद्ध तरी आववुं छे, आ देशमां,
आम जुओ तो वेस्टर्न क्ल्यर
क्यां नथी आव्युं आ देशमां,
'हा' नी जया 'Ya' नो,
उपयोग छूटथी थई गयो छे इशानमां,
साहुने सात्वीक भोजन क्यां छे प्रसंगमां,
पीजा, बर्गर ने मन्थुरीयन
छेदे यद्दी गयुं छे स्वादमां,
Apple, Sony & Samsung
आपाणी योईस छे मोबाईलमां,
पछी छोने रहेता बापा सतत टेन्शनमां,
'He' अने 'She' क्यां ओणभाय छे समाजमां
बधा ज सरभा देभाय छे,
गया पछी ब्युटी पार्लरमां
वेस्टर्न क्ल्यर क्यां नथी आव्युं आ देशमां.

Mr. Paresh Panchal (Swami)

Physics Dept.



અમેરિકાવાસી બહેનો અને ભાઈઓ,

સ્વામી વિવેકાનંદ

તમે આપેલા ભાવભર્યા અને સહૃદય સ્વાગતનો પ્રત્યુત્તર આપવા ઊભા થતાં મારા હૃદયમાં આજે અવાર્ણનીય આનંદ ઊભરાય છે. જ્ઞાતના અતિ પ્રાચીન સાધુઓના વર્ગ વતી હું તમારો આભાર માનું છું; અને સર્વ વર્ગ અને સર્વ ધર્મોની જ્ઞેતા વતી હું તમારો આભાર માનું છું.

વળી, આ વ્યાસપીઠ પર આવીને જેવકતાઓએ પૂર્વના દેશોના પ્રતિનિધિઓને ઉલ્લેખ કરતાં આપને કહ્યું કે, દૂર દૂરની પ્રજાઓમાંથી આવેલી આ વ્યક્તિઓ સહિષ્ણુતાના આર્દ્રશને જુદા જુદા દેશમાં પહોંચ્યાડવા માટે બહુમાનના અધિકારી છે, તેઓનો પણ હું આભાર માનું છું જે ધર્મે સહિષ્ણુતા અને અભિલ વિશ્વની એકતાનો બોધ દુનિયાને આપ્યો છે તે ધર્મનો અનુયાયી હોવામાં હું ગૌરવ લઉં છું. અમે પૃથ્વી પરની પ્રજાઓ અને ધર્મોને ત્રાસિતો અને નિર્વાસિતોને આશ્રય આપ્યો છે અને તે વાતનું મને અભિમાન છે. ભાઈઓ ! મારા બાળપણથી જે સ્ત્રોતનો વારંવાર પાઠ કર્યાનું મને સ્મરણ છે અને જેને આજે પણ સેંકડો મારણસો નિત્ય પાઠ કરે છે, તે સ્ત્રોતમાંના થોડા ચરણો હું આપની પાસે ઉચ્ચારીશ. એમાં કહ્યું છે:

રુચીનાં વૈચિત્ર્યાદ ઋજુકુટિલનાનાપથજુષામ ।
નૃણામેકો ગમ્યસ્ત્વમસિ પયસામર્ણવ ઈલ ॥

આવી મહત્વપૂર્ણ સભા આજ પહેલાં ભાગ્યે જ મળી હશે. શ્રીમદ્ ભગવદગીતામાં કહેલા નીચેના અદ્ભૂત સિદ્ધાંતનું જ્ઞાત સમક્ષ એ પ્રતિપાદન અને ઉદ્ઘોષણ કરે છે.

યે યથા માં પ્રપદંતે તાંસ્તથૈવ ભજામ્યહમં ॥
ઉમ વત્માનુવર્તન્તે મનુષ્યાઃ પાર્થ સર્વશઃ ॥

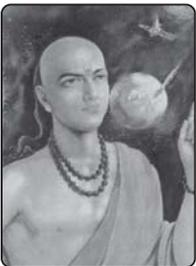
પંથવાદ, ધર્મઘટા અને તેમાંથી પેદા થતાં ભયંકર ધર્મઝનૂને હિંસાથી ભરી દીધી છે અને માનવલોહીથી વારંવાર રંગીનાખી છે, સંસ્કૃતિઓનો નાશ કર્યો છે અને સમગ્ર પ્રજાઓને નિરાશામય બનાવી છે. આ ત્રાસદાયી રાક્ષસોનું અસ્તિત્વ ન હોત તો, આજના કરતાં માનવ સમાજે વધારે પ્રગતિ સાધી હોત. પણ હવે એનો સમય ભરાઈ ગયો છે; અને આજે સવારે આ સભાના સ્વાગતમાં જે ઘંટારવ થયો હતો તે એક જલક્ષ્ય તરફ જતા જુદા જુદા માનવીઓ વચ્ચે રહેલી સંકુચિત વૃત્તિઓનો, સર્વ ઝનૂનવાદોનો, અને તલવાર કે કલમથી થતા સર્વ ત્રાસનો મૃત્યુ ઘંટ હતો, એવી આગ્રહ પૂર્વક હું આશા રાખું છું.

૧૧ મી સપ્ટેમ્બર ૧૮૯૩ ના રોજ અમેરીકાના શિકાગો આર્ટ ઈન્સ્ટિટ્યુટના વિશાળ મકાનમાં હોલ ઓફ કોલંબસ તરીકે ઓળખાતા વિશાળા ખંડ માં વિશ્વધર્મ પરિષદના નામે યોજાયેલ કાર્યક્રમમાં ચાર હજાર પ્રતિષ્ઠિત પ્રેક્ષકો સામે જાહેરમાં આટલા મોટા સમૂહ સામે પ્રથમ વખત અંગ્રેજીમાં આપેલ પ્રવચનના ભાષાંતરનો સ્વામી વિવેકાનંદ એ આ અંશ છે. વિચારવા જેવી બાબત એ છે કે એક ભારતીય સાધુ જેની પાસે પ્રવેશ માટેના કાગળો પણ ન હતા તે પ્રથમ વખત વિદેશની ધરતી પર આમ ૧૨૦ વર્ષ પહેલાં કેમ બોલી શક્યો હશે ?

Jineshkumar H. Patel
S.Y.B.Sc. (Maths)



ऋषीमुनी यों क विज्ञानमें योगदान



भास्कराचार्यजी

आधुनिक युग में धरती गुरुत्वाकर्षण शक्ति (पदार्थोंके अपनी और खींचने की शक्ति) की खोज का श्रेय न्युटनको दीया जाता है । किंतु बहुत कम लोग जानते हैं की गुरुत्वाकर्षणका रहस्य न्युटनसे भी कई सदियों पहले भास्कराचार्यजीने उजगर किष्ना ने अपने सिद्धांतशिरोमणि ग्रंथ में पृथ्वीके गुरुत्वाकर्षणके बारे में लिखा है कि पृथ्वी आकाशीय पदार्थोंका विशिष्ट शक्तिसे अपनी और खींचती हैं ।





ભગવાને આપણને અમૂલ્ય જીવન આપ્યું છે એજ આપણા માટે ઘણો આત્મસંતોષ છે. આજે દુનિયા ખૂબ જ ઝડપથી આગળ વધી રહી છે, સાથે સાથે આપણી જરૂરિયાતો પણ. સંતોષ માટે તો કોઈ અવકાશ જ નથી રહ્યો. હંમેશા આપણે કંઈક ને કંઈક ઈચ્છતા રહીએ છીએ.

પરંતુ ક્યારેય આપણે આપણી ગતિને રોકીને એક પળ માટે પણ સંતોષ માટે નો વિચાર જ નથી કર્યો. આ સંતોષને કારણે જ આપણે બધી મુશ્કેલી ઓ તથા દુઃખોનો સામનો કરવો પડે છે, અને પછી આપણે ભગવાનને દોષ આપીએ છીએ.

પરંતુ ક્યારેય સંતોષ રાખીને દુનિયાની ખુશીઓનો માણવાનો પ્રયત્ન નથી કરતાં. આપણી પાસે ભૌતિક સંપત્તિ કરતાં પણ ઘણું બધું છે જેનાથી અનંત શાંતિ મેળવી શકીએ છીએ જેમ કે, આપણા માતા-પિતા, મિત્રો વગેરેની સાથે વાતચીત કરીને પણ અનોખી શાંતિ અને ખુશી મેળવી શકીએ છીએ. આ ઉપરાંત, કુદરતની આપેલી અમૂલ્ય ભેટ જેવી કે કુદરતી દશ્યોને જોઈને પણ શાંતિ મેળવી શકીએ છીએ અને ઘણી બધી મુશ્કેલીનો હલ પણ મેળવી શકીએ છીએ.

શાંતિ મેળવવા માટે ભૌતિક સુખસગવડની પાછળ દોડવાની જરૂર નથી. ફક્ત આપણી દષ્ટિ બદલવાની જરૂર છે. ખુશીઓ મેળવવી હોય તો કાંઈપણ પ્રકારે મેળવી શકાય છે. ફક્ત આપણને આત્મસંતોષી રહેતા આવડતું જોઈએ. અને એક વાર જીવનમાં આત્મસંતોષને સ્થાન મળી જાય તો કોઈપણ મુશ્કેલીનો રસ્તો શોધી શકીએ છીએ. અને જીવન સરળ થઈ જાય છે. જે ખુશીના આપણે વાસ્તવિક રીતે હુકદાર છીએ એ મેળવી શકીએ છીએ. આપણે આજુબાજુના વાતાવરણની થોડી અંશે પરિસ્થિતિ પણ બદલી શકીએ છીએ. આપણી એક નાનકડી જીવંત આનંદિત બનાવી શકીએ છીએ.

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મૂંઝવણ

વ્યક્તિ હંમેશા કાંઈને કાંઈ મૂંઝવણમાં હોય છે તે મોટા પ્રશ્નોનો ઉકેલ તો મેળવી શકતો નથી, પરંતુ નાના નાના પ્રશ્નોના ઉકેલમાં પણ મૂંઝવણ અનુભવે છે. શું આ કાર્ય કરીશ તો લોકો શું કહેશે ? હું અહીં જઈશ તો શું થશે ?..વગેરે જેવા અનેક પ્રશ્નો મૂંઝવણમાં મૂકે છે.

એક નાનકડી વાત યાદ આવે છે, એક શાળામાં એક દિવસ શિક્ષકે ભણાવવાનું ના કહીને શાળાના બગીચામાં લઈ ગયા. બધા બાળકો ઘણા ખુશ થઈ ગયા. દરરોજની ભણવાની ક્રિયામાંથી એક દિવસ આનંદ માણવાનો તો મળ્યો ! એમ વિચારી બાળકો ખૂબ ઉત્સાહિત થઈ ગયા ત્યાં શિક્ષકે કહ્યું આજે હું તમને એક ખાસ હેતુથી અહીં લાવી છું. આપણા જીવનમાં અત્યાર સુધી ઘણું બધું શીખ્યા છે કે જેની ગણતરી આપણે આંકડાઓમાં નથી કરી શકતા. પરંતુ મેં તે જ બાબતો આપણા જીવનમાં કેટલી ઉતારી તેની ગણતરી એક જ આંકડામાં થઈ શકે એમ છે. એનો અર્થ એટલો જ છે કે આપણે શીખીએ છીએ શા માટે ? જીવનમાં ઊતારવા માટે !!! પરંતુ જો તેનો હેતુ જ ના માણીએ તો એનો મતલબ શું !! આપણે જ શીખ્યા છીએ એને જીવનમાં અમલ કરવાનું જરૂરી નથી સમજતા અને જો ઈચ્છે રાખીએ છીએ એને જીવનમાં અમલ કરવાનું જરૂરી નથી. સમજતાં. અને જો ઈચ્છે રાખીએ છીએ, તો તીવ્ર ઈચ્છે નથી રાખતા જેને કારણે ધારેલા લક્ષ પર પહોંચી નથી શકતાં. અને તેથી નાના પ્રશ્નોના હલ પણ ખૂબ મુશ્કેલીમાં મૂકી દે એવો હોય છે.

બાળકો સમજી ગયા કે આજે શિક્ષકનો હેતુ શું છે તેઓ એ શિક્ષકનો આભાર માનીને, પોતાના લક્ષ તરફ તીવ્ર ઈચ્છે રાખવાનું વચન આપ્યું. શિક્ષક એક દિવસ અભ્યાસ ન કરાવીને જીવનનો અમૂલ્ય અભ્યાસ બાળકોને આપ્યો.





નવા વિચારો

સફળતા માટે નિષ્ફળતા, મુશ્કેલીઓ, સંઘર્ષ, ભૂલો અને લાંબા સમયની કોઈ જરૂર નથી.

ભૂલો જરૂરી છેકે નહીં તે સમજવા એક સત્ય ઉદાહરણ લઈએ.

એક વિદ્યાર્થી છેજેણે સ્કૂલની બધી પરીક્ષામાં (૧ થી ૧૨) ૯૦ ટકા ઉપર લાવ્યો. ગ્રેજ્યુએશન અને પોસ્ટ ગ્રેજ્યુએશન માં ફર્સ્ટ ક્લાસ લાવ્યો. ઇન્ટરવ્યુ આપ્યો અને ખૂબ સારા પગારની નોકરી મળી. આ વ્યક્તિએ તેના જીવનમાં એક પણ ભૂલ નથી કરી. પોતાનું દરેક કામ તેણે ખૂબ સારી રીતે કર્યું છે તો શું જીવનમાં એક પણ ભૂલ ન કરવી એ એક ભૂલ છે? વિચારો ! ભૂલો ન કરવી એ ખૂબ સારું છે.

✍ દુઃખ સહન કરવાને બદલે તેને દૂર કરવાના પ્રયત્ન કરો.

✍ Nothing is Impossible in the world. આ વાક્યને સનાતન સત્ય માની વિચાર્યા વગર કોઈ કાર્ય કે જવાબદારી સ્વીકારવી જોઈએ નહીં.

✍ મહાન માણસોના જીવન ચરિત્રો તમે વાંચીને પ્રેરણા મેળવવતા હશો અથવા તો કોઈને કહેતા હશો કે પ્રેરણા લો. પણ પ્રેરણા કામ નથી કરતી કે માણસ ઉત્સાહથી પોતાનું કામ કરી શકતો નથી. તમારે એ પણ જાણવું જોઈએ કે એ વ્યક્તિ સમય, તેનું કુટુંબ , તેના મિત્રો , શિક્ષણની પદ્ધતિ , શિક્ષણનું માધ્યમ, વ્યક્તિનું મગજ , તેનું બેકગ્રાઉન્ડ (ઘરની વાર્ષિક) આવક વ્યક્તિની ઇચ્છા, કૌશલ્ય , બુદ્ધિ , સહનશક્તિ અને તમારા આ બધા પરીબળો બિલકુલ અલગ જ છે. પોતાની જાતે જ પ્રેરણા મેળવી કાર્ય શરૂ કરો. અવશ્ય સારી રીતે પતી જો.

✍ અનુભવ એક શ્રેષ્ઠ શિક્ષક છે. આ વાક્યને સનાતન સત્ય માની દરેક ક્ષેત્રમાં અનુભવ લેવા જવું અને અનુભવ કરવા માટે તમારી પાસે સમય નથી. બીજાના અનુભવ પરથી શીખો.

✍ મુશ્કેલીઓ, દુઃખ અને પ્રતિકૂળતાઓ એ માણસના જીવનમાં આવે તો તે પ્રગતિમાં અવરોધકારક છે. તેનાથી માણસ પોતાની અસલી ગતિ , તાકાત , ઉત્સાહ , હિંમત , ધીરજ ધીરે ધીરે ગુમાવતો જાય છે અને છેવટે કામ જ નથી કરી શકતો.

✍ કોઈ કાર્ય શરૂ કર્યું અને નિષ્ફળતા મળી હોય તો પણ આશા , નિષ્ઠા અને પ્રામાણિકતા પૂર્વક અને શક્ય હોય તેટલી સારી રીતે કાર્ય કરો. પણ જેદિવસે એમ લાગે કે હવે કાર્ય હું કરી શકીશ નહીં. આશા રહેતી નથી અને તમે મન વગર કાર્ય કરવા પ્રયત્ન કરો છે. તો પણ કાર્ય કરી શકતા નથી અને જો લાંબો સમય થયો હોય તો તે કાર્ય છેડી દો અને નવું કોઈ કાર્ય શરૂ કરો.

✍ તમે તમારી જાતને કદી પણ દેખરી શકતા નથી. ઉદાહરણ : જો કોઈ વ્યક્તિ તમને ખોટો કહે તો પણ તમે તો જાણો જ છો કે ખોટા. જો કોઈ વ્યક્તિ તમને સાચા કહે તો પણ તમે તો જાણો જ છો કે તમે સાચા છે કે ખોટા.

✍ અભ્યાસના ક્ષેત્રમાં જો તમે નાપાસ થયા અથવા વર્ષ બગડ્યું હશે તો તમે દુઃખી , નિરાશામાં, ઉત્સાહવિહીન સ્થિતિમાં હશો, સ્વાભાવિક છે આ સમયમાં દરેક વ્યક્તિ એવું કહેશે કે આનંદમાં રહો અને હિંમતથી કાર્ય કરો પણ તે આસાન નથી. પરિસ્થિતિ પ્રમાણે થોડો સમય રહીને સામાન્ય સ્થિતિમાં આવો પછી જ કાર્ય શરૂ કરો.

Jignesh Vaghela

S.Y.B.Sc. (Instrumentation)



ऋषीमुनी यों क विज्ञानमें योगदान



महर्षि सुश्रुत

ये शल्यचिकित्सा विज्ञान यानी सर्जरी के जनक व दुनिया के पहले शल्यचिकित्सक माने जाते हैं। वे शल्यकर्म या ओपरेशनमें दक्ष थे। महर्षि सुश्रुत द्वारा लिखी गई सुश्रुतसहिता ग्रंथ में शल्य चिकित्सा के बारे में वह अहम ज्ञान विस्तारसे बताया है। इनमें सुइ, चाकु व चिमटे जैसे तकरीबन १२५ से भी ज्यादा शल्यचिकित्सा में जरूरी औजारों के नाम और ३०० तरह की शल्यक्रियाओं व उसके पहले की जानेवाली तैयारी यों, जैसे उपकरण उबालना आदि के बारे में पूरी जानकारी बताइ गई है।

जबकी आधुनिक विज्ञानने शल्यक्रियाकी खोज तकरीबन चार सदी पहले ही की है। माना जाता है की महर्षि सुश्रुत मोतिमाबिंद, पथरी, हडडी तूटना जैसे पीडाओं के उपचार कीये थे।





૧. વૈજ્ઞાનિક પદ્ધતિથી દાળ-કાંદાની ખેતી.

ભાભા એટમીક રિસર્ચ સેન્ટરના કાર્યથી રેડિયો આઈસોટોપ ટેકનીક ને હવે ખેતીવાડીના કામમાં પણ જોતરી દેવામાં આવી છે. મહારાષ્ટ્રમાં તૈયાર થતી ૮૦ ટકા મગની દાળ વિક્રિણ એટકે રેડિયેશનથી સિન્યવવામાં આવે છે. આ રીતને રેડિયેશન ઇન્ડ્યુસ્ડ મ્યુટેશન કહેવામાં આવે છે. આ રીતથી ઉગાડવામાં આવેલી મગની દાળ લાંબા સમય સુધી જીવાત પડતી નથી. સાધારણ દાળ કરતાં આ દાળ વધારે સારી સાબિત થાય છે. બી.એ.આર.સી એ એક સ્થળેથી બીજા સ્થળે વધારે સરળતાથી લઈ જઈ શકાય તેવું એક સાધન બનાવ્યું છે જેના વડે થોડા સમયથી નાસિક જિલ્લામાં તેને મોકલીને ડુંગળીની ખેતીને પણ પરમાણુ શક્તિથી સિન્યવામાં આવી છે. ઊંચી ટેકનીકથી તૈયાર થયેલી આ ડુંગળી ૬ મહિના સુધી જેવીને તેવી જ સચવાય છે. આમ, કહી શકાય કે રેડિયો આઈસોટોપ કેવળ વૈજ્ઞાનિકોની દુનિયાનો શબ્દ નહીં પરંતુ હવે સામાન્ય માનવીની દુનિયામાં પણ પ્રવેશી ગયો છે.

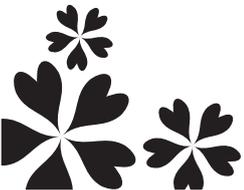
૨. હેન્ટિંગ ગાર્ડન

હેન્ટિંગ ગાર્ડન માટે દિવાલની નજીક કે બાલ્કની યોગ્ય રહે છે. આ બાસ્કેટને લગાવતા પહેલાં એ વાતનું ધ્યાન રાખવું જોઈએ કે તમારી આઈ લેવલ કરતાં નીચે કે પછી તમારી ઊંચાઈ કરતા થોડા ઊંચા લગાવેલા હોય તો વધારે સારું રહે છે. આથી જો નીચે હશે તો પાણી પીવડાવવામાં સરળ રહેશે અને ઊંચે હશે તો માથે અડવાની મુશ્કેલી ના રહે. બાલ્કની એ વરંડામાં બાસ્કેટની આખી લાઈનમાં લગાવવાને બદલે ઊંચા નીચા લગાવવા જેથી અલગ લાગે. આવા છેડ બાસ્કેટની ચારે તરફ ઢળી પડશે અને નીચે સુધી લટકતા રહેશે જેથી તે ભરાવદાર લાગશે. વળી બાસ્કેટ માં ચાઈનીઝ એવરગ્રીન , ડ્રેગન ટ્રી જેવા પણ સારા લાગે. હેન્ટિંગ બનાવવા માટે બાસ્કેટ સારી રીતે ટાંકવા માટે સારી હૂક અને લટકાવવા માટેની જગ્યા પસંદ કરવી. બાસ્કેટની અંદર શણનું કાપડ કે લીલુ કાપડ રાખવું અને બાસ્કેટની કોર્નર સીવી લેવી જેથી બાસ્કેટ હલી ના શકે. ત્યારબાદ માટી અને ખાતર બાસ્કેટમાં નાખવું. માટી નાખવાની સાથે-સાથે તેને દબવતા રહેવું જેથી પોલાણ ના રહી જાય. ત્યારબાદ અંદર છેડ વાવી કે બીજ નાખી સારી રીતે પાણી પાવું.

૩. ફળ-ફૂલ પિનાનો છેડાસ્ટેરા.

માસ્ટેરા ઊંચાઈ અને પહોળાઈમાં વધતો શુશોભન માટેનો છેડ હોય છે. એનાં ખૂબ મોટા પાન જાળીવાળા તથા કિનારીએથી કાપવાવાળા હોય છે તેના ઘેરા લીલા રંગના પાન ચમકતા, વળેલા તથા હૃદય જેવા આકારના હોય છે. ફૂંડામાં આ છેડ સહેલાઈથી ઊગે છે. પરંતુ આ માટે ફૂંડું ૧૦ ઈંચ (૨૫ સેમી) પહોળાઈ ધરાવતું હોવું જોઈએ. નાના ફૂંડામાં સતત ૧૦ વર્ષ સુધી માસ્ટેરાનો છેડ રહે તો પણ તેનું થડ ૪ સેમીથી વધુ જાડું થઈ શકતું નથી. અને બે ગાંઠો વચ્ચે લગભગ ૩ સેમી. જેટલી જગ્યા રહે છે. ફૂંડામાં આ છેડ રોપતી વખતે તેને કોઈ મજબૂત લાકડીનો ટેકો આપવો જોઈએ. જ્યારે થડ મજબૂત થઈ જાય ત્યારે લાકડીનો ટેકો કાપી શકાય. ફૂંડામાં અડધોભાગ માટીનો અડધોભાગ કમ્પોસ્ટ ખાતર ભેળવવું જોઈએ. (માસ્ટેરા એરેસી વર્ગનો છેડ છે, અંગ્રેજીમાં તેને સેરીમેન તથા હિન્દીમાં અમરફૂલ કહે છે.)

Khyati D. Parmar
S.Y.B.Sc. (Botany)





જીવનમાં મળેલી તક

એક યુવકે એક દાર્શનિકને કહ્યું મને તક મળે તો હું કાંઈક કરી બતાવું. પ્રત્યેક સ્વાસ એક તક છે. આપણે સ્વાસને લઈએ છીએ અને છોડી દઈએ છે. લોવેલે તક વિશે કહ્યું છે કે એવું કોઈ પણ માણસ જાતમાં જન્મ નથી પામ્યું કે જેને માટે કોઈ પણ કામ નિર્માણ ન થયું હોય. અસાધારણ પ્રસંગ સુધી બેસી રહેવું એ યોગ્ય નથી. નબળા માણસો તકને માટે રાહ જોઈ બેસી રહે છે. જે લોકો તકની રાહ જોઈને બેસી રહે તે સર્વોત્તમ મનુષ્ય હોતા નથી. જ્યારે મજબૂત માણસો તકનો લાભ લે છે. તે ક્ષણનો સદ્ઉપયોગ કરી તક ઊભી કરે છે. તક મળતી નથી એ નબળા મન ના મનુષ્યોનું કહેવું છે. દરેક મનુષ્યને જીવનમાં તક મળે છે. પાણી ભરેલા વાસણમાં કોઈ નક્કર વસ્તુ નાખવામાં આવે ત્યારે પાણી ઉંચું આવે છે. પણ કોઈએ પોતાના આ જ્ઞાનનો ઉપયોગ કર્યો નહોતો. નક્કર ચીજનું જેટલું કદ હોય તેટલી જ જગ્યા પાણીની અંદર રોકે છે, જ્યારે આર્કિમિડિસને ખબર પડી ત્યારે ગમે તેવા આકારની વસ્તુનું ઘન પરિમાણ કાઢવાની સહેલી રીત માલુમ પડી. આવા માણસો મહાન કહેવાય છે. કારણ માત્ર એટલું જ કે તેની તકનો લાભ લીધો ભાગ્યના ઘડિયાળમાં તકના ટકોરા વારંવાર પડતાં નથી. એટલા માટે જ એનું મૂલ્ય વધી જાય છે. આપણને બધાને મળતી તકો વિશે આપણે બેધ્યાન રહીએ છે, તક અને સમુદ્ધિ ભર્યા સદ્ભાગ્યનો એક વિશાળ સમુદ્ર આપણી તરફ ઘૂઘૂવી રહેલો છે. જેમ વધારે શોધ કરીશું તેમ વધારે મોતી પ્રાપ્ત થશે. તક અને સમુદ્રના આ તળિયાં શોધવા કોઈની પરવાનીગી લેવાની જરૂર નથી. ખુદ પરમાત્મા એ આપણને તે અધિકાર લખી આપ્યા છે. જેઓ પોતાનો મળેલી તકો ઝડપી લે છે તેને નવી તકો આપોઆપ મળ્યા કરે છે. આજ સુધીમાં જે આપણે વિચાર્યું છે તેને અમલમાં મૂકવાની આ પળ છે. જે કાંઈ સ્પષ્ટ સેવ્યાં હોય એ સાકર કરવાની આ પળ છે. સમજો કે તક એક લક્ષ્ય છે. તેને પુરુષાર્થ તીર. માટે જ વધારે જાગૃત થવાનું છે. આંખો ખુલ્લી રાખવામાં આવશે તો જ્યાં ત્યાં તક જોવામાં આવશે. માનવજીવનમાં અમુક એવા પ્રસંગ આવે છે જેનો ખરે વખતે ઉપયોગ કરવામાં આવે તો ભાગ્ય ખુલી જાય છે. તક માટે રાહ જોતા નહીં, તમારી તક તમે જ ઉત્પન્ન કરો.

Patel Devanshi Pradipbhai
F.Y.B.Sc.



મન હોય તો માઝવે જવાય

મિત્રો જીવનની શરૂઆત જ એક વિચાર થી થાય છે કે ભવિષ્યમાં શું ? કરવું ? શું બનશું ? શું ધ્યેય હોવો જોઈએ ? અને દરેક સફળ પરુષની પાછળ તેનો મક્કમ ધ્યેય અને પરિશ્રમ જ હોઈ છે ? મિત્રો એટલે તો કોઈએ સાચું જ કહ્યું છે કે

કદમ હો અસ્થિર જેના તેને રસ્તો જડતો નથી
અને અડગ મનના મુસાફરને હિંમત આપણ નડતો નથી.

ઉચ્ચ ધ્યેય ને સિદ્ધ કરવા માટે ખૂબ જ મહેનત કરવી પડે છે અને કહેવાય છે
સિદ્ધિ તેને જઈ વરે જે પરસેવે નહાય.
આપણે જે ઇચ્છીએ તે ક્યારેક જ ન મળે તેવું બને. આ વખતે અપ્રાહીમ લિંકને કહ્યું હતું.

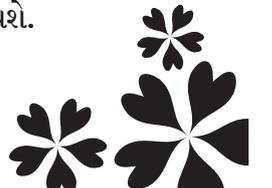
તમે હારો છે તેનો મને ઝર નથી.
પણ તમે હારીને બેસી રહો છે તેનો મને સતત ઝર રહે છે.

મિત્રો મહાન સંસ્કૃત વ્યાકરણ શાસ્ત્રી પાણીની ના હાથમાં તો શિક્ષણની રેખા જ નહોતી
પરંતુ તેની માતાની મહેનત, તેનો ધ્યેય અને હિંમતથી તેને આ સિદ્ધિ પ્રાપ્ત કરેલ છે.

તમે મનને અનુસરો પછી મન જ આપણું દર્પણ છે. પછી મન જ માનવીને ઉચ્ચ પદ અપાવશે.
તેથી જ કહેવાય છે મન હોય તો માઝવે જવાય.

Panara Chintan
T.Y.B.Sc. (Chemistry)

73



...તો જુઓ

છે જીવન એક વિકટ રાહ.
ઘૈર્ય ધરી એની ઉપર ચાલી તો જુઓ.

જાત છે એક ઘુઘવાતો દરીયો.
ડૂબકી સાહસભરી એમાં મારી તો જુઓ.

મળશે સાથઆપનારા અનેક પથગીર.
હિંમતથી જરા હાંક મારી તો જુઓ.

આવશે દરેક જ્યાબ ઘેડી ઘેડીને.
સવાલને આતમ થકી વિચારી તો જુઓ.

આફતોની શી વિસાત કે એ તમને રડાવે.
ફેંકી વળતો પડકાર તેમની તરફ ભાળી તો જુઓ.

છે કામ પજવવાનું આ ફાની દુનિયાનું.
સફળતા કરો લપડાક એને લગાવી તો જુઓ.

થાકી જશો હાર પછીના બહાના આપતાં આપતાં.
એકવાર જીતીને જન ઊડાડી તો જુઓ...

Ankur J. Dabhi
T.Y.B.Sc. (Physics)



જીંદગીની સફરમાં

જીંદગીની આ સફરમાં, અમે ક્યાંથી ક્યાં આવી ગયા !
શું ધાર્યું હતું અને અમે શું પામી ગયા !
અટપટી કેડીઓ પર નિકળ્યા હતા ફુલોની તલાશમાં ...
પણ ન જાણે, કંટક અમે શાથી પામી ગયા ! શું ધાર્યું હતું...
કહે છે...કે સ્વજનોનો મેળો છે આ જીંદગી.
તો પછી સ્વ અને જન દુષ્ટા કેમ પડી ગયા ! શું ધાર્યું હતું...
અરે કોઈ ના હોવાથી આટલું રડે છે શાને !
અમે તો ભરચક ભીડમાં પણ એકલા રહી ગયા ! શું ધાર્યું હતું...

Joshi Devanshi V.
S.Y.B.Sc. (Chemistry)

ઢિંરો નહીં, ઢિંરો !

ગુલાબ કરો જોયો ગોટ્ટે ખેલતાં માની ગોદમાં,
જ્યાં વિચારે સંજીવની નવી રાગિણીની શોધમાં.

હસતું તું એ સ્મિત એનું ફરકતું તું વદને,
સૌરભ એની પ્રસરતી તી છેક છેક હૃદયને.

નિર્દોષ બાળ-હાસ્યનું કંઈ નથી હોતું નિમિત્ત !
પણ શાણા વડીલનું હાસ્ય કારણથી સીમીત .

શું જાણે વડીલ ? નિર્દોષ હાસ્ય તો દે ઇશની !
ખીલતું એ સોળે કળાઓ લઈને ચારે દીશની.

એની માતાના ઉરે ભરપુર મમતા ભરેલી,
એ જ માતા જે જાના દેવોને દુર્લભ થયેલી.

સ્મિત માના વદને સરખું સ્મિત શિશુ આનને,
કારણ નહોતો કપૂત, એ તો દીકરી સંતાને.

માએ માગી મન્નત નહીં દીકરો, દીકરી કાજ,
પુત્ર બને કુપુત્ર, દીકરી કુળની રાખે લાજ.

Vaghela Nirali H.
S.Y.B.Sc., (Physics)

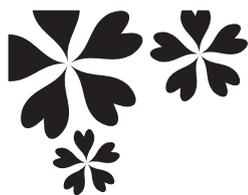


મેં ક્યા ક્યું ? (હું શું ક્યું ?)

સામને મંજીલ થી, પીછે અવાજ ઉસકી થી
રુક્તા તો સફર દુષ્ટ જાતા, ચલતા તો ઉસસે બિદલ જાતા
મંજીલ કી ભી હસરત થી, ઓર ઉસસે મહોબ્બત ભી થી
એ દિલ યે બતા મુઝકો, ઉસ વક્ત મેં કહાં જાતા
મુદત કા સફર ભી થા, ઓર બરસો કી ચાહત ભી થી
રુક્તા તો બિખર જાતા, ચલતા તો દિલ તુટ જાતા
યુ સમજ લો કી લગી પ્યાસ ગજબ કી થી, ઓર પાની મેં ભી ઝહર થા
પીતા તો ભી મર જાતા, ઓર ન પીતા તો ભી મર જાતા.

Jay Godhasra
S.Y.B.Sc. (Chemistry)





Staff List 2013-14

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6. Dr. T. H. Patel
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9. Dr. Mehul V. Mehta
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6. Miss. Binal D. Raj (Ad hoc)
7. Vijeta R. Parekh (Ad hoc)
8. Mr. Ashish K. Dhokiya (Ad hoc)

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6. Mr. Gaurang Rana (Ad hoc)

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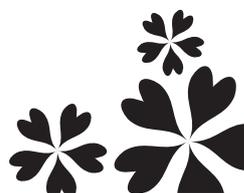
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2. Mr. P. K. Panchal (Phy.)
3. Mr. S. B. Gilder (Ele.)
4. Mr. L. K. Sagathiya (Ele.)
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6. Mr. P. B. Bhoi (Plant Coll.)
7. Mr. Ketanbhai Patel (Storekeeper)

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3. Mr. Jagdish S. Machhi
4. Mr. Hasmukh D. Vagela
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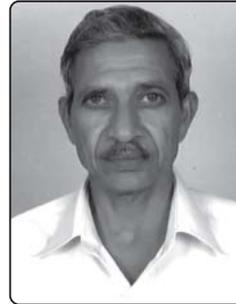


Retired Staff Members

As a way of appreciating meritorious services, the college has organized a meeting in honors of two staff members who retired recently. We wish their fruitful and happy retirement.



Valand Pravinbhai



Parmar Bhaghubhai

