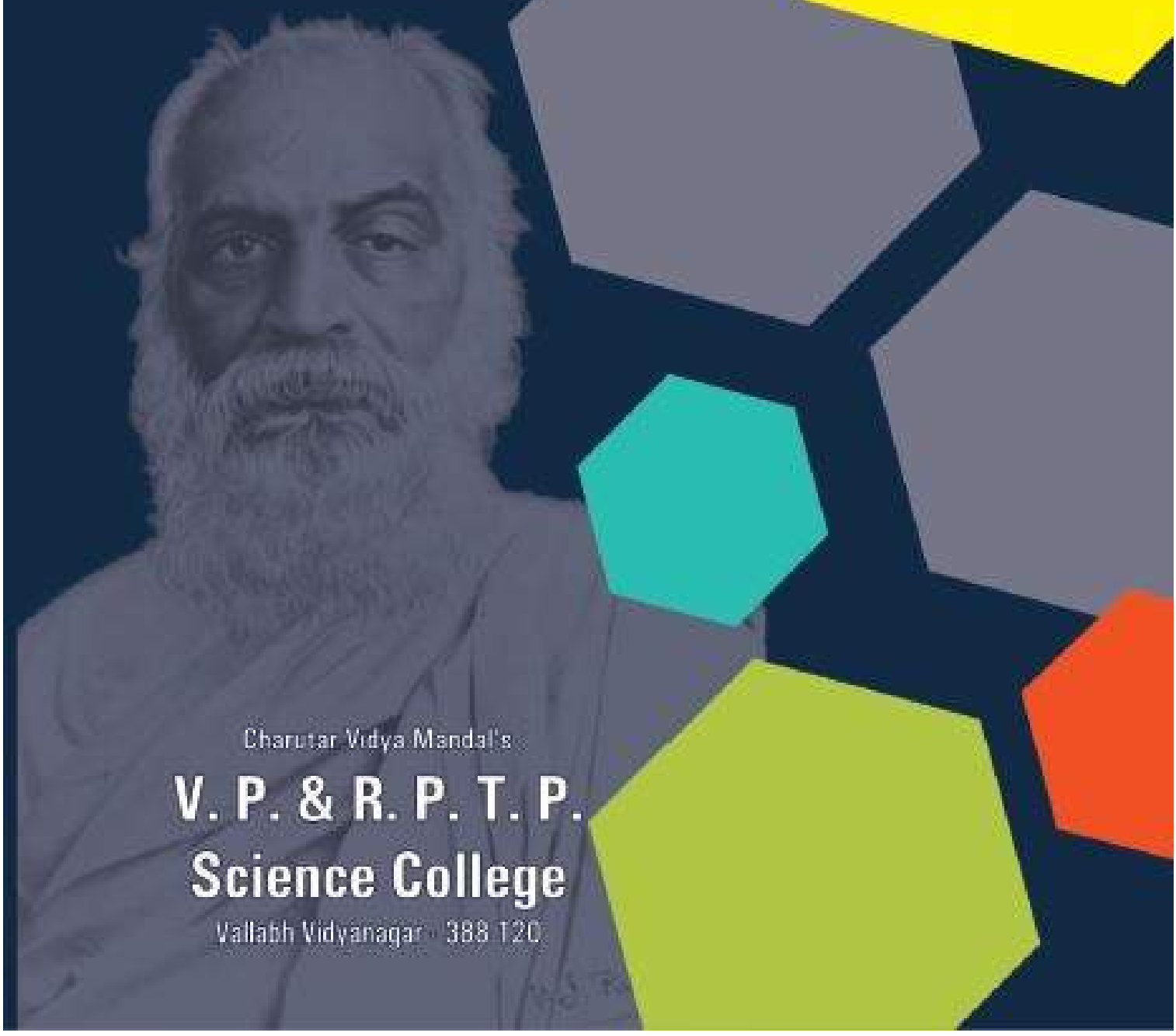
Reflections
2016-17



Charutar Vidya Mandal's

V. P. & R. P. T. P.
Science College

Vallabh Vidyanagar - 388 120

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

VALLABH VIDYANAGAR

Reflections

2016-17

(Annual College Magazine)

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

Vallabh Vidyanagar - 388 120
Re - Accredited **" A "** Grade by NAAC and KCG
Recognized By UGC As College With Potential For Excellence
(CPE Phase - II Up to 2019)
Managed By Charutar Vidya Mandal
Website : www.vpscience.org

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MESSAGE FROM CHAIRMAN

I am very happy to note that V P & R P T P Science College publishes its college magazine every year because the college students get a platform to discover their talent. The students must realize that they are very fortunate to get admission in this college because the college has very qualified teachers and is equipped with good laboratories. The UGC has recognized this college as College with Potential for Excellence, so the students must utilize every opportunity made available to them by the Principal and staff to learn new skills and develop themselves to equip for the future challenges. The college has always won the most academic gold medals in the University exams. I hope that the coming generation of students continue with this tradition and win more medals. The faculty members also have the responsibility to be updated in their knowledge and publish more research papers and submission of more projects to the funding agency.

I congratulate the Principal, faculty members and the magazine team for this magazine. My blessings and best wishes for the future.

(Dr. C. L. Patel)
Chairman
Charutar Vidya Mandal

MESSAGE FROM THE HON. SECRETARY

As a former faculty of this first college of the campus, I take great pride in the achievements and activities of the institute. Therefore, I am very happy to see one more edition of the college magazine which has a wide variety of articles written by the students. This practice will be very useful because in future these very students will be writing more serious research articles in reputed journals.

I congratulate the Principal Dr. Bhavesh Patel and his magazine team for this effort and hope that they continue with the good work in future too. My best wishes to students for the forthcoming examinations.

Dr. S. G. Patel
Hon. Secretary
Charutar Vidya Mandal

MESSAGE FROM THE DIRECTOR GENERAL

It gives me immense pleasure to see the college magazine of CVM's oldest college. This is a good tradition because in the present scenario when very few students really take up writing I am happy to see that the college provides opportunities to students to express themselves through the magazine and to participate in various activities which help them to discover their own potential, strengths and weaknesses. This awareness is very important for students when they go into the world after finishing their studies. They can take up a profession that suits their skill sets and can become successful. My congratulations to the whole magazine team for this effort. My best wishes to all the students for their future.

Dr Nikhilbhai Zaveri
Director General
Charutar Vidya Mandal

MESSAGE FROM PRINCIPAL

The college has completed 70 glorious years since its inauguration in 1947 by the great Sardar Patel. It is a matter of immense pride and happiness as we bring out this edition of the college magazine. The magazine gives a platform to students to express themselves on various topics. I am very happy that more than a hundred articles have been contribute by students, faculty and research scholars.

I would like to focus on the challenges that lie ahead. Presently the college is recognized by the UGC as college with potential for Excellence. We would want to make this college a College of Excellence. The college will apply for the third cycle of NAAC Accreditation in early 2018 and all of us need to synergize our efforts to achieve a score of A+. We are ofcourse on the right path but we cannot afford to be complacent and must continue our efforts in the right direction.

I take this opportunity to congratulate the gold medal winning students and the college faculty and hope that in future too we will continue the good work.

I would like to show my appreciation to Dr. Jivani and his team for their efforts to publish this edition of the college magazine.

My best wishes to all the students.

Dr. Bhavesh Patel
Principal & President
Students' Central Committee

MESSAGE FROM VICE PRESIDENT

It has been really an honour and privilege to be the Vice President of College Central Committee. College education is a life time opportunity to learn new skills, mould one's personality and make new contacts through the several progammes- both curricular and co-curricular. We have always tried to increase student 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. The College Magazine is also one such effort in the same direction where students get an opportunity to express themselves in writing. I am glad to see articles on different topics. I do hope that you continue to develop this skill and constantly strive to improve.

I take this opportunity to thank the Principal, the central committee, ex-officios, student secretaries and all the staff and students for their support and cooperation throughout the year. My best wishes for all your efforts in your quest for excellence.

Dr. P. M. Patel

Vice –President
Students' Central Committee

FROM THE EDITOR'S DESK

I am very happy to put forward College Annual Magazine "**Reflections**" of year 2016-2017. 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 creative writing. The reports of our college activities and achievements published in the magazine reflects the talent of the students in various fields.

The college completed 70 years of glorious journey. Bhaikaka, the 'Vishvakarma' of the campus, set up this college first in this campus. To get admission in engineering it was required to pass pre-science, this was the concept to start the science college first in the campus. In the initial stage, Charutar Vidya Mandal was facing the shortage of money and non-cooperation of the British government to supply cement etc., Bhaikaka built such huge building of the college is today's surprise for everyone. Sardar Patel inaugurated this college. Many eminent personalities visited this institute, Sir C. V. Raman, Rev. Pandurang Shastri Athvaleji etc.

The college has been awarded three times as best science college of the Gujarat state. The college is awarded 'A' grade by NAAC, Bangalore and A++ by KCG, Gandhinagar. The college is also selected for Center for Potential Excellence and received grant of 1.2 Core from UGC. There are many scopes to improve in various fields.

I thank Dr. Bhaveshbhai Patel for giving me opportunity to publish this college magazine. I also thank all the members of the college magazine editorial team, staff member of the college for their constant help and direct and indirect support to publish the magazine. How can I forget support of the student team? I congratulate the participant authors who submitted their articles. The few selected articles by the team published in the magazine.

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 and Ex-Officio,
Magazine Club,
Students' Central Committee

MESSAGE FROM GENERAL SECRETARY

It is the most proud moment for me to pen as the General Secretary of one of the best science college of Gujarat.

With duties come responsibilities and decision making power working with the student central committee was an amazing experience as without their support the work would not have been accomplished.

Our college provides the best platform to the entire student for mass growing up. The staff members of our college are very supportive.

I thank the Principal Dr. Bhavesh Patel sir, Vice President of Student Central Committee Dr. P. M. Patel sir, all the ex-officios, all the teaching and non teaching staff, all the Secretary of Student Central Committee and all Student friends who have been there in the journey as a lending hand.

I will never forget this golden period of my life.

Yash Patel

TYBSc (Maths)

MESSAGE FORM MAGAZINE SECRETARY

It was a wonderful experience to work as a Magazine Secretary for the Vitthalbhai Patel Mahavidhyalaya, one of the oldest science colleges in the state.

The name "REFLECTIONS" itself shows the image of the activities in the college throughout the year like educational, co-curricular - sports, NCC, NSS etc.

I am sure you will enjoy your journey through the magazine.

I would like to thank the Principal of this college- Dr. Bhavesh Patel Sir, Vice president of Central Committee- Dr. Prakash Patel sir, Ex-Officio of the magazine club- Dr. Anil Jivani sir for the support and platform to make the task a reality. I would also like to thank all the members of the magazine club specially Miss. Zeal Vadodaria who supported me in the work by making this great job possible. I would like to thank my entire comrade for spending their valuable time to write articles and show interest for the college activity.

I hope this magazine will be a spectacular experience.

KARAN BHORANIYA

TY BSc (Physics)

Magazine secretary

70th Annual Report of the College
Year 2016-2017

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 70th Annual Day celebrations. I am greatly honored to address this august audience and to present the Annual Report of VP Mahavidyalaya, its performance and achievements for the academic year 2016-2017.

VP and RPTP Science College is one of the premier institutes run by Charutar Vidya Mandal. This college is one of the prestigious Science Colleges of state of Gujarat, inaugurated by Sardar Vallabhbhai Patel in 1947. It is aesthetically located with a beautiful architecture and lush gardens. The College was adjudged the best science college three times by the state government under the leadership of Shri R. P. Patel. College has been re-accredited "A" by NAAC, Bengaluru and later by KCG, Gandhinagar. The College is also recognized as College with Potential for Excellence (CPE) twice by UGC.

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 and around ten add-on certificate courses. The college is a recognized research centre for Microbiology, Chemistry, Industrial Chemistry, Physics and Biology.

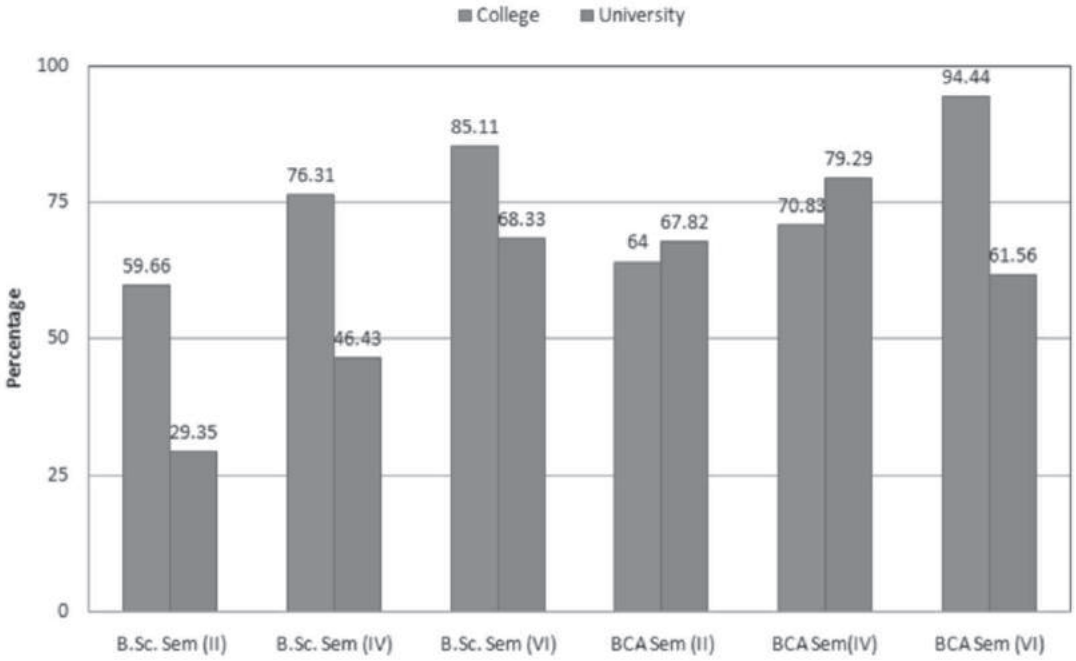
A total of 53 teaching faculties are working in different disciplines, out of this 33(62%) have Ph.D. as highest qualification and 16 have M Phil as highest qualification.

The college is recognized for its well equipped laboratories, regular teaching, Wi-Fi campus, 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 current academic year started on 14th June 2016. A total of 1629 students were enrolled which included 901 boys and728 girls. A total of 717 students including 432 boys and 285 girls are accommodated in our hostel this year.

An orientation programme on the first of the college has become a regular feature which is attended by all the new students and their parents. This was followed by a counselling meeting with the students and their parents. Separate orientation was conducted for the weaker section students by Equal opportunity cell of College.

Result Analysis

Semester	College	University
B.Sc. [Semester(II)]	59.66	29.35
B.Sc. [Semester (IV)]	76.31	46.43
B.Sc. [Semester (VI)]	**85.11**	**68.33**
BCA [Semester (II)]	64	67.82
BCA [Semester(IV)]	70.83	79.29
BCA [Semester (VI)]	**94.44**	**61.56**



All the results of the college have always been better than the University average result. We are committed for the better performance of students in future too.

Gold Medals:

This year the college students have won 8 University gold medals announced by Sardar Patel University for scoring highest percentage in external theory examinations. The **University Gold winners are:**

Sr No	Name	Subject
1	Vishruti Laljibhai Vadaliya (2)	Chemistry
2	Priti Ashokbhai Rai	Electronics
3	Manan Anilkumar Maisuria(2)	Mathematics
4	Sanskriti Lochan Sahai	Botany
5	Sonali Ravikant Mishra	Instrumentation (Voc)
6	Smrutiben Hareshkumar Parikh	Physics

Other Achievements by Students:

- Mr. Hardik Upadhyay secured First position in the Two Days State Level Workshop on **Concept of Physics in RS and GIS Technology and Applications.**
- Ms. Farahin Vahora secured Second prize in PPTs at National level Seminar at ISTAR. She also won the first Prize in an event called 'Scientifiq' at ARIBAS
- Mr. Hardik Upadhyay secured First position in Poster making competition in "State Level Inter College SPACE Science Workshop-2016" conducted by V.P. and R. P.T .P. Science College

- Mr. Dipendra Sinh Rathore secured Second position in Poster competition in "State Level Inter College SPACE Science Workshop-2016" conducted by V.P. and R. P.T .P. Science College
- Mr. Prashant Dubey, Mr. Hiren Talpada and Mr. Parth Shah secured First position in Quiz competition in "State Level Inter College SPACE Science Workshop-2016" conducted by the College

IQAC:

- Organized workshop 'Target 2018' to prepare staff members for third cycle NAAC Accreditation in 2018
- This year MHRD has invited applications for **National Institutional Ranking Framework [NIRF],** our college has applied for it through online data submission.
- IQAC has prepared the **Annual Quality Assurance Report (AQAR)** as per guidelines and parameters of NAAC, and submitted to NAAC every year.
- IQAC is developing and maintaining institutional database and **Preparing AISHE database** and submitting it in time to **MHRD Govt. of India**
- The IQAC Plans to organize a **Faculty Development Program [FDP]** with collaboration of our sister institute NVPAS for Autonomous status of the CVM institutions.
- IQAC is acting as a nodal agency of the Institution for coordinating quality-related activities, created **Syllabi review committee** to look over present syllabi to enrich with current academic innovations.

Various Funds Received:

- Financial support from CVM scholarship fund and Bhaikaka foundation scholarship fund is provided to the poor and needy students
- Scholarship is given to SC, ST and OBC students. A total of Rs **22,01,610/-** was distributed to these students.
- UGC 12th Plan Fund of Rs. **15, 43,250/-** has been received till now as an interim allocation
- College also received RUSA grant of Rs. **1,44,499/-**
- College also received Saptdhara grant of Rs **60,000/-** and Udisha grant of Rs **5000/-** for the AY 2016-17.
- Beside this college is getting CPE grant.

Achievements of the Staff Members:

- Principal Dr Bhavesh Patel was felicitated by Hon'ble Education Minister of Gujarat State Shri Bhupendrasinhji Chudasama and GSCPA for the contribution in Higher Education on May 1st, 2016 (Gujarat day).

- He was also Felicitated as **Kakerkhad Ratna** and **Vishishth Vyakti** by Nadiad Chha Gam Patidar Samaj, Nadiad.
- Principal Bhavesh Patel was appointed as Chairman, **Inter collegiate Youth Festival 2016-17**, Sardar Patel University, Vallabh Vidyanagar.
- **Principal Dr Bhavesh Patel e**valuated two Ph.D. theses.
- This year Principal Bhavesh Patel was a member of NAAC Assessors' team on three visits 2 in Maharashtra and one in Chennai. *He was also the Chairman AAA Peer Team to visit Dahod" and as Member Coordinator of AAA team to Surat.*
- Dr. Minaxi Vinodkumar was given the award of State Level Best Science Teacher Award by the Gujarat Science Academy.
- Dr. Minaxi Vinodkumar has been appointed as Secretary of Indian Soc. of Atomic and Molecular Physics. She has been also selected as General Committee member of International Conference of Photonic Electronic and Atomic Collision by ISAMP.
- Dr Vipul Kataria has been felicitated by the Alumni Association of the Department of Chemistry, Saurashtra University, Rajkot.
- Dr Nikunj Bhatt was invited as Chief Guest at Sahajahanad High school Annual Function, Visnagar.

PhDs Awarded (4 students awarded, 3 have submitted, 6 are pursuing):

- One student of Dr. V. K. Sinha, Mr. Mandar Karve received Ph. D. degree.
- Three students of Dr. P. M. Patel from the IC Dept were awarded Ph. D. degree, they are (1) Dr. Rinkesh Patel (2) Dr. Dhaval Gajjar and (3) Dr. Hemaben Patel.
- Three Ph. D. students of Dr. V. K. Sinha submitted their theses to the university.
- Mr. Amitkumar A. Barot, Mr. Chiragkumar M. Patel and Mr. Nisarg K. Prajapati.
- Mr. Ravindra Movaliya was admitted for Ph. D. under the guidance of Dr. P. M. Patel.

Books Published:

- All the staff member of Physics department Published "**College Physics Vol.1 (Sem. I) and 2 (Sem. II) for the students of F.Y.B.Sc. (Sem. 1)"** with ISBN No. 978-93-85138-15-7 and ISBN No. 978-81-930503-0-9 respectively.
- Dr J P Patel, Dr Dali Verghese, Prof Raxa Solanki and Prof Medha Patel have published the proceedings of a National conference.(ISBN No 938433911-3.)

Faculty Invited as Resource persons/Chairing the session/ External Examiners (07 faculty members):

- Principal Bhavesh Patel delivered an invited talk in a NAAC sponsored O**ne Day Workshop on "Effective role of IQAC"** at KCG, Ahmadabad.

- Dr Bhavesh Patel was invited as resource person to deliver a talk in a State level **workshop on "How to prepare Self Study Report (SSR) for Government and Grant in aid Colleges" organized by KCG, Ahmadabad.**
- Dr Bhavesh Patel delivered a Guest talk at 6th International Science Congress titled **"Impact of Alkalophilic bacteria on industrial applications"**, at Hutatma Rajguru Mahavidyalaya, Rajgurunagar, Pune, Maharashtra.
- Dr Nikunj Bhatt delivered a Presidential Lecture at International Conference Organized by Rajyaguru college of Science, Pune.
- Dr Nikunj Bhatt was invited to give a talk at International Workshop organized by ISCA.
- Mr. Rajesh Sadhu was invited as an expert on the selection for the post of Asst. Prof. in Computer Applications in BCA course by Shri D. N. Institute of Computer Applications, Anand.
- Mr. Rajesh Sadhu conducted the CCC Examination twice for Dr. Baba Saheb Ambedkar Open Uni. at Nalini Arts College.
- Ms. P. B. Patel and Ms. S. K. Menon were invited as judges in poster making competition and extempore speech competition respectively at the state level Intercollegiate Competition Genequest organized by NVPAS.
- Principal Dr Bhavesh Patel Chaired a session in a NAAC sponsored national conference **"Quest for Excellence in Teaching, Learning and Evaluation"** at CHARUSAT.
- Dr. Minaxi Vinodkumar Chaired a session at State level One Day Seminar on 'Electron collision processes in Atoms and Molecules'.

Workshops /Seminars Organized /coordinated:

- **(Total 07, 05 in association with ISTAR and 02 with ARIBAS)**
- The Departments of Biology and Chemistry jointly organized a State Level Symposium on Phyto-chemistry. 205 students attended this symposium.
- The Biology and Geo-informatics of ISTAR organized a workshop on Geo informatics for Biology students at ISTAR. 30 students of Biology attended the same.
- Computer Science and BCA Department organized a Two Day Workshop on "GIS, RS and GPS Technology and Application".
- The Chemistry Dept organized **2 state level events**: One, was a workshop on 'Instrumental methods of chemical analysis' and was attended by 135 participants,. And second event was a State Level Symposium on "Phyto-Chemistry which was attended by 212 participants.
- The Industrial dept conducted a National seminar in "Advancement in chemical technology- An Indian perspective".
- The **Electronics Dept** organized two State level events. They are :

- 1) A One day Seminar on 'Electron scattering processes in Atoms and Molecules, sponsored by DAE and V. P. Sc. College and was attended by 27 participants.
- 2) Two day State workshop on 'Concepts of PLC Programming 'in collaboration with ISRAR. It was attended by 35 participants.
- The Physics Department in collaboration with ISTRAR conducted a Two Days State Level inter college Workshop on 'Concept of Physics in RS and GIS Technology and Applications'. **137 students** from various colleges participated.

Research Papers Published: (Total - 37)

- The following staff members have publications in renowned national and international journal
- Dr B C Dixit (ISSN 0223-5234) and Dr K D Patel(ISSN 1521-4184) of Chemistry Dept published one paper each in an International Journal
- Dr. V. K. Sinha published 12, Mr. Amitkumar A. Barot, Mr. Chiragkumar M. Patel published 7 papers each, Mr. Nisarg K Prajapati 03 and Dr. Mandar K. Karve 02 papers respectively.
- Dr. Minaxi Vinodkumar has 3 International publications to her credit (IJTE ISSN 0971-3034 (2), PRA ISSN 2469-9926.
- Dr Bhavesh Patel has one International Publication to his credit.

Papers/ Poster Presented at State/National/International Level conferences: (Total - 14)

- Dr Minaxi Vinod Kumar made an oral Presentation at a National conference at Dhanbad, Jharkhand, sponsored by ISAMP, DST. Dr Kumar also has a State level presentation at V P Science College.
- Mr. Chirag Patel, of Industrial Chemistry Dept. presented a paper entitled "Agricultural Waste and Non-traditional Oil in Polyol synthesis" in an international conference on "107th AOCS Annual Meeting and Expo." at Salt Convention Centre, Utah, United State of America.
- Mr. Amit. Barot, of Industrial Chemistry Dept presented a paper entitled "Castor oil as feed stocks to recycle of post consumed clothes and its application" in an international conference on 24th European Biomass Conference and Exhibition, at Amsterdam, The Netherlands.
- Dr Nikunj Bhatt presented a paper at International Conference Organized by ISCA.
- Dr Bhavesh Patel made an oral presentation on 'Best Practice of college' at a two days workshop on 'Best Practices in Higher Education' organized by KCG.
- Dr M H Patel presented a poster at an International Level Meet at Bareilly under TWQIPand MHRD.
- Dr Minaxi VinodKumar of Electronics Dept. presented a poster at National level Meet at PRL, A' bad, Under Indian Assoc. of Molecular and atomic Physics., and a poster at a State level meet at PDPU, Gandhinagar under the Gujarat Science Academy.
- Dr. J.P. Patel presented one poster each in an International and national conference sponsored by UGC and DST respectively.

- Dr B C Dixit and Dr. Vipul Kataria presented papers at a UGC sponsored State level seminar at Rajkot.
- While Dr. M. J. Patel, Dr Vipul Kataria and Mr. Atul Patel presented papers at a UGC sponsored Sate level seminar in Jaipur.
- Ms. V.M. Patel presented a poster at the second UGC National conference on Current trends in Biological Sciences organized by Post Graduate Department of Biosciences., S P University, V V Nagar.

Conferences/Seminars /Symposia Attended (32 Faculty members):

- Dr. J. P Patel, Dr. Ashokkumar, Prof. Raxa Solanki, Prof. Medha Patel, Dr B N Patel and Dr N H Brahmbhatt attended a national conference on Current Trends in Biological Sciences, organized by Department of Biosciences, SPU, Vallabh Vidyanagar.
- Dr. T. K. Darji has actively participated in One Day Extramural Seminar on Workplace Safety Health and Hygiene organized by Department of Chemical Engineering G. H. Patel College of Engineering and Technology on 20th January 2017.
- Dr BC Dixit, Dr K D Patel, Dr. H.R. Maradiya, Dr T K Darji, Dr G M Patel and Dr Atul Patel attended a One Day Extramural Seminar on Workplace Safety Health and Hygiene organized by Department of Chemical Engineering G. H. Patel College of Engineering and Technology.
- Dr. H. R. Maradiya, Dr. T. B. Darji and Dr. G M Patel, from Chemistry Dept. attended a State Level Symposium on "Phyto-Chemistry" organized by Biology and Chemistry Department of V. P. and R.P.T.P. Science College in association with ARIBAS.
- Dr P M Patel of Physics Dept attended a UGC Sponsored National Conference on "Adroitness in e-Content Development for Higher Education" at Shri R. K. Parikh Arts and Science College, Petlad.
- Dr. H. N. Patel, Ms. P. B. Patel, Mr. A. A. Shukla, Mr. S.A. Shaikh and Ms. V. M. Patel attended a state level symposium on Phyto-chemistry organized by the Biology and Chemistry departments of our college in association with ARIBAS, New Vallabh Vidyanagar.
- Mr. P.A. Lashkari, Dr. Minaxi Vinodkumar, Mr. K.C. Raval, Mr. B. H. Lashkari, Mr. B. Pithadiya, Mr. Jay Popat, Dr. Minaxi Vinodkumar of Electronics Dept attended a State Level Seminar at CISST, ESPAM-2017(sponsored by DAE and V P Sc.), A one day seminar at A 'Bad (sponsored by ESRI- India), and also attended a workshop at ISTAR on Concepts of PLC programming.
- Mr. R H Sadhu attended a National seminar on "Vocationalization of Commercial Education: A step ahead with different perspective", organized by C P Patel and F H Shah Commerce College, Anand.
- Prof. R H Sadhu attended a National seminar National "Adroitness in e-Content Development for Higher Education, organized by Shri R K Parikh Arts and Science College, Petlad.

Research Projects at VPM (RS. 63 lacs)

•	Dr Minaxi V Kumar	Major	27,82,400/-	DAE-BRNS, Mumbai.
		Major	19,70,000/-	DST, Delhi.
		Minor	4,30,000/-	GUJCOST, Gandhinagar.
•	Dr. M.H. Patel	Major	11,51800/-	UGC, Delhi.

10 research projects are submitted to SPU for seed money funding

Appointed as Editors:

- Dr Vipul Kataria of Chemistry Dept was appointed as Chief Editor for International Journal of Science and Technology.

Guest Talks arranged by Various Depts. (Total 25)

- **Dr. Bharat Gami**, Manager R and D at Abellon Green Energy Ltd. delivered a talk on 'BIOENERGY-A new paradigm in multidisciplinary studies'.
- **Dr. Akhilesh Mishra**, research scientist at Jain Irrigation Ltd. delivered a talk on 'Micro propagation of certified quality material'
- Biology department organized an expert talk on **BOTANY-AROUND YOU** by **Prof. A.S. Reddy**, Sardar Patel University.
- The Dept of Microbiology arranged a guest talk by **Dr. Kailash** about blood donation. The dept also arranged a talk by **Dr. Nirmal Kumar**, Professor and head, Environmental Sciences, ISTAR on Bioremediation and Biodegradation.
- The Biology Dept arranged a Guest talk on activities at National innovative Foundation. The talk was delivered by **Dr. K. P. Patel,** senior scientist and our alumnus.
- The department of Computer Science and BCA organized 3 guest talks on "Career options, 'Android Operating System' and on 'IT Awareness'.
- The Chemistry Dept arranged 5 guest talks on various topics. The expert talks were delivered by **Dr Sujit Baran Kumar, Dr N V Shastry, Dr. Smita Shrivastava, Dr Ritu Dixit, and Dr Sanjay Panjabi.**
- The Physics dept arranged 3 guest talks for the students. The topics were 'Nano Science' by **Milind Deshpande**, 'Sun Spot and Astronomy' by **Prof. B.Y. Thakore**, "Goal Setting by **Dr. Dalvadi**. All the speakers are from the Dept of Physics, S P University.
- The Industrial Chemistry Dept arranged 7 guest talks by **Dr. Dharmesh Patel, Dr. V. A. Patel, Mr. M. R. Rathod, Dr. Merlin Thomas and Dr. J. V. Patel**
- The Mathematics and Statistics Dept. organized a Guest Lecture by **Prof B D Patel**, Ex Head of the Mathematics Dept.

- **Students' Participation in various workshops/ competitions/ Training Programmes (Total - 129)**
- **Mr. Sanket Patel** of final year B.Sc. participated in a Four Weeks **Introductory Summer School on Astronomy and Astrophysics** at IUCA, Pune.
- Mr. Kaushik Bhalodiya of Second year B.Sc. students attended Three weeks Advanced B.Sc.(Physics) Summer programme held at St. Xavier's College, Ahmedabad.
- **Ms. Shruti Dhara Gogoi** attended Four Week Basic Course of Mountaineering sponsored by Nehru Institute of Mountaineering, Uttarkashi, Uttarakhand, and was awarded A Grade by NCC Girls BTN, Anand
- **62 Students** of Industrial Chemistry Dept completed 6weeks In plant Training at various reputed companies.
- **Mr. Divyesh Baravaliya was** selected for the Inaugural Ceremony of Noble Prize Exhibition to be held at Gujarat Science City.
- **Mr. Hardik Upadhyay** participated in the presentation on **"Noble Prize 2016"** at Gujarat Science Academy.
- **39 Students of CS and BCA Dept. attended** a Seminar on 'Career Opportunities in Quality Management' organized by Dept. of Statistics, S P Uni., Vallabh Vidyanagar.
- Three students: **Bhaktika Sonagara, Bhumi Shah, and Hardik Upadhyay** participated in Poster competition of Scientific, Red Ribbon Club and C. C. Patel Community Science Center at ARIBAS.
- **Nineteen students** (13 from VI Semester and 6 from IV Semester) participated in the 28th State Level Inter Collegiate Competition organized by Microbiology Study Circle, Nadiad and GSBTM under the aegis of Gujarat Integrated Bio Network.
- **Ms. Zeal Vadodaria** of VIth semester took part in a seminar competition organized by Gujarat University, Ahmedabad on Noble prize in Physiology/Medicine -2016.

Events organized by Various Departments:

- The Department of Biology organized **Zoo-Fest 2017** where about 30 projects were displayed by the students of the dept.
- The Biology dept also organized a Bouquet making workshop in the college.
- Computer Science and BCA department organized an Inter College **Compu Carnival-2017** competition. A Total 304 Students of colleges affiliated to S.P. University and GTU participated.
- The departments of Computer Science and BCA also organized a One Day Tutorial on "Android Studio'.
- **Chemistry Carnival** was organized by Chemistry Department which was attended by 407 participants.

- The Chemistry Dept. Organized a State level **UK Chemistry Olympiad – 2017** in which 407 students participated.
- Physics department conducted **National Graduate Physics Examination organized by Indian Association of Physics Teachers (IAPT) (NGPE-2017) in** V.P. Science College.**109** students of the College appeared and, 17 students got merit certificates. Dr. A. R. Jivani successfully conducted the examination.
- The Physics department conducted "**State Level Inter College SPACE Science Workshop-2016"** An eminent Scientist from ISRO, Ahmedabad delivered a talk on the occasion. A total of **160** students participated.
- The Physics Department conducted an '**Advanced B.Sc. Physics Summer Programme Test'.** About 46 students of S.Y.B.Sc. appeared for this test. This programme is organized by Vikram Sarabhai Community Centre, Ahmedabad.
- The Mathematics and Statistics Dept. organized a State level **A R Rao Mathematics Competition.**
- To commemorate one of India's greatest mathematicians S. Ramanujam's birth anniversary, the Mathematics Dept. organized an **Inter collegiate Ramanujam's Mathematics Quiz**, which had 88 participants from different colleges. On the same day, a movie based on Ramanujam's life, 'The Man Who Knew Infinity' was also shown to the students.
- The Microbiology department organized a **poster making and model making competition. 37 students** of IVth VIth semester took part in the same
- The Microbiology department and debate club of our college jointly organized an inter college article writing competition.

Minaxi-Lalit Science Award Test-2016-17:

- This is a state level competition conducted by Gujarat Science Academy once a year This year **505** students took part in the same. Dr. A. R. Jivani and Dr. H. R. Maradiya successfully conducted the test in the college.

Students' educational visits organized by various Departments (Total - 10):

- Students of Zoology visited Lingda and Indroda Park.
- Students of Biology were taken to Bharuch Environ Infra lab at Ankleshwar. The students of Botany were also taken to Plant Tissue Culture and Medicinal Plants division at Anand Agricultural University, Anand, FISH BREEEDING FARM and WAGAHI BOTANICAL GARDEN.
- 10 students of Biology registered for Hands on training workshops organized by ARIBAS, New Vidyanagar.
- The Department of Computer Science and BCA, organized a one day educational visit to "Science City, Ahmedabad".

- The students of Chemistry were taken to Magh Mani Chemical Industrial Vatva, Ahmedabad.
- The Chemistry dept. organized a tour for TYBSc students to Farmson Industry and CETP' at Nandesari, Baroda.
- The Physics Dept. arranged an academic tour of TYBSc Physics students to visit of Udaipur Solar Observatory (USO).
- The dept also took the S.Y.B.Sc students to' Facilitation Centre for Industrial Plasma Technologies (FCIPT) and Akshardham LASER show, Gandhinagar.
- All the Physics dept. students visited SPRERI.
- The Industrial Chemistry Dept took the students to AMUL.
- Sahjanand Beverages, Champion Paints, Perfect Resin and Polymer for Industrial visits.
- Students of Microbiology were taken on educational tour to AMUL, AD Gorwala Blood Bank, Karamsad, and Zydus, Cadilla (Biotech), Ahmedabad.
- The Electronics dept arranged a visit to Science City.
- The Mathematics and Statistics Dept. organized a study tour to Vedh Shala at Jaipur.

Visiting Faculty to other Institutes (Total - 6):

- Dr B C Dixit and Dr G M Patel delivered 8 and 10 lectures respectively at M.E. (Environmental Engineering) in B. V. M. Engineering College as visiting faculty.
- Prof R H Sadhu delivered two lectures at Dr. Baba Saheb Ambedkar Open Uni. Center at Nalini Arvind and T.V. Patel Arts College.
- Prof H B Madhwani is a visiting faculty for Bio- Statistics at the PG Dept. of Life Sciences, Sardar Patel University, Vallabh Vidyanagar.
- Mr. L. M. Katara, Librarian, was invited as a visiting faculty at P. G. Department of Library and Information Science, S. P. University, Vallabh Vidyanagar.
- Dr Charudutt Gurjar delivered two talks to MA ELT students at H M Patel Institute of English.

Add on Courses Offered in the college for Students (Total - 7 batches):

- Dr. H.R. Maradiya of Chemistry dept. conducted three Batches of Add on courses during the year.
- Mr. Tejas Sharma of Mathematics Dept completed two ADD on courses on LATEX.
- Dr Rajiv Bhatti of Biology Dept. completed two Add- on courses on Bio-diversity.

Miscellaneous:

- Academia- Industry MOUs
- Under the convenership of Dr. V.K. Sinha, following **9 companies** signed the memorandum of

understanding with the college to impart training, plant visits, guest lectures and exchange of knowledge amongst the college and industries. The industries are: Ravikiran Ceramics, Nutan Ayurvedic, Global Pharma, V. M Chemicals, Usha Coatings, Sahjanand Beverages, Green Circle, Uma Plasto Tech, Swiss Glasscoat Ltd.

- **Spoken Tutorial by IIT, Bombay**
- The depts. of Computer Science, BCA and Mathematics and Statistics enrolled 96 students for different courses offered under Spoken Tutorial started by IIT Bombay.
- Mr. L M Katara voluntarily offered his services for the bar-coding of the Library books of the 8 other institutes of CVM. He is also help to the bar-coding process of the new books purchased by other institutes of CVM.
- SCOPE
- Under the coordinator ship of Dr Charudutt Gurjar, the college enrolled **525 students** for Cambridge Placement Test, conducted by SCOPE, KCG, Gujarat.

PDP

- Under the coordinator ship of Dr K D Patel and Dr R H Parab, The PDP (Personality development programme) was conducted by Globe Arena Technologies Pvt. Ltd. for the students of the college.
- The programme focused on areas like Attitude Building, Group Discussion as well as Dynamics of Team Management. Interpersonal Behavioral Styles, Responsible Behavior and Presentation Skills.

V P M IAS STUDY CLUB [Coaching for Entry Level Services

- Under the Coordinator ship of Dr A R Jivani, the college is successfully running the VPM IAS study club in order to prepare students for entry level services.**70** students have enrolled for this. This club arranges Guest lectures, and coaching and guidance of different aspects of competitive exams. And conduct periodic tests of subjects for UPSC Exams.
- Respected dignitaries, before I conclude I would like to take the opportunity of expressing our profound sense of gratitude to the Chairman Dr C L Patel for renovation of the Central Hall and also the renovation of the parking space.

  The college will go for the third cycle of NAAC Accreditation in the early part of 2018 and so we have our task cut out. We also have plans for building of a classroom block on the library building, renovation of the staff rooms. With the blessings and continued support of the Charutar Vidya Mandal, and hard work, we are confident of a good show. We will not rest on our past laurels but strive hard to reach greater heights.

ANNUAL REPORT OF THE STUDENTS' CENTRAL COMMITTEE

The Student's Central Committee of the college comprises of 11 clubs that include Music club, Dance & Drama club, Fine Arts, Debate club, Knowledge and Science Association, Yoga & Sports club, Nature club, Magazine & Photos club, Discipline committee, NCC and NSS. Many students participated enthusiastically in all the activities and many won the prizes too.

1. MUSIC& 2.DANCE & DRAMA CLUB:

Ex- officio: Mr. Kamlesh Raval & Dr. (Mrs.). Minaxi Vinodkumar

Student secretary: Sneh Shah, Niyati Trivedi and Kirtan Bhatt

The club organized many events like Independence Day Celebration, Sardar Patel University Youth Festival, The Talent Hunt Program etc.

The Independence Day Celebration followed by cultural program consisting Patriotic songs, Group songs and Group Dance presented by the students.

In Sardar Patel University Youth Festival many students participated in the Group Song, Indian Light Vocal Solo, Classical Instrumental, Folk Dance and Mimicry.

Mr. Sneh Shah secured 1st and Mr. Kashyap Rathod secured 2nd position in classical Instrument.

"The Talent Hunt Program is proposed on 1st March 2017

3. FINE ART CLUB

Ex- officio: Mr. Lincoln Chauhan

Student Secretary: Jaykumar B. Korat

Fine Art Club of our college had organized three day Workshop on Mahendi. About 67 girl student participated in this workshop and Mrs. Sushma A. Laisatwar has invited resource person cum trainer.

The Painting Competition on "SWACHCHHATA ABHIYAN" and the celebration of 70 year of Freedom organized. Many students were participated in this competition. Ku. Kiran Patel and Mr. Dhruv Dhaduk stood first in respective competition.

In University Youth Festival Mr. Raj Karangia Secured Second Position in "on the Spot Photography."

The Fine Art Club also conducted four days "VASANTOTSAV - 2017". In various events winners are as under.

In Hair style Ku Mahima Jadav, in Sari Wearing Ku Nikita Lathila, in Rangoli Ku Radhika Patel and in spot Photography Mayank Kumbhani secured first positions.

4. DEBATE CLUB

Ex- Officio: Mrs. Pragnaben B. Patel

Student Secretary: Mr. Poojan S. Amrutia

An Essay Writing & Slogan Writing competition was organized on 12th Aug' 2016 under "AZADI – 70". Many students participated in the events. Mr. Yashpal Bhalaiya & Mr. Poojan Amrutia secure first position respectively.

As a part of the Swachchhata Abhiyaan, a Group Discussion session was conducted for the students of the College. The Topic was 'Green India Clean India'. Many students participated actively in the session. Priyansha Rajput stood First position.

A Group Discussion was organized in Decemberon the current Topic: Demonetization. Nearly 20 students participated actively and put forward their views on the current scenario.

An Elocution Competition was organized on the topic was Youth of India: Developing India's most precious wealth. Mr. Hakim Kazi secured first position.

In Article writing Competition on Safe drinking water, Arti Yadav secured the First Position

Under this club, students participated in many event at SPU Youth Festival and other colleges.

An Inter college Article writing competition was organized jointly by the Microbiology Dept & Debate club of our college. Ku. Sakina Vohra of our College secure Second Position.

5. KNOWLEDGE AND SCIENCE ASSOCIATION

Ex-officio: Dr. T. H. Patel

Student Secretary: Hardik R. Upadhyay

Event Organized:

- Power Point Presentation Competition on My Favorite Nobel Prize:

  No. of Participants: 13

  Winners: 1. HARDIK UPADHYAY TY BSc (Physics)

  2. ZEEL VADODARIYA TY BSc (Micro.)

- Poster making on Scientific Interest:

  No. of Participants: 11

  Winners: 1. BHOOMI SHAH SY BSc (Physics)

  2. BHAKTIKA SONAGARA SY BSc (Physics)

6. YOGA & SPORTS CLUB

Ex-officio: Dr. J K Chauhan

Student Secretaries: Dilip Vanzara & Prital Patel

In this current year 2016–17, boys and girls of our college took part in various Inter college competition organized by Sardar Patel University, District level, state level, Gujarat state Khel Mahakumbh, national tournament. In Badminton, Table Tennis, lawn tennis, Volleyball, Handball, Basketball, Cricket, Kabaddi, Kho-Kho, and Athletics.

Our college boys won the championship in **Handball** and Runners up in **Football** tournament in Sardar Patel University inter college tournament

Our college Girls won the championship in YMCA inter college Volleyball tournament.

Our college Girls were Runner's up in **Tennis, Kabaddi**, Tennis & Athletics at Sardar Patel University inter college tournament.

Total **16** Boys and 8 girls participated in inter University **West Zone** Tournament in various Games.

Jay Patel participated in Kabaddi at Jodhpur and Margin Shah participated in Basketball at Pondicherry & Raymal Rathwa in **Senior National** Tournament.

Total **149** Boys and **74** Girls Participated in Sardar Patel University various inter collegiate tournament 2016-17.

18 boys 4 Girls participated in district level and state level Khel Mahakumbh tournament.

Our college boys and girls won Rs. 51000 cash prices in various games in Khel Mahakumbh tournament 2016-17.

Many students participated in inter class badminton, Football, cricket, table tennis, chess tournament.

300 Boys and Girls participated our college Annual Sports day celebration.

7. NATURE CLUB

Ex-officio: Ms. R. H. Solanki

Student Secretary: Aishwarya M. Kshatri

- 55 students visited S P University museum on 6th August-2016.
- 150 students participated Nature conservation quiz.
- 70 students participated on the spot photograph competition on nature conservation.
- 50 students participated on the spot slogan writing competition on the nature.

8. MAGAZINE & PHOTO CLUB

Ex-officio: Dr. A. R. Jivani

Student Secretary: Karan K. Bhoraniya

The college publishes the student magazine where the literary skill of our students flourishes.

The club is in process of bringing out the College E magazine, for that 120 students have submitted their articles on various topics.

The club also organized an article writing competition in which more than 42 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.

9. DISCIPLINE COMMITTEE

Ex -officio: Dr. D. M. Patel

Student Secretaries: Mr. Himansu Khanpara and Ms. Kunjan Kamani

Discipline committee has played very crucial role for maintaining discipline in various events like Orientation programme, Vir Vitthalbhai memorial lecture, Fresher's Party, Alumni meet, Sports day, Annual day, Talent evening etc. were arranged in college during the year.

10. NCC

NCC cadets along with NCC officer Major Dr. M. M. MOREKAR have celebrated INDEPENDENCE DAY on 15th AUGUST 2016 at our college. This year 110 students enrolled in NCC.

NCC cadets along with the NCC officer Maj. Dr. M .M. MOREKAR have participated in GUARD OF HONOUR PARADE in the honour of GOVERNER of GUJARAT on 15th DECEMBER, 2016 at S.P. UNIVERSITY.

NCC officer Maj. Dr. M. M.MOREKAR attended NATIONAL INTEGRATION CAMP at Rajpipla.

Cdt. Jaykumar Gyanprakash Chhabra represented NCC DIRECTORATE OF GUJARAT in THAL SAINIK CAMP at NEW DELHI.

During the academic year of 2016-17 NCC cadets have attended different 15 camps. In these camp NCC cadets won first prizes in Firing, 4 X 100 Relay, Volley Ball and Group Dance Competition and second position in Poster Making, Firing, Drill, Tug of War Competition.

09 NCC Cadets selected in Gujarat State Republic Day Parade organized by Gujarat State on 26 January at Vallabh Vidyanagar and secured first Position In Drill Competition.

Cdt Jaykumar Gyanprakash Chhabra, Uo Abhinay Arunbhai Mishra and Suo Lalu Munnabhai Sharma awarded best Cadet in CATC Camp

11. NSS

Ex- Officioes: Dr. Rajiv Bhatti, Mr. Atul Patel, Ms. Krutuka Thakkar

Students Secretaries: Uttam Popalia, Akshita Patel

The NSS Unit organized Annual Camp of one week at 'Ankalwadi'.

The NSS Unit participated to ODF Survey conducted by the Swachch Bharat Mission, Government of India in the Taluka of Sojitra.

The tree plantation of the NSS was held in our college.

The NSS unit collected the **National Flags** lying on the roads on 15th August and 26th January to maintain the dignity.

NSS Unit celebrate the Birthday of Swami Vivekananda as NATIONAL YOUTH DAY.

The NSS unit celebrate **N.S.S day, World religious day, Youth day etc.**

NSS volunteer visit an Annual Camp of the Physical Department of Vidhyapith, Sadra, Gandhinagar and one day tour at Pavagadh.

The NSS Unit also organized **Blood Donation Camp and Thalassemia test**

Dr. P. M. Patel

(Vice President)

Students' Central Committee

MESSAGE FROM MEDIA SECRETARY

It has been a journey with lots of new experience and task with responsibility. I have been working with the various committee secretaries and members who helped me in the work. I would like to thank our Principal sir, Dr. Bhavesh Patel, Vice President, Dr. P. M. Patel, and all the secretaries for making me this capable.

RAJ KARANGIYA
SYBSc (Chemistry)

3D Printing

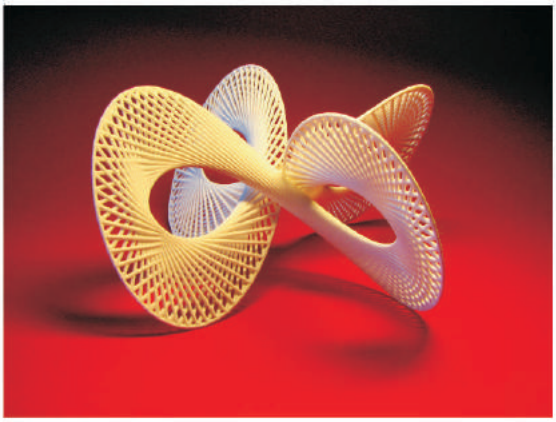
3D printing or addicting manufacturing is a process of making three-dimensional solid object from digital file. The creating of a 3D printed object is achieved using additive processes. In an additive process an object is created by laying down successive layers of material until the entire object is created.

3D printer invented:

However the origins of 3D printing can be traced back it 1986, when the first patent was issued for stereo lithography apparatus (SLA). This patent belonged to one Charles (chuck) Hull, who first invented his SLA machine in 1983.

Addictive Manufacturing:

Addictive Manufacturing refers to a process by which digital 3D design data is used to build up a component in layers by depositing material. The terms "3D printing" is increasingly used as a synonym for Additive Manufacturing.



About:

3D printing, is also known as **additive manufacturing (AM),** refers to processes used to synthesize a three-dimensional object in which successive layers of material are formed under computer control to create object.

Experts predict 3D printers will be common in home in coming years. Our news features and articles are cover the science and technology behind 3D printers, from how they work from the history, progress and future of the technology and what kinds of things can be made.

3D printer's uses range from practical objects for every uses for commercial product and parts used in manufacturing, plus the technology holds promise for bio printing for human parts for medical purpose.

How does 3d printing Work:

It all starts with making a virtual design virtual design of the object you want to create. The virtual design is for instance a CAD (Computer Aided Design) file. This CAD file is creating using 3D modeling application or with a 3D scanner. A 3D scanner can make a 3D digital copy of an object.

3D scanners use different technologies to generate a 3D model. Examples are: time-of-flight, structure/modulated light, volumetric scanning and many more.

Recently companies like Microsoft and Google enabled their hardware to perform 3D scanning For example Microsoft Kinect In the near future digitizing real objects into 3D models will become as easy as taking a picture. Future versions of smart phones will probably have integrated 3D scanners. Currently, a price of 3D scanners ranges from expensive professional industrial devices to $31 DIY scanners.

Types of 3d printers:

Vat Photopolymerisation, Stereo lithography (SLA), Continuous Liquid Interface Production (CLIP), Material Jetting, Binder Jetting, Material Extrusion, Fused Deposition Modeling (FDM), Fused Filament Fabrication (FFF), Different Types of FFF 3d printer, Powder Bed Fusion, Selective Laser Sintering, Sheet Lamination, and Directed Energy Deposition

We know that its work about objects and how to more expensive look about any particular project (picture etc) The main purpose to describe the topic is every presentation or documentation about the project is to very useful and more attractive.

In the future or the present is following these types of technology to everywhere in world. And the some kind of things and technique are used to successful in particular field. In short the technology is used to represent everything.

NIKHIL M SUTHAR
TY BCA

ABOUT INDIA

- India is one of only three countries (others are US & Japan) that makes super computers.
- India is one of Six Countries that Launches satellites.
- By volume of pills produced, the Indian Pharmaceutical Industry is the world's second largest after China.
- India is second largest community of software developers after US.
- India is world's largest producer of milk.
- 2 million people of Indian origin live in US
- Nearly 49% of hi-tech start-ups in silicon valley and Washington DC are owned by Indians.

Bio Opportunities: Make In India By India

The make in India initiative was launched by our Prime Minister in September 2014, as a part of wider set of nation building initiatives. Devised to transform India into a global design and manufacturing hub. It had a tenet of "Minimum Government, Maximum Governance".

Bio Opportunities leads to career development in the field of Biology. Biology which is referred as a study of living organisms / materials. Pursuing career in the field of Biology can be immensely rewarding and exciting. Biologists may study evolution, natural history, conservation of plants and animals, investigate interaction of living organisms with light, environment or with each other. One as a biologist can pursue career in pharmaceuticals, biotechnology or medical research.

Career prospects and opportunities as a biologist is of wide range for e.g. in;

[1] Research
[2] Biotechnology
[3] Pharmaceutical industries / Pharmaceutical engineer
[4] Chemical engineering
[5] Bioinformatics
[6] Forensic science
[7] Biomechatronics
[8] Physiology
[9] Genetic engineering and
[10] Various other fields of Biology such as Botany, Zoology, Microbiology, Environmental sciences etc.

RESEARCH AREAS:-

Research biologists study the natural world using latest scientific tools and techniques. One can work as a member or head in the department of Research and Development center in the industries. One can work as a Q.A.C. member i.e. Quality Assurance Cell and many ongoing projects.

Newly developed research projects are:

- Seeds side predicts community composition and storage potential of trees in Rain forest in Western Ghats.
- Study of live Vaccines.
- Large beneficial synonymous mutations mediate rapid and parallel adaptations in a bacterium.
- New species of PIKA discovered in Himalayas.
- MIT Research and
- Stem Cell research.

❖ **HEALTH CARE:-**

Biologists may develop Public Health Care campaigns to defeat the illness such as tuberculosis, AIDS, cancer, and heart diseases or to prevent spread of rare or deadly diseases such as EBOLA virus and H1N1 virus. One can become Veterinarian, doctors, dentists, nurses, or other health care professionals.

One can choose to work with different organizations like Peace Corps, or doctors on borders which help in war impacted regions.

ENVIRONMENT MANAGEMENT AND CONSERVATION:-

One as biologist can work for various environmental programs as an environmental officer or as post of HR in Centers working for pollution control and weather detection management. One can work with federal / state natural resources agencies or nonprofit organizations, private ecological consulting firms or wildlife rehabilitation centers for survey and protection of endangered species.

------> Other directions in biological careers:

BIOTECHNOLOGY:-

It is the widest scope for a biologist. Biotechnology is widely ongoing field providing broad range for jobs. It deals with scientific principles and programs to develop tools and technology advances in field of agriculture, food science and medicine. One can work as pharmaceutical, chemical or genetic engineer. Or one can work with the nanomedicine or as a lab technician.

PHARMACEUTICAL INDUSTRIES:-

India is widely developing in having large number of pharmaceutical industries all over the nation. It includes Drug Engineering, Novel drug delivery. ISPE provides certificate to these industries. One can work with the industries and discover highly resistant antibiotics, effective vaccines; polyvalent vaccines are large scope for a pharmacy engineer. One can work under industries like Zydus Cadilla which has a collaborative association with foreign industries too.

CLINICAL ENGINEERING:-

It is a branch of biomedical engineering dealing with actual implementation of medical equipment and technologies in hospital or other clinical setting. In 2012, 194000 biomedical engineers were employed in US. Field is growing by 27%.

Pay packet largely depends on academic qualification area of specialization from where you have earned your degree. Fresh graduates bag a monthly salary of range 8,000-20,000.

According to a survey India is stated to become an international focal point for development of biotechnology. The areas where biotechnology has grown in India are Agricultural Biotech, animal husbandry, dairy development, genomics, etc.

Bioinformatics explores biological information in depth using analytical and scientific tools. Top companies which provide work to biologists are:

1. Biocon
2. Serum institute of India
3. Ranbaxy
4. Primal healthcare
5. Indian Immunological.

- **FORENSIC SCIENCE :-**

Forensic biologists work with police department and other law enforcement agencies using specific method to discover and process evidences that can be used to solve crimes.

- **BUSINESS AND INDUSTRY:-**

Biologists can work with drug companies and as provider of scientific products and services to research and test new product.

- **FIELD OF MICROBIOLOGY:-**

Recent trends from industry focus on production of totally new eukaryotic compounds like insulin interferon and other recombinant products using microorganisms.

Biofuels like bioethanol and biodiesel can be manufactured, these companies use lignocelluloses algae and other biomass to replace fossil.

India has funding agencies like UGC, CSIR, ICMR, etc. which funds for post-doctoral research.

Now a day Biomechatronics comes as a new opportunity for biologist.

Prosthetic leg is the best example also known as Jaipur leg, prosthetic amputee rehabilitation is primarily coordinated by prosthetic and an interdisciplinary team of psychiatrists, surgeons, physical therapists, etc.

Department of Biotechnology has established Bioparks in Lucknow, Bangalore, Kochi, Guwahati and Chindwara.

India constitutes around 8% of total global generic market by volume indicating a huge untapped opportunities in the sector.

One can work under:

1. Confederation of Indian industry.
2. Department of biotechnology
3. Biotechnology industry research association council.
4. Biomedical optics.
5. Tissue engineering.
6. Kinesiology
7. Biomechanics

- **INSTITUTES PROVIDING BIO OPPURTUNITIES :**

1. The national Centre for biological sciences, Bangalore.
2. Institute for stem cell biology and regenerative medicine.
3. Centre for cellular and molecular programme.
4. Indian bioscience and research institute.
5. NCR, Noida.

PARTHVI H. AKHEJA

TYBSc (Microbiology)

Bird Flu

Bird flu, or avian influenza, is a viral infection spread from bird to bird. Currently, a particularly deadly strain of bird flu -- H5N1 -- continues to spread among poultries in Egypt and in certain parts of Asia. Technically, H5N1 is a highly pathogenic avian influenza (HPAI) virus. It's deadly to most birds.

Although there are several types of bird flu, H5N1 was the first avian influenza virus to infect humans. The first infection occurred in Hong Kong in 1997. The outbreak was linked to handling infected poultry. H5N1 occurs naturally in wild waterfowl, but it can spread easily to domestic poultry.

Avian flu, also known as bird flu and more formally as avian influenza, refers to flu caused by viruses that infect birds and make them ill. It is an infectious disease of birds caused by type A strains of the influenza virus. Humans can catch bird flu directly through close contact with live infected birds and those who work with infected chickens are most at risk. The virus is expelled, and people may inhale these germs as dust when the droppings dry out. The virus cannot be passed from human to human.

You may have H5N1 if you experience typical flu-like symptoms such as cough, diarrhea, respiratory difficulties, fever (over 100.4°F), headache, muscle aches, malaria, and runny nose. Human infection with highly infectious strains of bird flu is uncommon, with most infections occurring after exposure to infected birds or their droppings.

There is no commercially available vaccine for humans against bird flu strains. Human infection with H5N1 bird flu is fatal in approximately 55% of infected humans and 37% infected with H7N9, but only a relatively small number of humans worldwide have become infected since 1997 (H5N1 = 784 people infected and H7N9 = 622).

KHURSHID H MALEK
FYBSc (Industrial Chemistry)

Effects Of Air Pollutants On Human Life

"What we are doing to planet is inexcusable."
- IAN SOMERHALDER

Air pollution is the death dealing seed on earth. It is due to particles hanging in ambient air which are emitted from fossil fuel combustion, power plants, nuclear wastes, vehicle exhaust, chemical fires and smokestacks or chimneys discharging smoke from ship and factories. In 1990s the deaths occurring was around 4.8 million but now it has been increased to 5.5 million. Current research says that China, United States, India are the most air polluted countries in the world. In fact, china's pollution can be seen from space.

According to 2010 statistics, new research discloses that air pollution in China is significantly increasing the risk of lungs cancer. Last year, after Diwali in New Delhi, people were forced to wear mask to evade health issues.

These days' coverlet of smog and particulate pollution has found in China's skies and is endlessly affecting and engulfing cities of china. And that has a dangerous impact on lives living there. Therefore, the factories of china (especially emitting heavy toxins) are enforced to cease. All this life affecting dilemma is the cause of not following norms to reduce its effects.

Although pollutants are minute in size, their effects are causing death. Particulate matters (PM), grounded level ozone, oxides of nitrogen (NOx), sulphur oxides (SOx), benzene, heavy metals, carbon monoxide and volatile organic compounds (VOCs) are the air pollutants affecting human life precariously.

Particulate matters (PM) are the pollutant which are so small and varies in size and shape. They are the mixture of sulphates, nitrates, ammonia, black carbon, dusts, minerals and water. They directly appear out from source such as smokestacks, fire, automobiles and construction site. This particle pollution includes PM10 and PM2.5. The 2.5 micro meters sized particulate matter are minuscule compare to 60 micro meter human hair and they have adverse effect on not only derma but also lung tissue. It also affects new-born and increases cardiovascular and respiratory risk.

London smog is the best example of air pollution. In cold weather inhabitants of London in burns more coal to keep atmosphere warm which in turns increase the amount of sulphur dioxide in the smoke which causes many deaths and illnesses.

We all are aware that ozone in atmosphere is boon for humans because it absorbs UV rays from sunlight reducing the effect of skin cancer. But every coin has two sides, ground level ozone acts as dangerous air pollutant near the surface of the earth. Oxides of nitrogen reacts with the VOCs in the presence of sunlight, it generates ground level ozone and the photochemical smog. The amount increases in summer. This ground level ozone triggers respiratory problems, asthma attack, lung diseases, premature deaths and reproductive to health of human.

Another contaminant which is harms the result of human activity is nitrogen oxides (NOx). Lightning is the natural source of NOx. In metropolitan cities, the concentration of nitrogen oxides is in tremendous amount because of more vehicle exhausts, emissions from factories due to fuel combustions. In car engines, little amount of nitrogen atoms and oxygen atoms combines forming mixture of nitrogen oxides harmful to the human health. It weakens lung function. US studies stated that continuous expose of NOx procreates respiratory problems in young ones and also accelerates allergic responses.

Sulphur oxides are other air toxins having detrimental effects on human existence. Combusting fuels like coal and oils contains tiny amount of sulphur burns in the presence of oxygen forming oxides of sulphur. They are also being released from vehicle exhaust, tall chimneys and industries. It has damaging effects on respiratory systems. Irritation in eyes, sore throat and dry mouth are its causes and its adverse effects also increases the risk of bronchitis.

Carbon monoxide (CO) is odourless and colourless gas formed by incomplete combustion of fuel. This CO when inhaled reaches lung tissues and from it enters blood stream where it combines with hemoglobin forming carboxy hemoglobin which reduces the oxygen carrying capacity. Higher concentration of carbon monoxide triggers hypertension, stroke and heart problems.

Volatile organic compounds are the air pollutants arising from the solids or liquids. It's been established from studies that it is produced ten times more from indoors then outdoors. It's highly carcinogenic and sources include paint strippers, pesticides, cements, adhesives. Polycyclic aromatic hydrocarbon(PAHs) is the VOCs and mutagen which appears out due to incomplete combustion of organic matters in engines, when inspired get stuck with the DNA affecting self-regulation and self-replication leading to mutation which causes cancer. Peroxyacetyl nitrate (PAN) is also VOCs causes irritation in eyes and throat as well as has unfavourable influences on respiratory system.

Environmental protection agency (EPA) viewed benzene as human carcinogen. Burning of crude oil, fuels and vehicle exhaust emits benzene in the air. Its temporary exposure causes unconsciousness, irritation in eyes and throat and nose. Its longstanding exposure hazardously causes genetic changes, conflicting effect on immune system, damages bone marrow by affecting the production of red blood cell. It also causes neurological damages. International Agency for Research on Cancer (IARC) has revealed that the benzene increases the possibility of cancers in human beings. It affects women menstrual cycle, hindrance in foetal growth and also causes leukaemia.

Heavy metals like cadmium, nickel and lead as pollutants has perilous health impacts on human presences. Cadmium as dust particles releases from electronics, plastics, from rubber tires and its exposure has risky impact on kidney. Nickel is emitted from refinery product and from the combustion of coal and heavy fuel oil. Exposure of nickel causes dermatitis. Lead is emitted from vehicles having dangerous effect on toddlers and women. This lead particle pile up in bones for longer time and released instead of calcium during gestation and lactation period. It also shows neurological problem and damaging effect on brain development of children.

Future will face critical problems if this goes on increasing. Rapid increase in industrialization will cause more pollution. Continuous increases in air pollutants like CO, greenhouse gas like CO_2 will have

environmental issues like global warming and depletion of ozone layer. This increase in ozone layer depletion will eventually increase the cause of cancer. Due to this whole ecosystem will get disturbed. Other toxins resulting from factories will have deadly effect on human presence. And if this will continue then the outcome will be more dangerous then we can even imagine.

Isn't it so surprising that this microscopic air pollutant is capable of causing life threatening diseases? Now the question arises what's next? What's its solution going to be? There's only one way. We have to reduce this air pollutant by taking control measures and precautions.

"Don't let our future go up in smoke." -unknown

VAIDEHI N BHATT
SY BSc (Chemistry)

ZEPTO SECONDS

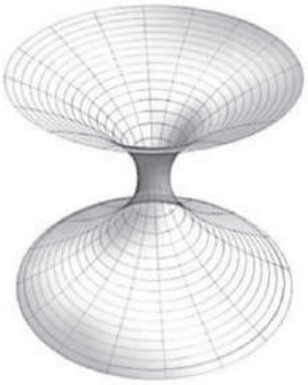
Scientists at LMU Munich recorded an internal atomic even using the shortest unit of time ever measured. The event, photo ionization was measured down to the Zeptosecond. One trillionth of s billionth of a second i. e. 10^{-21} s

1/1000000000000000000000 Sec

WORMHOLE

A wormhole is a theoretical passage through space-time that could create shortcuts for long journey across the universe. Wormholes are predicted by the general theory of relativity. But be wary: wormholes bring with them the dangerous of sudden collapses, high radiation and dangerous contact with exotic matter.

WORMHOLE THEORY



In 1935, physicists Albert Einstein and Nathan Rosen used the theory of general relativity to propose the existence of 'bridges' through space-time. These paths, called Einstein-Rosen bridges or wormholes, connect two different points in space-time, theoretically creating a shortcut that could reduce travel time and distance.

Wormhole contains two mouths, with a throat connecting the two. The mouths would most likely be spheroidal. The throat might be a straight stretch, but it could also wind around, taking a longer path than a more conventional route might require.

Einstein's theory of general relativity mathematically predicts the existence of wormholes, but none have been discovered to date. A negative mass wormhole might be spotted by the way its gravity affects light that passes by.

Certain solutions of general relativity allow for the existence of wormholes where the mouth of each is a black hole. However, a naturally occurring black hole, formed by the collapse of a dying star, does not by itself create a wormhole.

Through the wormhole

Science fictions are filled with tales of travell through wormholes. But the reality of such travel is more complicated, and not just because we've yet to spot one.

The first problem is size. Primordial wormholes are predicted to exist on microscopic levels, about 10^{-33} centimeters. However, as the universe expands, it is possible that some may have been stretched to larger sizes.

Another problem is stability. The predicted Einstein-Rosen wormholes would be useless for travel because they collapse quickly. But more recent research found that a wormhole containing "exotic" matter could stay open and unchanging for longer periods of time.

Exotic matter, which should not be confused with dark matter or antimatter, contains negative energy density and a large negative pressure. Such matter has only been seen in the behaviour of certain vacuum states as part of quantum field theory.

If a wormhole contained sufficient exotic matter, whether contained sufficient exotic matter, whether naturally occurring or artificially added, it could theoretically be used as a method of sending

information or travellers through space.

Wormholes may not only connect two separate regions within the universe, they could also connect two different universes similarly, and some scientists have conjectured that if one mouth of a wormhole is moved in a specific manner, it could allow for time travel. However, British cosmologist Stephen Hawking has argued that such use is not possible.

"A wormhole is not really a means of going back in time, it's a short cut, so that something that was far away is much closer," NASA's Eric Christian wrote.

Although adding exotic matter to a wormhole might stabilize it to the point that human passengers could travel safely through it, there is still the possibility that the addition of "regular" matter would be sufficient to destabilize the portal.

Today's technology is insufficient to enlarge or stabilize wormholes, even if they could be found. However, scientists continue to explore the concept as a method of space travel with the hope that technology will eventually be able to utilize them.

HARDIK UPADHYAY
TY BSC (Physics)

Making Chemistry Fun to Learn

Chemistry [...] is an art, it's music, it's a style of thinking
Orbitals are for mathematicians
Chemistry is for people who like to cook!

Alexander Shulgin (1925-)

The foremost challenge that confronts undergraduate Chemistry education in India is the gap between the high demands that learning requires and the low efforts that students put in partially due to the lack of motivation.

Chemistry is a fundamental subject that accounts for life at the molecular level. However, Chemistry education at undergraduate level in India faces the challenge that a most of the students opting for Chemistry are neither motivated nor interested in this subject. They do not plan to pursue a career in Chemistry. Hence, lack of incentives is a profound obstacle to learning. On the other hand, Chemistry contains a plentiful amount of abstract ideas, which requires important time and effort commitments from the students. The contrast between the low inputs and high demands results in unsatisfactory performance on the students' side and frustration on the teacher's side.

Although the inspiration enhancement in Chemistry career demands efforts at national level in terms of promoting science and technology, increasing job opportunities, improving salary dynamics *etc.*, a student's interest is another motive that is not justifiable from an economic perspective. Chemistry teachers may also improve students' learning by inspiring students' interest. The question is that "is Chemistry really interesting?" Ironically, the answer is only "yes" to a limited number of chemists but not to the public due to the perception of tedious teaching methods in chemical education. The goal of this article is to expose the fascinating side of Chemistry to our students and inspire their curiosity regardless of their career choices.

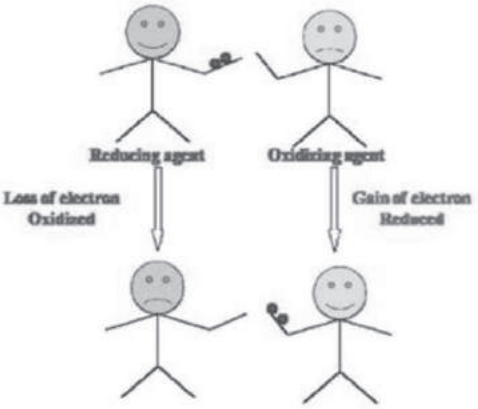
Student Friendly Presentation

Presentation is the heart of the teaching process. The finest way of getting students excited in Chemistry is by presenting it in a lively manner. Teachers may buttress the lectures with the combination of boards and audio-visual aids such as overhead transparencies, PowerPoint slides and videos, *etc.* that makes Chemistry more alive and real to the students as our millennium students are mostly visual learners due to the image-centric, visual world in which they are raised.

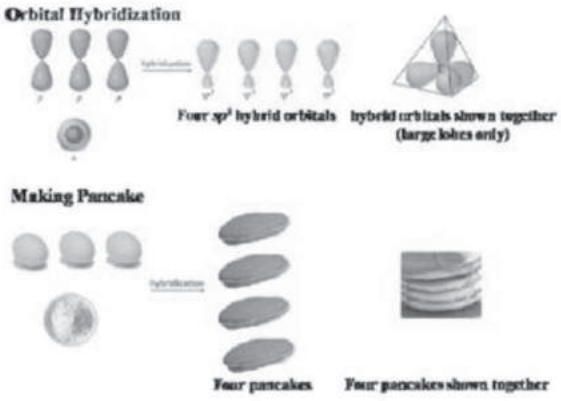
Illustrate with analogies

Even the most abstract concepts in Chemistry can be illustrated by examples or by analogies. It is beneficial to include as many analogues as possible to illustrate basic concepts in the lectures. It takes time to prepare but it is extremely rewarding. In this way, students can correlate sophisticated concepts in Chemistry with easy to comprehended analogies. Several examples are as under.

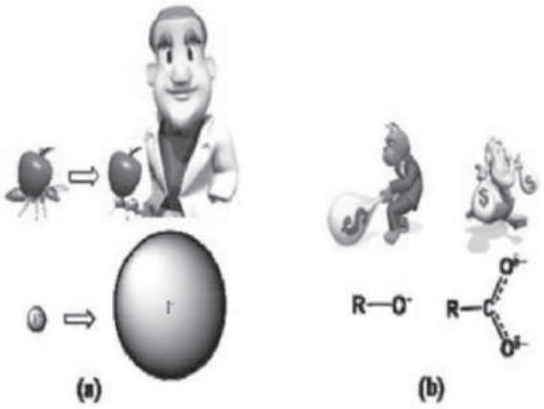
Electronegative atom



Redox Reaction



hybridization



Orbital

Electron delocalization

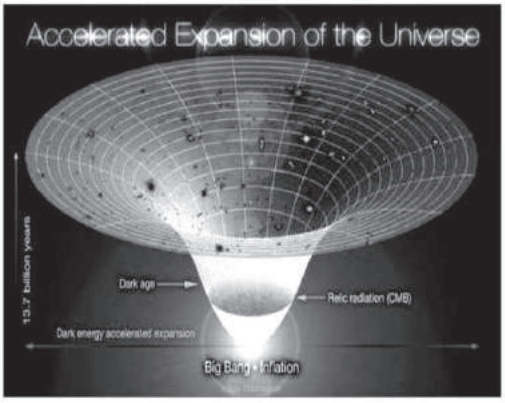
In nutshell, insufficient conceptual understanding is one of the common obstacles that college students taking Chemistry face. The lack of incentives and interest exacerbate this situation. However, an experienced teacher can make Chemistry vivid and understandable to attract the interests, which in turn leads to learning enhancement.

Prof. Vipul Kataria
Associate Professor
Chemistry Department

Accelerating Universe And Dark Energy

Many years ago, the discovery that the "expansion of universe is accelerating", put in the last major building block of present cosmological model in which the universe is composed of 5% visible matter, 25% dark matter and 70% dark energy. At the same time, it posed one of the most profound mysteries in all of science, with deep connections to both astrophysics and particle physics.

The universe has continued to expand since the "Big Bang" albeit at a slower rate since the period of inflation while at the same time the "gravity" of all the matter in the universe is working to slow down and eventually reverse the expansion. Two main possibilities therefore present themselves: either the universe contains Sufficient matter (known as the Critical Mass) for its gravity to reverse the expansion, causing the universe to collapse back to what has become, known as the "Big Crunch" a kind of mirror image of the initial Big Bang or it contains insufficient matter and it will go on expanding forever.



According to general relativity, the density parameter Omega which is defined as the average density of the universe divided by the critical density is related to the curvature of space. If Omega equals 1 then the curvature is zero and the universe is flat, if Omega is greater than 1, there is positive curvature then, indicating a closed spherical universe. If omega is less than 1, then there is negative curvature suggesting and open or saddle shaped universe.

The "cosmic inflation" model hypothesis and Omega of exactly 1. In that case it will continue expanding but gradually slowing down all the time, finally running out the steam only in the infinite future. For this to occur, though the universe must contain exactly the Critical Mass of matter, which current calculation suggest should be about 5 atoms per cubic meter ($=5X10^{-30}$ g/cm^3). The actual universe is on an average much emptier still, with around 0.2 atoms per cubic meter, taking into account visible stars and diffuse gas between galaxies. Even including dark matter in the calculations, all the metal in the universe both visible and dark, only amount to about a quarter of required Critical Mass, suggesting a continuously expanding universe.

However in 1998 two separate teams of astronomers observing distant type Ia supernovas (SNeIa) independently present evidence that the expansion of universe is speeding up. One team was led by the American Saul Perl mutter and the other by Australians Nick Suntzeff and Brian Schmidt. Three members of these two groups Saul Perlmutter, Brian P. Schmidt and Adam G Riess have subsequently been awarded Nobel prizes in physics for the discovery in the year 2011. The only thing that could be accelerating the expansion is space itself, suggesting that perhaps it is not empty after all but contains some strange "dark energy" or "antigravity" currently unknown to science. Thus even what appears to be a complete vacuum actually contains energy in some currently unknown way.

Incorporating dark energy in our model of the universe would neatly account for the missing three quarters of the universe required to cause the observed acceleration in the revised Big Bang Theory. Further corroboration of some kind of energy operating in the Apparent vacuum of space comes from the Casmir effect. This shows how smooth uncharged metallic plates can move due to energy fluctuations in vacuum of empty space and it is hypothesized that dark energy generated somehow by space itself maybe a similar of vacuum fluctuation.

Unfortunately like dark matter, we still do not know exactly what dark energy is, how it is generated or how it operates. It appears to produce some kind of a negative pressure which is distributed relatively homogeneously in space and thereby exerts a kind of cosmic repulsion on the universe driving the Galaxies even further apart. As the space between the Galaxies inexorably widens, the effects of dark energy appears to increase, suggesting that universe is likely to continue expanding forever, although it seems to have little or no influence, within the galaxies and clusters of Galaxies themselves, where gravity is Dominant force. Neither it is clear, weather the effects of dark energy are constant or changing over time, although research using data from the Hubble Space Telescope suggest that it was already at work, boosting the expansion of Universe as much as 9 billion years ago.

The strangeness of dark energy is thrilling. It shows scientists that there is a gap in our knowledge that needs to be filled, beckoning the way towards an unexplored Realm of Physics. We have before us the evidence that the Cosmos may be configured vastly differently than we imagine. Dark energy both signals that we still have a great deal to learn, and shows that we stand poised for another great leap in our understanding of the universe.

BHAKTIKA SONAGARA
SY BSc (Physics)

The Butterfly Effect

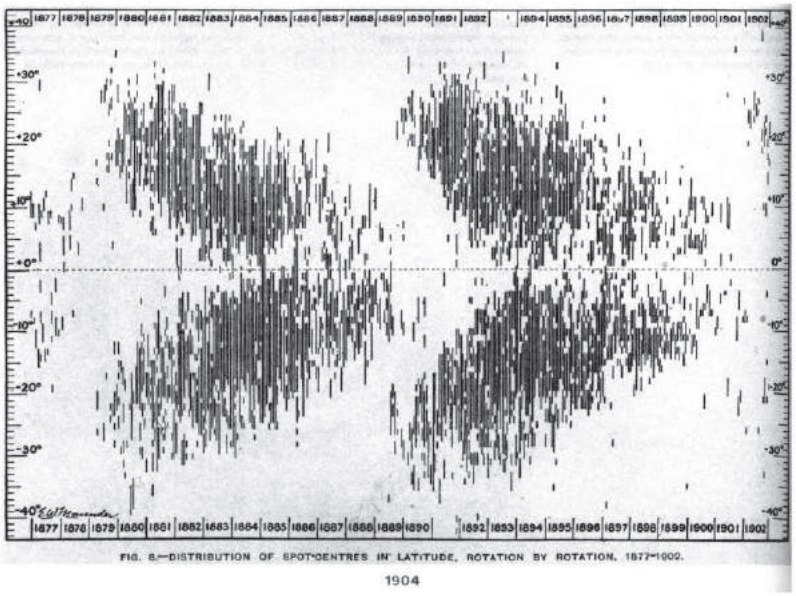


FIG. 8.—DISTRIBUTION OF SPOT-CENTRES IN LATITUDE, ROTATION BY ROTATION, 1877–1902.

1904

"It has been said that something as small as the flutter of a butterfly's wing can ultimately cause a typhoon Halfway around the world" this is a concept of Chaos Theory which is called "the butterfly effect".

The technical name for the butterfly effect is sensitive dependence on initial conditions. It was first proposed in meteorology but has an impressive array of implications in a variety of fields. In simple words the butterfly effect occurs when a very small event has exceedingly large and far reaching impact. The metaphor of butterfly is used because of butterflies wings fragile as they are, do not stir up much air as they flap but even that minute movement initiate a series of changes that grows such that they eventually cause a large storm thousands of miles away.

The butterfly effect was used initially to explain why weather forecasts were frequently inaccurate. It is all the more pleasing because the computer model that led to its discovery resembles a butterfly. In 1960s the meteorologist Edward Lorenz created a 12 dimensional weather model. It is a line that alternately spirals around the two adjacent ovals mapping out the chaotic solution to a set of interrelated equations. While doing computer experiments on this model one day he decided to run a particular time series for longer. In order to save time he restarted his code, from data from a precious printout. After returning from a coffee break he found that his weather had diverged sharply from that that of his earlier run. After some checks he could only conclude that the difference was caused by the difference in initial conditions, i.e. he had typed in only the first 3 of the 6 decimal digits, the computer work with internally. Apparently his assumption that the four digits would not be important was false.

Hence Lorenz discovered the effect by giving metaphorical example of details of hurricane being influenced by minor perturbations such as the flapping of the wings of a distant butterfly. And in 1972 Lawrence gave a talk at the 139th meeting of the American Association for the advancement of Science entitled "does the flap of butterflies Wings in Brazil set of a tornado in Texas"?

Andy Andrews ones give the quote; "A butterfly could flap its wings and set molecules of air in motion, which would move other molecules of air, eventually capable of starting a hurricane on the other side of the planet." This quote up to some extent justifies Lorenz's statement.

Rolling dice is the easiest example to understand this effect. The randomness of outcomes of throwing dice depends on this characteristic to amplify small differences in the initial condition- the precise direction, trust and orientation of the throw- into significantly different dice paths and outcomes, which makes it really impossible to throw dice exactly the same way twice.

Some other real life examples of this phenomenon are:

(1) The weather: small changes in weather effects larger patterns.

(2) The stock market: situations in one market can affect many.

(3) Biology: a small change in a virus in monkeys in Africa creates a thunderstorm of an effect on the human population around the world with the appearance of AIDS virus.

(4) Evolution: small changes in Chemistry of early Earth.

(5) Psychology: thought patterns and consciousness altered by small changes in brain Chemistry or small changes in physical environmental stimuli.

The way we choose to live, the way we react to a situation all has bearing on our future circumstances, and that of the world we live in. If this concept of Butterfly effect in enticing to you, you should just try to do best that you can and ensure that your actions and thoughts carry with them a good pure intention. We must always consider the possible consequences that our choices and actions can cause. Being aware of the impact of our actions will lead to better decision making. We must always ask ourselves - if I take this action what event are likely to develop? And - what kind of impact will this decision have on others and me now and in the future?

The butterfly effect affects our lives and our future. In essence, the butterfly effect portrays every decision we make and everything we do has a profound effect on everyone and everything around us. That's the butterfly effect at its best. And it all revolves around small decisions that we make every day.

BHAKTIKA SONAGARA

SY BSc (Physics)

Life of a Physicist: Stephen Hawking

When we talk of Stephen Hawking, we should know that, Stephen Hawking is regarded as one of the most brilliant theoretical physicists in history.

The British cosmologist Stephen Willion Hawking was born in England on Jan 8, 1942, 300 years after the death of the astronomer "Galileo Galilee". His father Frank (1905-1986) and mother Isabel Hawking (Nee Walker, 1915-2013). His mother was a Scottish. Despite their family's financial constraints, both parents attend the University of Oxford. Hawking had two younger sisters Philippa and Mary, and an adopted brother Edward.

Hawking began his schooling at the "Byron House School". Hawkins's father wanted his son to attend the well regarded Westminster school, but the 13 years old Hawking was ill on the day of scholarship examination. So he remained at St. Albans.

He began his education at University College – Oxford in October 1959 at the age of 17. His Physics tutor, Robert Berman said that it was only necessary for him to know that something could be done, and he could do it without looking to see how other people did it.

After the first class BA (HONS) in Natural Science. He began his graduate work at Trinity Hall, Cambridge in October 1962. In 1963 just at his 21st birthday, Hawking was diagnosed with "Motor Neuron Disease" more commonly known as "Lou Georg's Dieses"

In 1985, an emergency of two years caused his total loss of speech. A speech generating device constructed at Cambridge combined with software, serves as his electronic voice. Today, allowing Hawking to select his words by moving the mussed in his cheek. While Hawking working with fellow cosmologist Roger Penrose demonstrated that space and time began at the birth of the universe and end within black holes. Also determined that black holes emit radiation and proposed that the universe itself has no boundary much like earth.

Stephen Hawkins's first book "A Brief History of Time "published in 1988. Since then, Hawking has gone on to write other nonfiction book aimed at common person, include "A Briefer History of Time", "The Universe in a Nutshell", "The Grand Design" and "On the Shoulders of Giants".

Some notable awards he received by are Adams Prize (1966), FRS (1974), Edington Medal (1975), Maxwell Medal And Prize (1976), Heinemann Prize (1976) , Hughes Medal (1976) etc.

Bhoomi S. Shah

SY BSc (Physics)

Chemistry And Ice - Cream

The ice cream we all enjoy is the result of years of experimentation involving—you guessed it—*chemistry!*

Air is Important

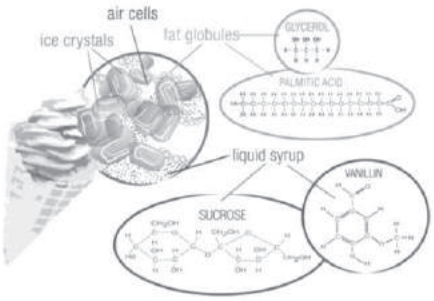
Why is air so important? If you have ever had a bowl of ice cream melt, and then refreeze it and try to eat it later, it probably does not taste very good. If you set a whole carton of ice cream on the table and let it melt, the volume of the ice cream would simply go down. **Air makes up around from 30% to 50% of the total volume of ice cream.**

Electro Freeze/H.C. Duke & Son, LLC

To get an idea of the effect of air on ice cream, think of whipped cream. If you whip air into cream, you get whipped cream. Whipped cream has a different texture and taste than plain cream. Plain cream tastes sweeter than whipped cream. Just like ice cream without air, pure cream has a sickly, overly sweet taste. This is because the structure of a substance can have a big effect on how it tastes, and that the structure often controls the rate at which flavor molecules are released into the mouth. The larger the structure (ice cream, in this case), the longer it takes for the flavor molecules to be released Flavor molecules that trigger receptors on the mouth and tongue.

The amount of air added to ice cream is known as overrun. If the volume of ice cream is doubled by adding air, then the overrun is 100%, which is the maximum allowable amount of air that can be added to commercial ice cream. The less expensive brands usually contain more air than the premium brands. One side effect of adding a lot of air to ice cream is that it tends to melt more quickly than ice cream with less air.

The amount of air also has a huge effect on the density of ice cream. A gallon (3.8 liters) of ice cream must weigh at least 4.5 pounds, making the minimum density 0.54 gram per milliliter. Better brands have higher densities—up to 0.9 grams per milliliter. The next time you visit a grocery store, compare cheaper and more expensive brands by holding a carton in each hand—you should be able to notice a difference. Then read the net weight on the label to confirm your observation. Due to the high fat content of ice cream, however, and because fat is less dense than water, any ice cream will always be less dense than any aqueous solution, otherwise you would not be able to make root beer floats!



Ice cream is an emulsion—a combination of two liquids that don't normally mix together. Instead, one of the liquids is dispersed throughout the other. In ice cream, liquid particles of fat—called fat globules—are spread throughout a mixture of water,

sugar, and ice, along with air bubbles. If you examine ice cream closely, you can see that the structure is porous. Figure 1. Some of the most common ingredients in ice cream include ice crystals, air, fat globules, sugar (sucrose), and flavoring agents (such as vanillin).

Sugar and Fat

Milk naturally contains lactose, or milk sugar, which is not very sweet. Ice cream makers need to add a lot more sugar than you probably realize—usually sucrose or glucose. Cold tends to numb the taste buds, making them less sensitive. So more sugar needs to be added to produce the desired effect at the low temperatures in which ice cream is usually served. If you taste ice cream at room temperature it will taste overly sweet. You may have noticed this same effect with carbonated soft drinks. If consumed warm, they taste sickly sweet. In parts of the world where soft drinks are normally consumed warm, there is less added sugar. If these same soft drinks are served cold, they would not taste sweet enough.

A big reason why ice cream tastes so good is because of its high fat content. Unless it is labeled as light, low-fat or non-fat, ice cream must contain at least 10% fat and this fat come from milk. Before milk is homogenized, a thick layer of cream rises to the top. This cream has a high fat concentration—up to 50%—and supplies most of the fat in ice cream.

Premium ice creams may have up to 20% fat, which gives it a velvety, rich texture. Reduced fat ice cream does not taste as good as the real thing, and tends to lack the creamy texture. Although fat is frequently vilified, it has its purpose. Most foods that taste delicious probably contain fat. Fat fills you up, so you don't have to eat as much to feel full.

The problem with using fat as an ingredient in any food is that it doesn't mix well with a lot of other substances. Fat is no polar, meaning positive and negative charges within the fat molecule are equally dispersed. A polar substance, such as water, has separate regions of positive and negative charge—one end of a polar molecule has a partial positive charge, and the other end has a partial negative charge. Polar and no polar substances do not mix. Just like oil floats to the top of water, the fat content in ice cream has a tendency to separate out, as well.

Brain Freeze

When ice cream touches the roof of your mouth, it may trigger a cold headache. The cause is a dilation of blood vessels in your head located above the roof of your mouth. When this nerve center gets cold, it seems to overreact and tries to heat your brain.

Keeping It All Together

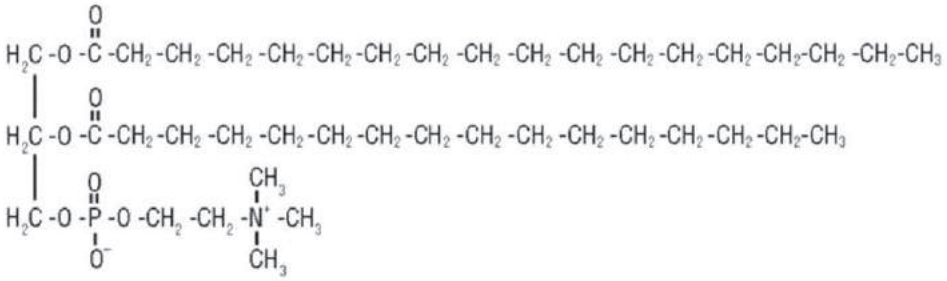
Because ice cream is an emulsion, you would expect that the fat droplets that are present in the mixture would separate after some time, similar to a bottle of salad dressing in which the oil separates from the rest of the dressing. When you shake up a bottle of salad dressing, the two parts come together. But after a few minutes, they begin to separate. That's because the oil droplets interact with one another, a process called coalescence.

In the case of milk, each fat droplet is coated with a layer of milk proteins that prevents the fat droplets from interacting with one another. These milk proteins act as "emulsifiers"— substances that stabilize

emulsions and allow the liquid droplets present in the emulsion to remain dispersed, instead of clumping together because these milk proteins have a no polar side, and because like dissolves like, the no polar sides of the proteins are attracted to the no polar fat globules. This is good in milk, but not so good in ice cream, in which the fat droplets would coalesce to trap air.

So another emulsifier is added to allow the fat droplets to coalesce. This emulsifier replaces milk proteins on the surface of the fat droplets, leading to a thinner membrane, which is more likely to coalesce during whipping. A common emulsifier is lecithin, found in egg yolks. Lecithin is a generic term that refers to a group of molecules that consist of long chains of fatty acids linked to a glycerol molecule, along with chlorine and a phosphate group (Fig. 2).

Figure 2. Chemical structure of a type of lecithin called phosphatidylcholine



Lecithin inserts itself between the fat globules, which helps the fat globules to clump together and, as a result, the air bubbles that are present in the mixture are trapped by this partially coalesced fat. This adds firmness and texture to the ice cream, enabling it to retain its shape.

Closely related to emulsifiers are stabilizers, which make the texture creamy. Stabilizers have two roles: First, they prevent large crystal formation. In the presence of stabilizers, ice cream contains small ice crystals that are easier to disperse and, therefore, they melt more slowly than larger ice crystals would. Second, emulsifiers act like a sponge by absorbing and then locking into place, any liquid in the ice cream.

Common stabilizers are proteins such as gelatin and egg whites. Guar gum, locust bean gum, and xanthan gum can also be used. **Look for carrageenan and sodium alginate on the ingredient label of your ice cream container**. Both are derived from seaweed! Without these stabilizers, ice cream might look like a milkshake.

Once you get all of the ingredients together in a mixture, you need to freeze the mixture to form ice cream. The dissolved solutes (mostly sugar) in the liquid portion of the mixture lower its freezing point. A freezing point depression of 1.86 °C occurs for every mole of solute added to 1 kilogram (kg) of water. In other words, if you dissolve one mole of sugar in 1 kg of water, water will no longer freeze at 0 °C, but rather will freeze at –1.86 °C.

Freezing point depression is a colligative property, meaning that the effect is observed regardless of the specific identity of the solute—all that matters is how many moles are dissolved. A typical batch of ice cream will freeze at -3 °C (27 °F), due to the presence of all the dissolved solutes.

A recent trend is ice cream made with liquid nitrogen. Liquid nitrogen, which boils at ---196 °C, will freeze ice cream almost instantly. Because the ice cream freezes so quickly, the size of the crystals is small, resulting in a creamy texture. And because it boils when it hits the mixture, the ice cream is aerated during the process. The popular Dipping' Dots are also made using liquid nitrogen. It is no exaggeration to say that ice cream made with liquid nitrogen is the coolest ice cream around!

JASMIN CHAUDHARY
SY BSc (Chemistry)

Did You Know?

The Discoverer of the neutron James Chadwick was a student of the discoverer of the proton Rutherford who was the student of the discoverer of electron J. J. Thomson

Chadwick

Rutherford

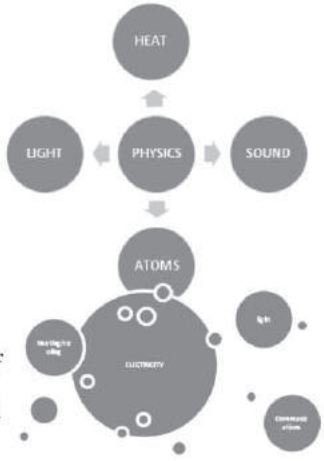
Thomson

Physics In Everyday Life

Physics is knowledge of nature present in our daily life. We can find Physics as a backbone for any daily life examples such as vehicle driving, use of electricity, cell phones, television, radio, etc. - the list goes on. In our everyday life, Physics plays a very important role from morning; Physics is very useful for us to provide us information to understand universe's nature. It is also useful to solve modern techniques problems; any sort of technology which is used by us in daily life is related to Physics.

Here are some examples of Physics in our daily life:

1. Televisions use electromagnetic waves to direct electrons on a screen to produce pictures.
2. A cell phone uses microwaves.
3. Our car is built on a mechanical principle.
4. Most modern homes use electricity to power appliances as generators or etc.
5. A refrigerator use thermodynamics principle.
6. All the means of transportation bicycle; car, aeroplane, etc. work on the principle of Physics.
7. Man has already reached on the moon with space-shuttles and built space-stations in universe to reach up to other planets.
8. The water flowing from the tap or also from any height, it follows the law of Physics.
9. The drama shown on the T.V. and programs recorded on V.C.R. for the sake of entertainment are also outcome of research of Physics.
10. Physics allows doctors to use ultrasounds and X-rays which can be crucial when finding a problem with a patient or also helping women give birth.



Physics has not only made progress in its own field but it also introduced few avenues of knowledge. X-ray, Ultrasonic, LASER, E.C.G., tools have brought revolutionary change in diagnostic techniques of medical science. The electrical signals are exchanged between the neurons which help to understand the stream of biology called neurology.

USE OF ELECTRICITY IN OUR DAILY LIFE:-

In modern days, Physics has been particularly crucial in development of new technologies. An increased understanding of concept of electromagnetism and nuclear Physics in 20th century, for instance has added the development of products that have transformed the way we live our lives.

Almost everything actually relates to Physics in same way or another but without it, we could not even know how fast the earth is moving.....

CHARMI CHAUHAN

TY BSc (Physics)

Matrix Optics

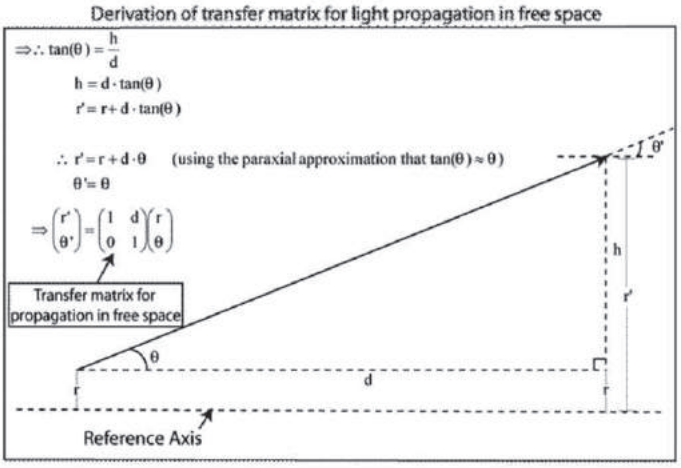
- Matrix optics is a technique for tracing paraxial rays. The rays are assumed to travel only within a single plane so that the formalism is applicable to systems with planar geometry and to meridional rays in circularly symmetric system.
- A ray is described by its position and its angle with respect to the optical axis.
- The most general linear transformation of a two-dimensional vector is 2x2 matrixes.
- The notation for the general paraxial case is given by,

$$\begin{bmatrix} y2 \\ y2 \end{bmatrix} = \begin{bmatrix} A & B \\ C & D \end{bmatrix} \begin{bmatrix} y1 \\ y1 \end{bmatrix}$$

(Notation for ABCD-matrix propagation of rays)

- The matrix representing the optical system is referred to as an "ABCD-matrix", "ray-optics" or "ray-transfer matrix".

Free space propagation



- The simplest cases in propagation in free space over a distance 'd'. The ray in a straight line so the angle does not change.

$$\therefore y^2 = y^1$$

By comparison to the matrix equation y'2=Cy1+Dy'1 , we can conclude that C=0 and D=1.

Since the slope is y'1 the position changes according to y2=y1+y'1d

By comparison to y2=Ay1+By'1, we can conclude that A=1 and B=d. thus the free-space matrix is simply,

$$M = \begin{bmatrix} 1 & d \\ 0 & 1 \end{bmatrix}$$

Note that this matrix still valid for propagation over a distance'd' within a refractive medium independent of 'n'. The rays still change height according to their angle.

JYOLIN A. KA.PATEL
SY BSc (Physics)

Magic of Mathematics: Topology

Topology is the modern version of geometry, the study of all different sort of space. In mathematics topology is concerned with property of space that is preserved under continuous deformations, stretching and bending, but not tearing or gluing.

We can simply express like circle is topologically equivalent to an ellipse.(we can deform it stretching)

- A sphere is equivalent to ellipsoid.
- Doughnut and coffee cup

Topology developed as a field of study out of geometry and set theory, through analysis of concepts such as space, dimension and transformation.

The "OBJECT" of topology also formally defined as topological space. Topological space means a set of points, along with a set of neighborhood for such point, satisfying a set of formula relating point and neighborhood. If two objects have same topological property, they are said to be homeomorphic.

Topology has to do with study of spatial objects such as curves, surface, the space we can say our universe, the space-time of general relativity, fractals, knots manifolds phase space that are encounter in Physics.

We can also refer as "The Mathematics of continuity", "Rubber sheet geometry" or "The theory of abstract topological space".

Vidhi P. Tripathi
SY BSc (Physics)

What are the Different Colors of Noise?

Colors are not just about what you see around us or what we paint. It is something that creates an activity or provokes a reaction sounds and colors are related.

In Physics, noise has been popularly defined as a disturbance, especially a random and persistent disturbance that obscures or reduces the clarity of a signal. Noise levels and frequency can be charted graphically using the various appropriate colors. The technique of spectral density is used for differentiating noises. This technique is popularly used in fields of electrical engineering and acoustics.

One of the basic noise model used for reflecting the colors of noise is known as Auto-regressive noise model. Colors of noise come in all shades of a rainbow. However, some popular colors of noise include white, pink, and red/ brown, blue, green, gray and black. Many physicists assume that there are noise signals with components at all frequencies with a spectral density per unit of sound bandwidth equal to $\frac{1}{f\beta}$

Different Colors of Noise:

(1) White Noise: The spectral density of white noise can be obtained by putting $\beta=0$ in formula which $\frac{1}{f\beta}$ creates a flat spectrum on frequency graph. The sound power of white noise is same at any level of frequency. It is most commonly created in scenes of chaos where it is impossible to perceive a single person's sound or voice. This technique of white noise is commonly used in alarm systems, amplifiers and electrical filters, tinnitus maskers or sound maskers, privacy and sleep enhancers, etc. White noise mechanism is used at times to induce concentration.

(2) Pink Noise: Pink noise is said to lie in between white and red noise. The power density of pink noise falls off at the level of 13 dB per octave or 1/f. For this reason, pink noise is often referred to as 1/f noise. The spectral density of pink noise can be obtained by putting $\beta=1$ in formula $\frac{1}{f\beta}$.

Every octave of pink noise contains an equal amount of energy and therefore it is popularly used in sound engineering techniques.

(3) Red Noise: Red Noise is also known as Brown Noise. It usually refers to power density that decreases with increasing frequency. The spectral density of red/ brown noise can be obtained by putting $\beta=2$ in formula

The frequencies generated during red noise are said to have a soothing effect and are therefore used to create a relaxing environment and to induce sleep.

(4) Blue Noise: The Power density of blue noise is said to rise at a rate of 3 dB per octave over a finite frequency range. Blue noise is considered ideal for dithering, which is an essential step in music recording. It is also said that retinal cells by nature are arranged in blue noise pattern. This creates a good visual resolution.

(5) Green Noise: With a long-term power spectrum, green noise is considered to the background noise of the whole world. It is soothing in nature and is considered ideal for creating meditative environment.

(6) Gray Noise: When a listener perceives the noise to be equally high at all frequencies, it is usually known as gray noise. In reality though, the frequencies of a gray noise make an inverted A-weighting curve.

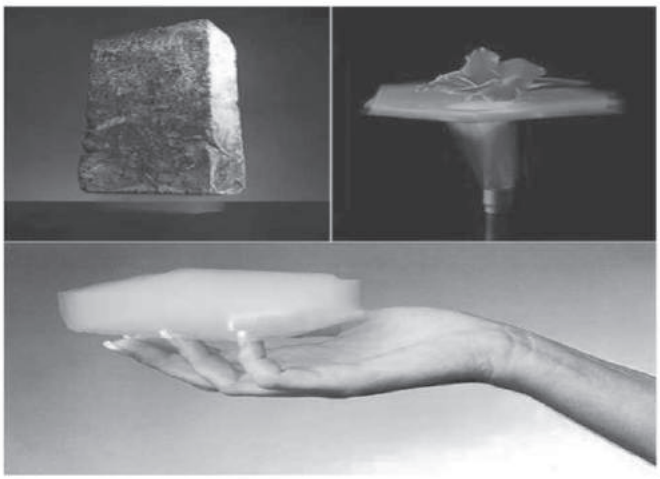
(7) Black Noise: Silence is often termed as black noise. The frequency spectrum of black noise is most of the time null, with an exception of some thin bands and spikes. Black noise has been commonly associated with natural calamities such as floods, earthquakes and droughts. Black noise can be denoted with a where $\beta>2$.

Colors of noise are a highly technical field that makes a co-relation in fields of sound and color.

Hiral Mistry
SY BSc (Physics)

Did You Know?

Aerogel, also known as frozen smoke, is the world's lowest density solid, clocking in at 96% air. If you hold a small piece in your hand, it's practically impossible to either see or feel it. It supports up to 4000 times its own weight and can withstand a direct blast from two pounds of dynamite. It's also the best insulator.



THE UNIVERSE

Universe is about all the existing matter and space considered as a whole, the cosmos. The Universe is believed to be at least 10 billion light years in diameter and contains a vast number of galaxies. It has been expanding since its creation, in the **'Big Bang Theory'.** It is a prevailing cosmological model describing the development of Universe, Stars that space and time where created in a Big Bang, and were given a fixed amount of energy and matter that becomes less dense as space expands.

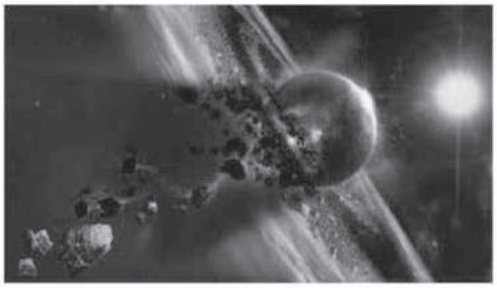
The Universe can be defined as **"An area of space or a world that is similar to, but separated from the one that we live in"**. The Universe is all of space, and everything including stars, planets, galaxies, etc.

The earliest scientific model of Universe where developed by ancient Greek and Indian philosophers were geocentric, placing the earth at the center of the Universe. Further observational improvements lead to the realization that our solar system is located in the **"Milky Way"** galaxy and is one of the many solar system and appears to exist in an unknown form called **Dark Matter**.

Dark Matter is an unidentified type of matter different from dark energy, baryonic matter (ordinary matter) and neutrinos. It comprises approximately 27 % of the mass and energy in the observable Universe. The energy is known as **Dark Energy**. And it affects the **"Universe's Expansion"**. Roughly 68 % of the Universe is dark energy. One thing that we should know is, dark matter is not antimatter because we cannot see the unique gamma rays that are produced when antimatter annihilated with matter.

Do You Know?! ! ...

- Astronauts say that space smells like hot metal welding fumes and seared steak.
- 33 light years from us, there is an exoplanet which is completely covered in burning ice.
- There is a massive cloud of alcohol more than 463,000,000,000 km. across with which we can have 400 trillion pints of beer. But the massive cloud of alcohol is 10,000 light years away from us.
- You can't cry in space, because your tears won't ever fall.
- In universe 275 million new stars are born every day, according to estimates of astronomers.
- The time taken by solar system to rotate around the Milky Way is 225 million years.
- When water boils in space, it would produce one giant undulating bubble, which is due to lack of buoyancy and convection.



- Astronauts say that Moon dust smells like gun powder and it is extremely soft.
- The most complex object in the universe is human brain, with a billion neurons and quadrillion connections.
- In 1977, we received a signal from deep space that lasted 72 seconds. We still don't know how or where it came from.
- NASA scientists have discovered stars that are cold enough to touch.
- If you are in total darkness for more than 3 days you can become permanently blind.
- The age of universe is measured to be 13.799 0.021 billion years.

There are many unknown facts about it that still we don't know, even scientist don't know.

In short, the universe is all of space time, matter and energy that exist. Universe is not just space, but space is just the framework or the scaffolding in which the universe exists. Space and time are intimately connected in a four- dimensional fabric called space time.

Bhoomi S. Shah
SY BSc (Physics)

- *Each life is made up of mistake and learning, waiting and growing. Practicing patience and being persistent*
  -Billy Graham

Antimatter

Antimatter is the material composed of antiparticles, which have the same mass as particle of ordinary matter but opposites such as lepton and baryon number and quantum spin.

For every particle, there can be an antiparticle. Antimatter consists of such antimatter that is, subatomic particles that have the same mass as the particle that exist in the ordinary matter, but have equal and opposite electric charge. In simple terms, antimatter is something like a mirror image of the matter. An example is the positron, the antiparticle of the electron. The positron has the same mass as the electron, but a positive charge that is equal to the negative charge of the electron. In the same way, the antiproton has a negative charge that is equal to the positive charge of the proton. If you could change somehow observe this, you would not be able to tell whether it is proton or antiproton. The neutron and antineutron, which do not have an electrical charge, differ in strength of their magnetic field.

The existence of antiparticle was predicted by the British physicist Paul Dirac in 1931. The first antiparticle to be discovered was the positron whose existence was demonstrated in 1933. Learning of the positron discovery, Paul Dirac went on to predict that there must also be an antiproton. It was not until 1955 that the antiproton was produced in a particle accelerator. It is possible to picture a world consisting of only antimatter. In this world, there would be anti-hydrogen, with a positron orbiting the antiproton of the atom's nucleus. As far as astronomer can tell, our universe appears to consist entirely of the matter rather than antimatter. Matter and antimatter annihilate each other when they meet and according to $E=mc^2$, release vast amount of energy, equivalent to thousands of nuclear bomb's output. It is believed that both matter and antimatter were created in almost equal amount soon after the big bang, but matter enjoyed a very slight edge. There were a billion antimatter particles. For every billion particle -antiparticle pairs mutually annihilate a single up dominating the universe.

Since it is conceivable that whole mirror worlds of antimatter could exist, it would vitally important to know whether a visitor from outer space came from a world of matter or antimatter before shaking his hand.

Jay Halvadiya
FY BSc

CV RAMAN

Sir Chandrasekhar Venkata Raman who was formally known as CV Raman was a great Indian scientist and the first Indian to win the Nobel Prize for Physics. He was born on 7th November, 1888 in a Hindu family living in Thiruchirappalli, Madras. His Father's Name was R. Chandrasekhar Iyer and He was a school teacher. His Mother's Name was Parvati Amma.

Sir CV Raman studied at St. Aloysius Anglo Indian High School at Vishakhapatnam. He passed matriculation at the age of 11, which referred extraordinary qualities of CV Raman. In 1902 he joined Madras Presidency College from where he got his BA degree in Physics in 1904 with gold medal. In 1907 he got his MA degree. After that he appeared for The Financial Civil Services (FCS) and joined Indian Financial Department as an Assistant Accountant General. At same time in 1907 he married Lokasundari Ammal and had two sons Chandrasekhar and Radhakrishnan. He was deeply interested in science so that at the same time he started to conduct research at the Indian association for cultivation of science, in the field of vibration and acoustics.

In 1917 he resigned from government post as he got an opportunity to join the University of Calcutta as the first Professor of Physics. In 1919 he was appointed as honorary secretary of the Indian Association for the Cultivation of Science until 1933. This time was a golden era for Raman.

During 1920s he started experiments on the scattering of light by observing the behaviour of light which penetrates the transparent material and falls on a spectroscope which is known as RAMAN EFFECT or RAMAN SCATTERING, for this he got the Nobel Prize in Physics in 1930.

In 1933 he became the first Indian Director of Indian Institute of Science, Bangalore and served till 1937. After that he continued as Head of Physics department till 1948. In 1948 he established the Raman Research institute in Bangalore for conducting research in different area of Physics. In 1954 he was awarded as BHARAT RATNA, India's highest civilian award.

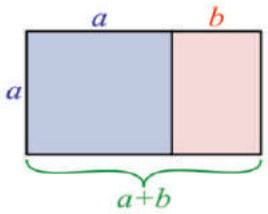
At the age of 82, he died on 21st November, 1970 by natural causes. At the end of his life he told one of his former students that:

"Do not allow the journals of the academy to die, for they are sensitive indicators of the quality of science being done in the country and whether science is taking root in it or not"

Karan Bhoraniya
TY BSc (Physics)

Golden Ratio And Its Application

The Golden Ratio (symbol is the Greek letter "Phi") is a special number approximately equal to 1.618.Michel Maestlin, first to publish a decimal approximation of the Golden Ratio, in 1597.



Line segments in the golden ratio:

A golden rectangle with longer side a & shorter side b, when placed adjacent to a square with sides of length a, will produce a similar golden rectangle with longer side a+b & shorter side a, this illustrates the relationship,

$(a+b)/a = \Phi$

In Mathematics, two quantities are in the golden ratio if their ratio is the same as the ratio of their sum to the larger of the two quantities.

$\Phi = (1+\sqrt{5})/2 = 1.6180339887...$

Where Φ (Greek latter phi) represents the golden ratio .The golden ratio is also called the golden section or golden mean. Other names include extreme & mean ratio, medial section, divine proportion, divine section, golden proportion, golden cut and golden number.

Calculation:

Binary: 1.1001111000110111011...

Decimal: 1.6180339887498948482...

Hexadecimal: 1.9E3779B97F4A7C15F39

Algebraic form: $(1+\sqrt{5})/2$

Infinite series:

$13/8 + \sum(-1)^{(n+1)}(2n+1)!$

$(N+2)!\,N!\,4^{(2n+3)}$

One method for finding the value of Φ by substituting

$b/a = 1/\Phi$

Now, $(a+b)/a = 1+b/a = 1+1/\Phi$

Therefore, $1+1/\Phi = \Phi$

Multiplying by Φ gives,

$\Phi + 1 = \Phi^2$

$\Phi^2 - \Phi - 1 = 0$

By solving above eqn. we get two solutions,

$\Phi = (1+\sqrt{5})/2 = 1.6180339887...$ and

$\Phi = (1-\sqrt{5})/2 = 1.6180339887...$

Since Φ is ratio between Positive quantities,

Φ is necessarily positive.

Therefore, $\Phi = (1+\sqrt{5})/2 = 1.6180339887$

Application of Golden Ratio

Phi is a number that has been discovered in many places, such as art, architectures, humans, and plants. It may hold the key to understanding perfection.

The golden section in architecture:

Golden section appears in many of the proportions of the Parthenon in Greece. Golden section can be found in the design of Notre Dame in Paris. Golden section continues to be used today in modern architecture like United Nations Headquarters, Secretariat building.

The golden section in music:

Stradivari used the golden section to place the f-holes in his famous violins. Baggins used the golden section to construct the contour and arch of violins. Mozart used the golden section when composing music Divided sonatas according to the golden section. Exposition consisted of 38 measures. Development and recapitulation consisted of 62 measures. It is a perfect division according to the golden section.

The golden ratio in human body:

All parts of the human body are proportional to this number. In fact, if your face is symmetric and follows this ratio, you are often said to be of exquisite beauty.

A golden rectangle is simply a rectangle with dimensions that reflect the Golden Ratio.

Leonardo Da Vinci is known for his artistic representation using aspects of the Golden Ratio.

The golden ratio in DNA:

One 360 degree turns of DNA Measures 34 angstrom in the direction of the axis. The width of the molecule is 21 angstrom, to the nearest angstrom. These length 34:21, are in the ratio of the Golden mean.

The Golden Ratio is also a logarithmic spiral. For every 90 degree turn, the radius of the spiral grows by a factor of the phi.

In addition to, the number of petals on the flower is often of the Fibonacci numbers: 3, 5, 8,13,21,34 or 55.Also to natural patterns found here on earth, the spiral pattern of the golden ratio can also be seen in the pattern of our galaxy.

Sanskruti Solanki

TY BSc (Mathematics)

Chemistry Is Everywhere And We Are Using It Everyday

Chemistry plays a big part of your everyday life. You find chemistry in daily life in the foods you eat, the air you breathe, cleaning chemicals, your emotions and literally every object you can see or touch. You know cleaning supplies are chemical but chemistry in daily life extends to everything you can touch or taste. Your body is made up of chemical compounds, which are combinations of elements. While you probably know your body is mostly water, which is hydrogen and oxygen

Chemistry is present in every aspect of life, and here you can see a few examples. There are examples about the chemistry of everyday life, and also a few about physics, as it's also present in our daily life. The emotions that you feel are a result of chemical messengers, primarily neurotransmitters. Love, jealousy, envy, infatuation and infidelity all share a basis in chemistry.

When you feel love and other emotions, you are feeling the effects of neurotransmitters and other chemicals.

When you cut an onion, you break cells, releasing their contents. Amino acid sulfoxides form sulfuric acids. Enzymes that were kept separate now are free to mix with the sulfuric acids to produce propanethiol S-oxide, a volatile sulfur compound that wafts upward toward your eyes. This gas reacts with the water in your tears to form sulfuric acid. The sulfuric acid burns, stimulating your eyes to release more tears to wash the irritant away

Soaps are sodium or potassium fatty acids salts, produced from the hydrolysis of fats in a chemical reaction called saponification. Each soap molecule has a long hydrocarbon chain, sometimes called its 'tail', with a carboxylate 'head'. 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. This means that while oil (which

attracts dirt) doesn't naturally mix with water, soap can suspend oil/dirt in such a way that it can be removed.

Sunscreen combines organic and inorganic chemicals to filter the light from the sun so that less of it reaches the deeper layers of your skin. Like a screen door, some light penetrates, but not as much as if the door wasn't present. Sun block, on the other hand, reflects or scatters the light away so that it doesn't reach the skin at all.

The reflective particles in sun blocks usually consist of zinc oxide or titanium oxide. In the past, you could tell who was using a sun block just by looking, because the sun block white out the skin. Not all modern sun blocks are visible because the oxide particles are smaller, though you can still find the traditional white zinc oxide. Sunscreens usually include sun blocks as part of their active ingredients.

They are only few examples. We cannot mention chemistry in few words. It is a very wide and beautiful field.

Vinayak T Parwani
TY BSc (Chemistry)

The best way to cheer yourself up is to try to cheer somebody else up
-Mark Twain

Applications of Radioactivity

Introduction

Radioactivity is the phenomenon of spontaneous disintegration, attended with emission of electromagnetic radiations, of heavy atomic nuclei like uranium, radium etc. It is a nuclear property of the active element. The discovery of radium was a great event, as it was found to be about a million times more radioactive than uranium. This power of radium radiation made it possible to study radioactivity systematically.

APPLICATIONS

There are many fields like medical, industries, research and many more where radioactive elements are widely used. Here are few examples.

Cancer Treatment

α- radiation is used to treat various forms of cancer. This process, called unsealed source radiotherapy, involves inserting tiny amounts of radium-226 into cancerous organs. The α-particles destroy cancer cells but lack the penetrating ability to damage the surrounding healthy cells.

Static Eliminator

α-radiation from polonium-210 is used to eliminate static electricity in industrial applications. The positive charge of the α- particles attracts free electrons, thus reducing the potential for local static electricity. This process is common in paper mills, for example. Smoke particles disrupt this current, triggering an alarm.

Pacemaker battery

α-radiation is used as an energy source to power heart pacemakers. Plutonium-238 is used as the fuel source for such batteries; with a half -life of 88 years, this source of power provides a long lifespan for pacemakers.

Industrial traces – Finding leaks and blockages

A leak or blockage in a pipe may be difficult to find, particularly if the pipe is buried underground. Substances that emit gamma radiation are often used as tracers because the radiation easily passes through many substances.

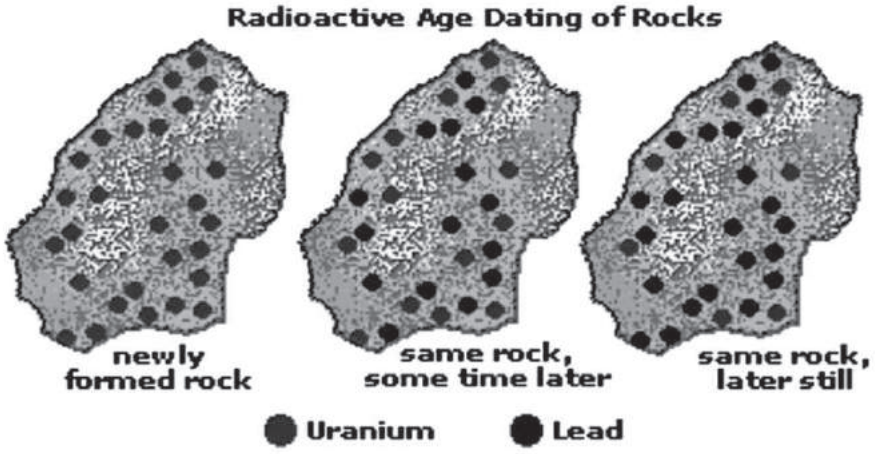
To find a leak or blockage, the radioactive material is put into one end of the pipe. A radiation detector outside the pipe or above ground is used to track its progress through the pipe. The leak or blockage is discovered by finding where amount of radiation detected decreases.

Dating rocks

Radioactivity can be used to date rocks. Rocks often contain traces of uranium. This is unstable and eventually decays to lead, which is stable. The age of a rock can be calculated if its ratio of uranium to lead is known. The older the rock, the lower its uranium to lead ratio: young rocks have high uranium to lead ratio. Very old rocks have low uranium to lead ratio. The table shows how this works.

Time	Percent of uranium	Percent of lead	Uranium: lead ratio
0	100	0	1:0
After 1 half-life	50	50	1:1
After 2 half-life	25	75	1:3
After 3 half-life	12.5	87.5	1:7

The half-life of uranium is 4.46 billion years. If a rock has uranium to lead ratio of 1:1, one half-life must have passed since it formed. This would make it 4.46 billion years old.

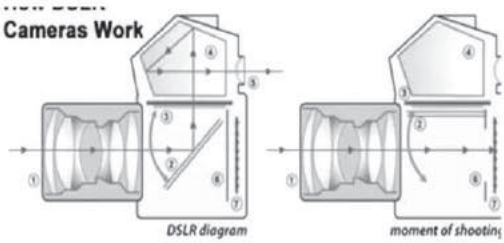


"Physicists always publish their result completely. It our discovery has a commercial future that is an accident from which we must not profit. And if radium is to be used in the treatment of disease, it seems to me impossible for us to take advantage of that".

- Marie Curie

Hardik Upadhyay,
TY BSc (Physics)

Science Behind The Camera And Image...

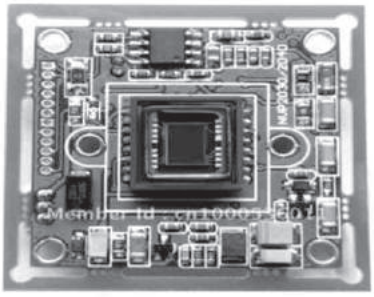


We all want capture best moment of our life in Camera. But have you ever thought how camera is working...? How the image is form ...? What is science behind the image and camera?

Camera contain 7 parts

First light come to the lens which is front of the camera. Then light goes to the Aperture. An aperture is referred to the lens diagram opening inside a photographic lens. As the size of diagram opening in a camera lens regulate amount of light pass through on to the Mirror inside the camera. Smaller the aperture more light come through lens.

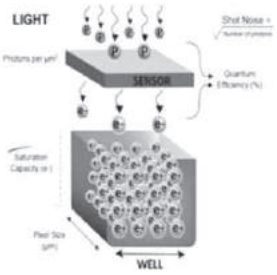
Now as light come to Aperture then it reflected by Mirror inside the camera. Then light goes to the Penta Prism again light Reflected and we can see the Object or Image by Eyepiece.



Now what happens when we click the capture button?

As we click the button the shutter will open and Mirror allow the light to the Image Sensor (CCD and CMOS) Here the image is generate. Slow speed of shutter allows more light come to the sensor and fast shutter help to freeze the moment.

Our image is generating in the CCD and CMOS sensors. As the basic science student knows that light are photons and photons have Energy of about 1.6 eV to 3.6 eV. CCD and CMOS are made from the silicon semiconductor which having 4 electron from valence shell so to break The bond we add doping material like Ph and Bo. Bo having 3 electrons so it create hole and Ph having 5 electrons so it having 1 electron extra electron so when this two are in contact electron will diffract to fill the hole. As the light (photons) hits the electron are feed and capture in nearest potential well collected electron are then sent to the image processor to be used to generate PIXEL.



PIXEL is a "the smallest controllable element of a picture represented on the screen"

Every photon has different intensity so according to the intensity different-different color will generate. 1 pixel can produce 16,77,7216 color pixel has height of about 8.84 Micron and width 11.79 Micron Resolution is depend on the pixel, small size of pixel means more Resolution means more detail ABOUT IMAGE

Image that is 2048×1536 has a total of 3,145,728 pixel or as we say 3.1 megapixel. This is the science behind the camera and image.

Dipen Panchal

TY BSc (Physics)

Importance of Sports Especially Basketball

A healthy nation is always a wealthy nation; therefore it is necessary to put emphasis on sports.

History shows that young men who excelled in the field of sports could prove their worth in the battlefield as valiant soldiers in later life and get the laurels of victory. Sports in life encourages people gives them confidence. It also builds attitude, discipline etc.

Necessity of sports: - Sports has a great utility

Sports are the source of recreation. They provide relief and a sense of relaxation in a life of monotonous routine marked by miseries, hardships and hurdles. They infuse a sportive spirit to take up the heavy burden of life in a lighter way and not to think of life either as a tragedy or a comedy but as an ordinary living. It is very essential to maintain health and physical fitness. It encourages the growth of team spirit.

Sports and games bring about various methods of diversions.

It is argued that sports are felt to be so great in life that there is ample justification for them to be introduced in the schools compulsorily. Sports and games impart a sense of discipline, fellow-feeling and togetherness. They teach the value of time and how it is important to note how a minute, a fraction of a minute and even of seconds decides the fate of a young sportsman in the field of competition. Sports and games are the right avenues to channelize the energy and vitality of students and make their leisure hours worthwhile.

Sports include games which can be played indoor as well as outdoor. Basketball is such a game which can be played indoor as well as outdoor. It helps to maintain physical benefits, weight control, stress relief, social benefits, burns calories, develops concentration and self-discipline etc.

However, the intense fast-paced action of a typical basketball game simultaneously develops speed, hand-eye co-ordination and cardiovascular endurance. If you play a casual game with others, the camaraderie and competition will be a welcome distraction from your daily stress.

Running, jumping and quick lateral movements done in basketball provide a significant amount of aerobic exercise and can burn a great deal of calories. Keep moving and you'll keep your heart rate up. Building endurance can help keeping your heart healthy, reducing the risk of heart disease and stroke in later life. Free throw shooting and jump shooting are particularly helpful for training hand-eye co-ordination. Rebounding missed shots is another skill that requires a great degree of full body co-ordination. Dribbling requires a finer degree of co-ordination of hand-eye contact.

There are many lessons which are learned :

Learn and master the fundamentals of the game. In life, one must also learn the basics. One must establish what life is, what it means.

Be prepared both mentally and physically. Being prepared mentally and physically is equally essential in life.

Be unselfish and a team player. In life contribute, co-operate and share.

Be alert and aware. Anticipate the play. Being conscious and aware in life sets the stage for achievements.

If the plays aren't working, re-adjust the game plan. Life presents us with many challenges for which we must adjust our game plan.

Win more game than you lose, but accept both victory and defeat graciously. Everything will not always go your way. There will be both losses and wins. If you give everything your best shot and learn the lessons along the way, you will come out as a winner.

SAGGU SIMRANJEETSINGH
FYBSc

Magazine Club

Result of Article Writing Competition

The College Magazine organized an Article Writing Competition. The winners results of the competition are as under :

Sr No.	Name of The Student	Position	Subject	Class
1	Bhaktika Manubhai Sonagara	First	Physics	SYBSc
2	Bhoomi Sunilbhai Shah	Second	Physics	SYBSc
3	Sanskriti Solanki	First	Maths	TYBSc
4	Jasmin A Chaudhary	First	Chemistry	SYBSc

Dr A R Jivani
Ex-Officio
Magazine Committee

Cashless Society

One of the recent trends to solve the nuisance going in our country like black money, terrorism, counterfeit currency and criminal activities is making cash less society, in the sense towards and implications of a society where cash is replaced by its digital equivalent - in other words, legal tender (money) exists, is recorded, and is exchanged only in electronic digital form.

A **cashless society** reveals an economic state whereby financial transactions are not conducted with money in the form of physical banknotes or coins, but instead through the transfer of digital information (usually an electronic representation of money) between the transacting parties. Cashless societies have existed, based on barter and other methods of exchange, and cashless transactions have also become possible using digital currencies such as bit coins.

Such a concept has been discussed widely, particularly because the world is experiencing a rapid and increasing use of digital methods of recording, managing, and exchanging money in commerce, investment and daily life in many parts of the world, and transactions which would historically have been undertaken with cash are often now undertaken electronically. Some countries now set limits on transactions and transaction values for which non-electronic payment may be legally used.

The trend towards use of cashless transactions and settlement began in daily life during the 1990s, when electronic banking became popular. By the 2010s digital payment methods were widespread in many countries, with examples including intermediaries such as Paytm digital wallet systems operated by companies like Apple, contactless and NFC payments by electronic card or Smartphone, and electronic bills and banking, all in widespread use. By the 2010s cash had become actively disfavored in some kinds of transaction which would historically have been very ordinary to pay with physical tender, and larger cash amounts were in some situations treated with suspicion, due to its versatility and ease of use in money laundering and financing of terrorism, and actively prohibited by some suppliers and retailers, to the point of coining the expression of a "war on cash". By 2016 in the UK it is now reported that 1 in 7 people no longer carries cash.

Narendra Modi, Prime Minister of India, has an economic firestorm on his hands following his decision to ban the 500 and 1,000 rupee notes. The ban has remove 80 percent of the country's currency from circulation and brought commerce to a virtual standstill. This decision gradually moves us from less-cash society to cashless society cash.

There are certain benefits of cashless society which are stated as follow:

1. No hassle to carry cash
2. They are taxable and encourage people to transact legally and pay taxes.
3. Less need to print paper currency and replace it so reducing its cost.

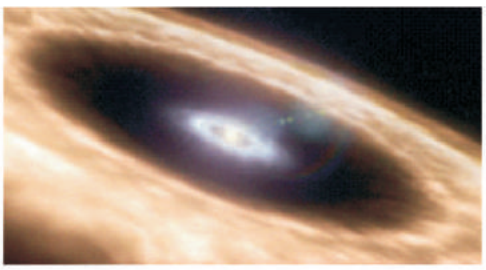
"Our dream is that there should be cashless society. This is correct that 100% cashless society is never possible. But we can make a start with less-cash society - then cashless society will not be a far-off destination."

NITESH PATEL
TYBSc (Industrial Chemistry)

The Birth, Life and Death of Stars

Stars emit radiation in entire electromagnetic spectrum. The details of their formation process, coupled to the formation of protoplanetary discs, but also their evolution and their (sometimes most energetic) death still present some of the most interesting puzzles in astrophysics. The E-ELT is the key facility to answering many of these open fundamental questions.

Star formation and the conditions for the formation of planetary systems:



The formation of a star follows a complicated route. The earliest phases of this process, during which protostellar discs start to emerge from molecular clouds, is often thought to be in the realm of longer wavelength (sub millimeter, millimeter, radio) facilities, due to their ability to peer into heavily dust-obscured regions. While this is partly true for present day optical/near-infrared telescopes, the E-ELT, with its gain in sensitivity and, in particular, in angular resolution, will be a major player in protostellar/protoplanetary disc research, even in their early stages.

At mid-infrared wavelengths, the spatial resolution limit of the E-ELT represents, at the distance of the closest star-forming regions (located about 150 parsecs away), a few astronomical units (AU), i.e. a few times the mean Sun–Earth distance. Thus, the E-ELT will be able to probe the innermost regions of the protoplanetary discs, and study where rocky planets form. The closest high-mass star formation regions are a few thousand parsecs away. At this distance, the E-ELT resolution can probe the very inner regions (tens of AU) of the surrounding accretion discs, allowing us to study in great detail the formation of these stars which dominate the energy budget of the interstellar.

The E-ELT will allow a close look at how a star forms and to make decisive progress in the study of the pre-main-sequence phases of star formation.

The path taken by a star through its lifecycle varies greatly with its mass. Mass determines not only a star's lifetime and evolution but also its final fate. Understanding the evolution of stars is critical to our understanding of the evolution of the Universe: the continuous recycling process of matter, the energetic processes shaping the interstellar medium, the feedback processes in the evolution of galaxies, and the overall chemical enrichment history of the Universe, all the way to the chemistry enabling life.

High resolution spectroscopy from the optical to the infrared with the E-ELT will allow unprecedented progress in this field. The E-ELT will allow us to perform nuclear dating ("nucleocosmochronometry") on individual stars with ages between 1 and 12 billion years. Current facilities are limited in their collecting power and have performed this measurement on only a handful of stars. The E-ELT will allow measurements of elements such as 232Th (mean life-time 20.3 billion years) and 238U (mean lifetime 6.5 billion years) and their ratios to other elements in hundreds of stars in different regions.

SIDDHARTH PATEL

TY BSc (Industrial Chemistry)

The Role of Youth in Nation Building

The youth of a country have a significant impact on nation's growth. The youth are the period between childhood and adults. This group changes every few decades, as the youth of a nation grow up and replace the previous generation with new leadership.

The vision of our country lies in the hands of our youths. They are filled with tremendous and towering ambitions. It will be a great wastage of human resources if these youths are not given an opportunity to exercise their talent. This beautiful land needs these youth so that our soil becomes a brighter one.

The primary role of young people is to get a good education in order to become better citizens of tomorrow. They need to learn skills to do the job that their country's economy needs. They also need to know how to read, write, think, understand, analyze and discuss the issues which their country faces. The entire success of the nation depends on the youth. However, in order for continuous success to take place; it is the government's responsibility to provide the youth with proper facilities for getting equipped with the knowledge of the modern era.

It is the age of discovery and dreams. They have the power to transform the nation into a better place. They also have the ability to lead their follow citizens into the right direction. Youths are fighters. They fight for an identity in society, equality, the homeless, bullying, unemployment, exploitation, poverty and other problems which the world faces today.

Illiteracy is a major problem around the world. About ninety percent of the people who reside in the villages are illiterate. The reason is their utter ignorance and lack of initiative to lead them in a right direction.

The role of the youth is the most important in today's time. They have underplayed themselves in the field of politics. Youths are strong forces in social movements. Our nation needs them to resolve most of our problems. The nation is facing a lot of problems, and I believe that the youths are capable of solving them. They just need to be given a chance to prove themselves.

Youth have the power to unite individuals in the six ethnic groups. Racism is an ongoing issue around the world. Individuals are fighting against each other because of the complexion of their skin and the texture of their hair. Religion is another issue, the youths can convince their fellow men to live in peace and love. All of us are one and we should not allow these little differences to push us away from each other.

The wise youths that we have out there should be taken into consideration. Some of them, though educated are unemployed. They should be given an opportunity to use their intelligence and transform lives. Some organizations and firms should assist the youths; so they can make our land a great and educated one. They will make a huge difference in society and the entire world.

They will make our country proud. The country will be recognized. The youths just need the support from their fellow citizens and they will perform their duties.

In conclusion, the role of the youth in the nation building is crucial. However, they will not be able to do

this without the support of their government and fellow youths. So the youth can make their beautiful land flourish and shine in success.

VRUTIKA JIKESH PATEL
FY BSc

The Importance Of Music

"Music helps the mind develop and grow", my dad often says, and I have found this to be very true. It is a proven fact that participating in a music program will help develop your brain to a higher level and faster than others. Music actually improves the communication between the right and left sides of the brain, allowing you to gain better comprehension and memorization skills.

So, why do we need music in our lives? Well, because music is everything.

- Music is science. It is exact and demands acoustics. The conductor's score is a graph that contains volume changes, melody and harmony, all the while keeping the group at a constant pace.
- Music is math. It is based on the rhythmic subdivisions of time, done in a split second.
- Music is history. The music you hear or play is usually an indication of time and environment in which it was created. It requires an immense amount of coordination of finger, hands, arms, lips, cheeks and facial muscles. Not to mention the control of your diaphragm, back, stomach and chest muscles to make sure every note comes out clearly and in pitch.
- Music is a foreign language. It terms used are usually Italian and the music is not in any language known to man. It is its own language and uses symbols to represent ideas.
- Music is the universal language that everyone understands and can relate to. Music is what brings everything together. It is something that everyone knows.
- Most of all, music is art. It is the greatest form of art that allows a human to take boring notes on a page, and transform them into an emotion and feeling you cannot measure.

Music is something that will help your minds grow and develop like no other class. Music is a very important part of our life, and if we take it away, who knows what the world would be like.

VRUTIKA PATEL
FY BSc

Why do Indians want to go abroad and don't want to come back!

India is the most culturally rich and dynamic country, where revolutionary scientists, mathematicians, astronomers and leaders were born, who contributed their life to the Nation.

India is home to 2.5 lakh millionaires. A new report by global wealth sector information consulting services from New World Wealth reveals that India has seen its high net worth individuals leave the country in droves in the last 15 years, with as many as 61,000 millionaires shifting base over high taxes and security concerns as well as better education opportunities for their children.

While studying abroad has become a trend, here are some major issues why Indians don't want to come back and choose to settle abroad:

a) Lack of empathy in common people:

We, as a country do not only need big malls, flyovers, best airports, fashion stores. What we also need to do is to fight against poverty, climate change, inequality, farmer suicides. For instance, if we take a look at Delhi, there are two high end extremities to it where on one side the city has grand shopping malls like 'Select City walk' and on the other side people living in slums at Bhalswa Jahangir Pur.

b) Pollution in Indian cities:

According to the World Health Organization, 15 Indian cities feature in a list of the 30 most polluted cities in the world. The burning of solid fuels and wood is the major cause of high levels of air pollution in Indian cities, then there is the fact that all our city roads are terribly congested by vehicles of all sorts – the sort that belch out polluting gases because of age, poor maintenance and fuel adulteration, there is also fact that more and more automobiles are constantly added to Indian roads every year.

c) Inequality :

While many Indians live on less than a dollar a day, the country boasts a relatively high number of millionaires. India is home to the fourth largest number of millionaires in Asia. The gap between those at the top and the bottom of the wealth distribution has widened in recent decades. While market friendly reforms have succeeded in pulling millions of Indians out of poverty, economists say a significant proportion of the population is not reaping the benefits of economic growth. This, in turn, has led to small elite owning a high share of the Nation's wealth.

For instance, data released by an anti-poverty non-profit organization, Oxfam's 2015 report showed that India's richest 1% hold 58% of its wealth, i.e. wealth scales:

Richest 1% > 99% Rest. Such big imbalance.

d) Lack of public spaces:

India has a huge population and finding public spaces is not that easy. At the same time, attention has to be paid towards the dilapidated condition of the existing ones. They have either

been encroached by the real estate tycoons or have become breeding grounds for criminals, or better still garbage collection fields.

e) Education is a means of earning money:

Nobody thinks of education as a tool to understand their societies/surroundings better. A majority of people (very intelligent ones) continue to respect professions which are relevant for the west. It is alright for people from families who have a hard time supporting themselves, rather well off people who are doing precious little for the society with their education. Education system in India is adept at churning engineers and doctors but it fails to teach students to become better human beings.

f) Lack of opportunity :

A student who cracked a SBI bank exam with good marks gets only clerk position because of his forward caste. People facing this situation don't even want to try for a government job because they know it's a waste of time.

Moreover, the youth also gets attracted to the freedom these countries offer. In India a well educated person or a student won't necessarily take a small job or a part-time job. But in, foreign countries people have to accept the available job opportunities, and the same job taken upon by a person in India is frowned upon by the people of the community. This fear of judgment is holding people back.

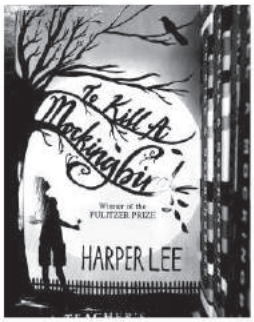
What India desperately needs is care for Mother Nature, population control, educating and helping our farmers (because they feed the nation!), embrace our true self and work for it without bothering about narrow-minded people, and create opportunities for people to save India from brain-drain.

What we need is equity rather than equality.

MANPREETKAUR A. PABLA
FY BSc

A diamond is merely a lump of coal that did well under pressure
-Unknown

Book Review: 'TO KILL A MOCKING BIRD' - Amanda Harper Lee



"You never really understand a person until you consider things from his point of view... until you climb inside his skin and walk around in it."- This quote comes from my favorite book, 'To Kill a Mocking bird'.

Amanda Harper Lee began writing this classic novel in the mid 1950s and published it in 1960. Two years later, an Academy Award winning film version of the novel starring Gregory Peck was produced.

'To Kill a Mockingbird' is a book on age story. It is written from the perspective of a six year old girl named Scout Finch who lives with her father Atticus, brother Jem and their cook Calpurnia. Atticus is a lawyer, but they don't have much money because his clients are poor. Scout's mother died when she was two years old. Jem was six. During the summer a friend named Dill comes to stay next door and they spend the summer playing together and daring each other in their adventures throughout the first part of the book.

The second part is all about Atticus's advice to his children as he defends the real mockingbird of this novel – a black man charged with the assault of a white girl. 'To Kill a Mockingbird' has a literal meaning. When Atticus gives the kids air rifle, he says to them, "Shoot all the blue jays you want, if you can hit 'me, but remember, it's a sin to kill a mockingbird." This is because mockingbirds don't eat anyone's plants or harm anything. All they do is make music. Mockingbird has a metaphorical meaning too – Anyone who is weak. To kill a mockingbird in that sense is to take advantage of someone weaker than you.

The language and dialect in this book displays racism and issues relating to the 1930's society of the United States of America.

Atticus is my favorite character as he sets a great example for his children by being at his best behavior even in the worst situations. He instills in his children strong sense of morality and justice, touched up with humor.

One of the best parts is when he tells Jem about the passing away of their neighbor, Mrs. Dubose, an 80 years old elderly lady who was a morphine addict, she took it as a painkiller; her doctor put her on it. She'd have spent the rest of her life on it, and died without so much agony, but she was contrary. Atticus told Jem, "When you are sick as she was, it's alright to take anything to make it easier, but it wasn't alright to her." "Son, I wanted you to see what real courage is, instead of getting the idea that courage is a man with a gun in his hand. It's when you know you are licked before you begin but you begin anyway and you see it through no matter what. You rarely win and sometimes you do."

In a way Harper Lee has influenced so many kids through Atticus by building up a good character, inspiring me to do better with my words and actions.

MANPREETKAUR A PABLA

FY BSc

Data Security

With the advent of technology, life has become somewhat easy, mainly through work and keeping information and important data facts. For all corporations, business, government programs and even individuals protecting these secure data is fundamental to preserving integrity and records. Basically, data security is the protective digital privacy preventing unwanted access to data and records. Data security has an objective of protecting data from getting corrupted.

General data security seeks to protect an individual database or group of databases from unapproved access, tampering and destruction. This preserves individual rights and updates.

Data security is also known as information security and in some other cases it is simply called computer security. There are many different methods to establishing effective data protection. A lot of technology has been used to offer data security. These include hardware and software disk encryption data erasure, data masking and backups.

One of the most popular methods for data security includes "backing up". Individual that backup information will make a copy of all desired data and put copy in separate place. Other data security methods focus on database's hard drive, which will establish a complicated code on drive and make it nearly impossible for unauthorized user to access the content. Other security methods include tokens which only allow user to access database in certain location or certain computer.

In broad terms, privacy is right to protect individuals' actions and information. Many leading and big companies usually guard their systems from outside threats such as cracker, hackers or even a natural disaster by following and establishing certain data security policies.

With so many potential threats and entry points, data security solutions must take a comprehensive, end-to-end approach risk data and devising a continuous data protection strategy that accounts for every potential threat.

Some data security technologies that are helpful to secure your data are disk encryption, software and hardware based protection data, backups, data masking and data erasure. Some other methods and tools used for data security are protecting password, using EFS encryption, making use of public key infrastructure, hiding data to retain control and using of data security software available like privacy toolbox, digital lock, file shredder and encryption reader. Data security requires a wide array of products and security features to provide flexibility and control companies need for data protection.

Data security measures have continued to evolve and it is not about scrambling alone. The growing demand for data security has seen many people delve a lot in studying processes of establishing strong security measures for information and data that are sensitive.

In today's technology-dependent world, data security is necessary. Improved data security methods are constantly being developed to protect important databases and it's likely that data security will only rise in important as our technology increases.

SHIVANI M VERMA

TY BCA

Artificial Intelligence

Artificial intelligence (AI) is intelligence exhibited by machines In computer science an ideal "intelligent" machine is a flexible rational agent that perceives its environment and take actions that maximize its chance of success at some goal.

[1] Colloquially, the term "artificial intelligence" is applied when a machine mimics "cognitive" functions that humans associate with other human minds, such as "learning" and "problem solving".

[2] As all software does not need human-like behavior this distinguishes artificial intelligence. As machine become increasingly capable, mental facilities once thought to require intelligence are removed from definition for example, optical character recognition is no longer perceived as an exemplar of "Artificial Intelligence", having become a routine technology.

[3] Capabilities currently classified as AI include successfully understanding human speech.

[4] Competing at a high level in strategic game systems (such as chess and go).

[5] Self-driving cars and interpreting complex data. Some people also consider AI a danger to humanity if it progresses unabatedly.

[6] AI research is divided into subfields

[7] General intelligence is among the field's long-term goals.

[8] This raises philosophical arguments about the nature of the mind and the ethics of creating artificial beings endowed with human like intelligence, issues which have been explored by myth, fiction and philosophy since antiquity.

[9] Attempts to create artificial intelligence have experienced many setbacks, including the ALPAC report of 1966 the abandonment of perceptron's in 1970, the light hill report of 1973, the second AI winter 1987-1993 and the collapse of the lisp machine market in 1987, in the twenty-first century, AI techniques have become an essential part of the technology industry, helping to solve many challenging problems in computer science.

Artificial Intelligence is the branch of computer science dealing with the reproduction or mimicking of human-level intelligence, science, self-awareness, knowledge, conscience, through in computer programs.

NIYATI MODI
TYBCA

Are We Really Independent?

Strugglers, wars, treaties and movements days before 1947 were hard to pass, harder to experience and hardest to survive in. Riots and rules are just words which we go through in history textbooks, ever wondered how people lived in those times – when they lost their families in sinking of the Titanic or when they were under the fear of Idi Amin or Hitler?

World before 1947 created a history but each day after that was equally important Whether it be the establishment of our Democracy or election of our representative, whether it be the foundation of Research centers across the mother land or strangers bombing her out and the innocents.

How do we call a land and its people independent? Is it by Hoisting the flag on the very day, singing patriotic songs for the day, enlisting and felicitating the Martyr's family or encouraging the kids to be dedicated to the nation by a giving a long speech?

Independent India needs full proof people not technology to protect her. It needs freedom of thoughts not only speech. It needs stronger people connectivity than Wi-Fi connectivity. It needs smarter public than smarter cities!!!!

Independent India is to be made more reliable and stronger; steps by the youth should be encouraged so that they can understand the real picture of the country they live in.

India is booming with the establishment of MNC', educational revolution, armors, etc. but what dooms it is the lack of knowledge and application. Being independent is not just associated with every facility at the door step.

Making the land we live in safer than earlier, cleaner, more beautiful, more educated is using the independence wisely. Every year – our Mother land adds a year to its Independence, let' add new ideas for a nation where creativity is respected, presented and executed, where schools and colleges have the "THINK OUTSIDE THE BOX" concepts, where everywhere equal opportunities prevail.

LET'S MAKE AN INDEPENDENT INCREDIBLE INDIA!!!!!!

ZEAL VADODARIA

TYBSc (Microbiology)

Life of a "LADY"...

It is to be believed that most precious gift from the god is "DAUGHTERS" - as like they are the music in the house. But, the girl has different phases in the life. They are like rhythm connecting hearts and souls.

During childhood, the little girl is princess of her father. The childhood phase is the most beautiful part of her life. Because whatever she needs would be presented, before her saying. Time passes playing with Bardies and teddy bears she enters into the new phase.

The phase where she becomes a youth from a little girl be naughty and sensitive she becomes mature and responsible. Now she has enthusiasm, power and beauty within her. She gradually starts being reflection of her mother. This is very proud moment for every mother to see herself in her daughter. Now with passing of time she gets transformed into a 'Lady'.

Lady - that phase in life of women in which she has to build up a new world leaving her own world behind. At one point there is time were she has to tie a knot and she gets bound into a new relationship. This phase comes along with new exposures and challenges. She has new responsibilities, duties, sacrifices. She learns the new word' compromise' in her dictionary of becoming a lady. Now the little princess no more has her own wishes and she maturely gets dissolved within the new family.

Finally the most beautiful phase for every lady is giving birth to a new life in this world. The little princess has now converted into a mother. Being a mother is challenging part for every lady. Mother the word itself says everything. Now as a mother she is a superwoman, she naturally gets the supreme power from the supreme soul. Being a mother she can get to any extreme level for her child and hearing the sweetest word "MAA" from her child feels like paradise to her.

THUS NOT LIVING HER OWN LIFE BUT MAKING OTHERS LIFE IS A "LADY."

PARTHVI AKHEJA
TYBSc (Microbiology)

Life is a series of natural and spontaneous changes. Don't resist them; that only creates sorrow. Let reality be reality. Let things flow naturally forward in whatever way they like.

-LAO TZU

Stress Management

What is it?

Although we all talk about stress, it often isn't clear what stress is really about. Many people consider stress to be something that happens to them, an event such as an injury or a job loss. Others think that stress is what happens to our body, mind and behaviour in response to an event, while stress does involve events and our response to it. These are not the most important factors. Our thoughts about the situation in which we find ourselves are the ribical factor.

When something happens to us we automatically evaluate the situation mentally. We decide if it is threatening to us, how we need to deal with the situation and what skills we can use. If we decide that the demands of the situation outweigh the skills we have, then we label the situation as "stressful" and react with the classic "stress response". Stress can come from any situation or thought that makes you feel frustrated, angry or anxious.

Stress is a normal part of life. In small quantities, stress is good. It can motivate you and help you to become more productive. However too much stress or a strong response to stress can be harmful, How we perceive a stress provoking event and how we react to it determines its impact on our health. Many of us are motivated and invigorated by the events in our lives or we may see some as "stressful" and respond in a manner that may have a negative effect on physical, mental and social well being.

If we always respond in a negative way, our health and happiness may suffer. By understanding ourselves and reacting accordingly to stress provoking situations, we can learn to handle stress more effectively.

Effect of stress

Stress is difficult for professionals to define because it is highly subjective phenomenon that differs for each of us. The things that are distressful for some individuals can be pleasurable for other. We also respond to stress differently, some people blush, some eat more while others grow pale or eat less.

The more effects of stress are as follows:

- Gritting, grinding teeth
- Stuttering or stammering
- Tremors, trembling of lips and hands
- Neck ache, back pain, muscle spasms
- Ringing in the ears
- Dry mouth
- Heartburn, stomach pain
- Increased number of minor accidents
- Weight gain or loss without diet
- Problem in communication
- Increased smoking, alcohol or drug use

- Difficulty in making decisions
- Difficulty in concentrating on racing thoughts
- Difficulty in breathing
- Constipation, Diarrhoea
- Increased or decreased appetite

How can I live a more relaxed life?

Here are some positive healthy habits you may want to develop, to manage stress and live a more relaxed life.

- Think ahead about what may upset you. Have a plan ready to deal with situations, some things you can avoid. For example, spend less time with people who bother you. Avoid driving in rush-hour traffic.
- Slow down. Try to "pace", not "race" plan ahead and allow enough time to get the most important things done.
- Get enough sleep. Try to get 6 to 8 hours of sleep each night.

Exercise or yoga:

Working out regularly is one of the best ways to relax your body and mind plus exercise will improve your mood but you have to do it often for it to pay off.

So how much should you exercise every week?

Good: Three to five times for 30 minutes

Better: 2 hours and 30 minutes of moderately intense exercise like brisk walks

Best: Add 75 minutes of a vigorous exercise like swimming laps, jogging or other sports that gets your heart rate up

Focus on setting fitness goals you can meet, so you don't give up.

Equally important but often less appreciated are effects on various systems, organs and tissues all over the body, as illustrated:

- Brain: Stress triggers mental and emotional problems such as insomnia, headaches, personality changes, irritability, anxiety and depression.
- Heart: Cardiovascular disease and hypertension are liked to accumulate stress
- Reproductive organs: Stress affects the reproductive system causing menstrual disorder and recurrent vaginal infections in women and important and premature ejucation in men.
- Digestive tract: Stress can cause or aggravate diseases of the digestive tract including gastritis, stomach and duodenal ulcers, ulcerative colitis and irritable colon.

How can I cope with it?

- Taking steps to manage stress will help you feel more in control of your life.
- Talk 15 to 20 minutes in a day. Sit quietly, relax, breathe deeply and think of something peaceful.

- Engage in physical activity regularly. Do what you enjoy, walk, swim, ride a bike or do yoga. Letting go off the tension from your body will help you feel a lot better. Try to do at least one thing that you enjoy, even if you do it only for 15 minutes.
- Try positive self-talk turning negative thoughts into positive ones. For example, rather than thinking "I can't do this" say "I will do the best I can."

POOJA SHARMA
FYBSc

That' Why She's A Mother!!!!

Since the day we opened our eyes to the first step in school to the convocation day, a person with utmost enthusiasm and honesty lived each and every day of our life with us.

It may be the days we came home bruised from the playground or may be the winner in a competition-she knew what it felt like – because she' a Mother!!

It may be a complement from our school for the behavior or may be the exam preparation – she knew how to react-because she' a Mother!!

It may be a thing misplaced by us or may be preparing our favorite dish-she knew how to handle it-because she' a Mother!!!

A perfect example of a Daughter, Sister, Wife, Friend and an Inspiration is a MOTHER. Setting the things right , protecting her children , handling each and every occasion in the family, being excited about her children' birthday planning, preparing for the picnics and expecting nothing in return are few things out of endless things which we never realize and always take it for granted.

She is most joyous seeing her children happy,

She is most possessive for her children' health,

She is most nervous for her children' examination,

She is most tensed for her children' illness,

She is most concerned for her children' future.....because after all she' a MOTHER!!!!

A few words penned can't describe the love for a mother, but definitely will put a smile on her face making her wonder- the once tiny toddlers are now ready to be a fighter like their MOTHER.

ZEAL VADODARIA
TYBSc (Microbiology)

Junk Food: An Invitation To Ill Health

- Nothing can be as satisfying and enjoying as eating junk food. Is it not? But the truth is that junk food is tempting but harmful to the health at the same time, it creeps into one's body as a silent killer and then spreads the disease as fast as a hurricane. Here are some junk food facts that help you understand the harmful effects of eating them. Some of them are long term while other is short-term effects.
- **Lack of energy:** This is a short term adverse effect resulting from eating junk food. As junk food don't provide you with essential nutrients, even though they can be very much sufficient you feel weakened. Consuming deficient nutrients could be as a supplement.
- **Poor concentration:** This is another result of junk food habit. These are traced to affect in immediate and medium term periods when you have a sumptuous junk meal rich in oil you feel drowsy and fail to concentrate over sustained periods of junk food eating, blood circulation drops due to fat accumulation. Lack of vital oxygen, nutrients and proteins particularly can stale your grey cells temporarily.
- **Heart disease:** Junk food diet is a major cause of heart disease. Myocardial infection is due to plaque formation in arteries, which demands heart to put in extra effort to pump blood on the downstream. On the upstream, there is lack of returning blood to heart. These cause two damages to heart-heart fatigues. By the continuous extra effort it makes and it suffers oxygen supply. The onset and remedy both take a long time and a great determination to win.

- **High cholesterol:** Apart from forming plaques and constricting arteries, cholesterol also affects liver where it is metabolized. High cholesterol from junk food and diet strains liver damaging it eventually.
- Junk food, the name itself is tempting enough. Eliminating the temptation is one way to avoid it. Keeping good food nearby and having meals right on time may help in this direction. Controlling the temptation is not as hard as alcoholism can be. Finally, not all foods are; moreover, our bodies have enough stamina to take care of occasional junk food eating. However, beware; the pure is strong enough to get you addicted. It is in your hands to choose junk or health.

DIMPLE CHITARA
FYBSc

College Life...

As a discipline secretary, it was very difficult for me to choose topic for article, I have finally chosen "COLLEGE LIFE" as my topic because after becoming discipline secretary, I have seen many different phases of college life.....

Usually people think that college life means "FUN LIFE " only, but after coming in V.P. and R.P.T.P. SCIENCE COLLEGE, I realized that college life is actually initial stage of a mature life, college is the best platform for reaching a perfect destination.

I'm the discipline secretary of our college since last two years and it is the best experience of my college life...

College is the place where we can enjoy, we can study, we can learn so many new lessons of life and where we can develop our skills....On the other side, it is life of teen age and it is the time when we all have very sensitive affection for different emotions like love, attraction and so many things which is the diversion for our college life.....

College life is the best phase of our life to prove ourselves. During this phase, one can reach to the highest point of their lives or to the lowest point of their lives.

In fact, college life is to enjoy with friends.....It's about to make ourselves capable to face the world...

It is very difficult and important task that "HOW TO CHOOSE THE FRIENDS????"

Because our group of friends affect us the most...

Friends should be source of inspiration and motivation, friends should be supportive and trustable and jealousy must be zero between friends...

It's up to a student that how to enjoy college life....the students who are on the diverting track may have enjoyment for sometime but after sometime it can be reason for spoiling their careers...but for the students who are enjoying study may have little bit struggle but the future life of them will be bright and smooth.....

I feel very lucky to have support of my parents, my friends and support of my college.....I'm very thankful of Dr. Bhavesh Patel Sir (Our Principal), Dr P.M. Patel Sir (Head of Physics department), my whole Physics department (Including teachers and my classmates) who have always supported me to grow up.....

I wish my life at PG as similar to my graduation life.....

KUNJAN M KAMANI
TY BSc (Physics)

Clean India Green India

India is a diverse country in terms of religions, castes, thoughts, languages and cultures. There is diversity in the people living in India and the most important identity of India is "unity". But are we using unity at right place or on right things? Citizens of India can show unity on many aspects particularly and priory in green India and clean India. Our honourable PM Narendrabhai Modi recently announced "Swachh Bharat Campaign". This campaign was officially launched on 2nd of October 2014 at Rajghat, New Delhi where he himself took a broom and cleaned a road. This is a campaign to clean India. Father of our nation Mahatma Gandhi had given the slogan "Quit India clean India". But the mission clean India was not so effective due to incomplete participation of people. This is the reason Swachh Bharat Abhiyan was launched on 2nd of October. PM has invited nine people to come on the launching date for this mission. Environment gives a lot to us. Greenery maintain our environment clean and healthy and directly or indirectly to humans. And to keep green keep plants around us.

But, unfortunately, air, water, land are polluted and contaminated which is dangerous to our health. Due to industrial waste dump into rivers, it gets polluted. There is no awareness on the biodegradable non-biodegradable compounds and so dump carelessly, pollute our environment due to heavy metals, cans, plastics accumulations. This leads to decrease in productivity of soil and so the plants are failed to grow. The air gets more polluted due to exhaust of vehicles, due to home appliances like air conditioners; a refrigerator etc, due to which toxic gases gets exhaust and pollutes our environment. Due to all this human activities it serves to 'Global Warming' & hazardous to humans as well as animals and other plants also. We are responsible for this and so have to come ahead to clean India. We should take prevention for this. One of the best ways is to plant more trees. For this many institutions, NGOs linked with governments, schools and colleges are becoming aware and are joining 'Clean India' campaign with great joy.

Every citizen should unite to campaign 'Clean India'. We should clean India for our present, for our future, for upcoming generations. Mere, talking or thinking on it will not serve clean India because we know "Action speaks louder than the speech". Our dream to clean India will not fulfill until we take a broom and start cleaning our street, our society. Not only intellectuals but even the ordinary men and women should be aware of this. If we clean India we get a green and healthy India.

Under this campaign also involves the constructions of latrines, cleaning streets, roads promoting sanitations programs in the rural areas. Upon completion of this mission would draw the attention of many investors in India due to which economic condition will improve, would draw the tourists attention, leads to healthy life, reduce in lethal decease and many more and most important, our Bapu's dreams come true. India's heritages or monuments would be preserving and secured for next generation which are the identity of India. It is a big challenge for the citizens of India, but to make mission successful we should try to meet hands together. With each step, we can reach our goal and we can get victory.

"EK KADAM SWACHHATA KI AUR"

PRIYANSHA J RAJPUT
TY BSc (Microbiology)

To Copy is an Offense: Plagiarism

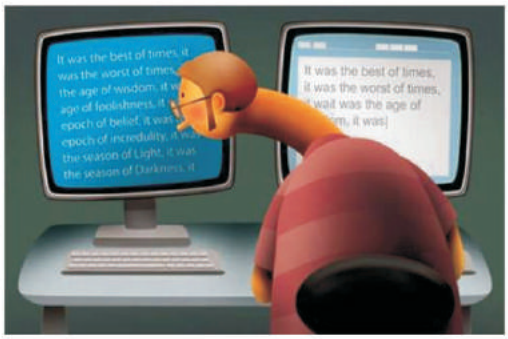
"One can steal ideas, but no one can steal execution or passion"

Academic Integrity and Plagiarism

Plagiarism is about copying some others' written material without their prior permission in any form. Academic integrity is honesty showed by student in all the means like writing, examination, assignments, presentations etc.

Pic Courtesy: Kajal Radadiya

Academic integrity incorporates several morals and values counting honesty, trust, respect, fairness and accountability and ideals that should be indorsed by all educational stakeholders. "Academic integrity encompasses safeguarding that in research practice and in teaching and learning process, both faculties and students act in an honest way in all the means. They need to recognize the intellectual contributions of others, be open and liable for their actions, and demonstrate fairness and transparency in all aspects of scholarly endeavour". Academic integrity ensures public trust in the reliability of scholarship at all levels of education including the research process and its outcomes.



Academic integrity breaches include a varied array of unfair practices including plagiarism, cheating in exams or assignments, inappropriate involvement, theft of other students' work, paying a third party for assignments, downloading whole or part of assignments from the Internet, fabrication of data, misrepresentation of records, or other actions that undermine the integrity of scholarship. Plagiarism is one of the most fervently disparaged breaches of academic integrity because it weakens the premise that scholarly work will make an original and honest contribution to an existing body of knowledge. Even though plagiarism occurs at all levels of student life, the focus in the recent explosion of research in this area is on student plagiarism. For this article, **"plagiarism is defined as the use of others' words, ideas, or creative work without appropriate acknowledgement, and does not necessarily imply intentional deceit"**

Plagiarism by Students

The degree of plagiarism (in its various forms) in students' work depends in part on the methodology used to explore this issue, with most studies using self-report methodologies. Research has further

highlighted issues of plagiarism by students for whom English is an Additional Language (EAL) at both undergraduate and postgraduate levels. It is also found that EAL students are significantly more likely to have engaged in serious forms of plagiarism (83%) than non-EAL students (65%). It is generally assumed that graduate students, having spent at least 15 years in the education system, are conversant with academic integrity requirements and know how to avoid plagiarism; however, it is becoming increasingly apparent that many graduate students are ill-prepared for the challenges of postgraduate study and that breaches of academic integrity policy do occur among this student group. Results from the *Academic Integrity Standards Project* indicated that one in five postgraduate research students had never heard of academic integrity and two in five postgraduate students said they did not know whether their university had an academic integrity policy.

Conclusion

Plagiarism is a grave breach of academic integrity in that it diminishes from the value of original and honest scholarly work. While there has been detonation of interest and research on this topic, generally the focus has been on undergraduate students plagiarising in assessment. Plagiarism is a complex issue, with many stakeholder groups requiring much more initiation, information, training, and support to ensure that they have the necessary understanding and skills to fulfil their academic responsibilities. Academic institutions therefore need to consider that addressing plagiarism requires a holistic and multi-stakeholder approach which aims to foster a scholarly community based on shared understandings and practices of academic integrity.

Prof. Vipul Kataria
Associate Professor
Chemistry Department

IMPACT OF ADULTERATED FOOD ON HUMAN LIFE

A substance is added to a food item to reduce its quality is known as an adulterant. This act of addition of the adulterant in food-item is known as food adulteration. The addition of food adulterant may be intentional or accidental. But generally food adulterant is intentional. The major reason for the intentional addition of this adulteration is for increasing the profit margin on the expense of the health of public or consumer.

These days rarely any food item is spared from the malicious practice of food adulteration. Almost every food-item from milk to fruits, from vegetables to grains is added with adulterants. Some adulterants enter via agricultural steps, as they are not cleaned well. These are visible adulterants like stones, leaves, soil, sand and dust to name a few. The consumer can clean them and this makes it less harmful. Other adulterants that are intentionally added are invisible or they are made invisible by astutely camouflaging with the color or texture. They are generally harmful for the health and most of them lead to serious health problems like cancer. Adulterant reduces the quality of the food and this weakens the health of the one who consumes them, thereby increasing the cost for healthcare. Regular intake of an adulterated food can lead to many health problems. From curable to incurable disorders and diseases can ruin one's lifestyle and life as well. The main reason for this is below

The basic change in over day to day life & in eating habits

We are used to eat food in home which is prepared by healthy ingredients. But with rising income and busy schedule, more and more people are used to eat readymade food and going in restaurants on regular basis. Where food is cooked with very poor quality ingredients which is just look good from outside in reality it is very dangerous for our health. People are not aware from it. In India mostly food items are intentionally adulterated but we never try to know about it. Now people want food which can be prepare early or buy directly it from outside.

Health is wealth; People need to be cautious to keep their heath well. We are required to take balanced diet and take regular exercise. We also have to maintain the standard of food. Now-a-days foods are being adulterated by

mixing inferior but toxic and poisonous chemicals in it. It may also be done by removing some valuable substances from it. Food adulteration is done to degrade the quality and to increase the quantity for maximizing the profit. Every day we watch in the TV news how the unhygienic and spurious foods are entering into our houses. Adulteration of foods has many effects on individuals as well as on the community health.

Food adulteration can cause immediate effect on human health. Diarrhea, dysentery, vomiting are such type of effects. Tamarind and date seed powder mixed with coffee powder can cause diarrhea. Adulteration on bakery items and dairy products may have tremendous effects on a child's health. Such as cream-filled foods, cereal, cream sauces causes increased salivation, abdominal cramp, vomiting, prostration etc. Improperly processed milk and canned meat may cause food poisoning and abdominal pain. Vegetables and fish mixed with formalin and other type of chemicals which are used to keep the food fresh are injurious to health. Unhygienic meat and meat products can cause food infection usually with fever and chills. These are the immediate effect of food adulteration on public health.

There are also many long term effects of food adulteration besides immediate effect. A research shows that adulterated Chinese food may be an interrupt to a child's mental development. Moreover, it can cause liver damage, stomach disorder, heart diseases.

Prevention

The best way to avoid these health problems is prevention. There are many steps we can take to ensure this. We can begin by taking interest in the place from where we buy our food ingredients, for example, is it from a reputed shop or retailer, we need to check out. We also need to check if these outlets are regularly checked by food inspectors and if the premises are kept clean with no infestations. We need to check if the packaging is intact, as also the expiry date and the source of the product. It is also necessary to talk regularly to the local community to check if people are falling sick after eating in a particular restaurant or food community on the ill effects of food adulteration so that when it happen the public knows when to seek help.

We need to remember that contamination could happen in very small amounts over a period of time and it might be impossible to detect or too late to intervene. So it is prudent that every one of us takes special interest in this subject and educates our families, friends and colleagues about this menace.

VINAYAK PARWANI

TY BSc (Chemistry)

Why India Won Only Two Medals At Rio Olympics – 2016? - Youth Ki Awaaz

India's Performance in Olympics has always been dismal. Since 1980, we managed to get just one gold medal in individual performance in Olympics. Continuing the legacy of pitiful performance at Olympics – 2016, the largest Indian player's contingent to the Olympic village is returning back to their home without medal.

There are some factors leading to such a deplorable defeat in OLYMPICS:

1] Sporting culture:

A Popular message reads "We will win more medals at Rio Olympics when our PT teacher stops using PT period for teaching lessons from the books".

We have prioritised academic education over all the extra-curricular activities and sports have always had backseat education.

When we speak about India having sports culture, most of them will disagree because a Synchronized sporting culture is needed of an hour to save country from the contemptible defeat at sports event like Olympics.

2] Money:

Many Indians blame our economic condition for nearly all failures. They say that the government will spend its money on sports and sportsmen after it's done with feeding the empty stomachs of the poor. Then why do country like Kenya who has low capita income than India still manage to perform better than us?

So, money is definitely not the only variable contributing to a national success at Olympics. The country witnessed the substandard treatment given to sportsmen at the Olympics this year. India never invested in sports for long term; it only expects miracles at the touch of a bottom.

3] Corruption and politics in sports:

More than anybody it is the politics and corruption in sports management that needs to be blamed. Vijay Goal did all to sabotage India's image where millions put their best food forward. India was called out for unruly behaviour.

Just as sportsman represents our country at the international podium so does the sports management. The system is frought with poor resource management, corruption confect of interest and transparency.

4] Media:

The media has always tried to cash on cricket. Players participating in the Olympics were always ignored when they won accolades at international events and remained unsung-Heroes. Media remembers them only during the Olympics and tries to cash in on their failures. This behaviour is totally demoralising.

In our country, Virat Kohli and Anushka Sharma get maximum footage before match while Sakshi Malik, Deepa Karmakar, P V Sindhu make news only after winning the medal. This is disheartening.

Also there are other features which are acting on Olympic are – lack of facilities, lack of encouragement, lack of participation, lack of income and so on.

Fault does not lie in our stars; the whole system is at fault. India has a huge population human genetic potential is spread evenly across the world, so there are plenty of people in India with the potential of win Olympic medals. Only if we allow our stars to glow...!!!

CHARMI CHAUHAN
TY BSc (Physics)

WATER TRIPLE POINT

The triple point of a substance is the temperature and pressure at which the three phases (gas, liquid and solid) of that substance co-exist in thermodynamic equilibrium. For water it is at 273.16 K and partial vapour pressure of 611.6 Pascal.

AZAADI-70
"ZARA YAAD KARO KURBAANI"

This sentence tells us that we should develop a feeling that Nation is first and individual is second.

70yrs have passed of our Independence. We are living freely and peacefully only because of our brave leaders who sacrificed their lives for the sake of the country, to free our country from the hands of Britishers and to make the next generation independent. They did not care for their life. So they are called martyrs. They only cared for the country. Just imagine how painful it would have been for them to leave behind their loved ones, friends, families, children, joy and to fight for the country. If they would have given first priority to their love, friends, families then we would have been the slaves of Britishers today also!!!

But today it is very sad to say that this generation or today's youth indulging more in their social accounts and show their patriotism in the social media only.

Youth is the spring of life. India has the largest youth population in the world today. India's youth has the power to make our country from a developing nation to a developed nation. This is the dream of today's youth i. e. development in the industry level. It is also a dream but our main aim should be to make India free of poverty, unemployment, inequality, exploitation and many more. Today India is not the slave of Britishers but is the slave of the above things. A world free of discrimination on the grounds of race, colour, language and gender should be our dream.

Today's main problem of the entire world is terrorism. Nobody is able to fight against them. Like other countries we should not step back because our country is the birth place of many brave martyrs, leaders. If we take an initiation and bring together the youth of the entire world and fight against terrorist then obviously we would win. But we fear for our lives, loves, children, families, etc. But can't we just remember the sacrifice of our martyrs, killing of many innocent people.

Today's main problem of India is that the girls and women are suffering the most. Some are not able to even raise the voice or share their problem. So we should even help them and stop this nuisance.

There are some people who show their patriotism and love for the nation, people on the day of the national festivals i.e. on Independence Day and Republic Day. After that they become busy in their life and then do not even care for others, they become selfish. The truth is after all that youth actually started listening to what they have been told, that they have the rest of their life to be adults.

Our ancestors have provided us space, materials and many things. Now it is our duty to make the building and maintain it properly. If the foundation is not proper then the building may collapse. In the same way if we do not become strong and keep or take our responsible step then our nation may again become the slave.

Our country has become independent or free from Britishers but has become the slaves of poverty, population, pollution, terrorism, eve teasing, lack of infrastructure, and many more. But it is very sad to

say that we are not at all interested to know about this problem. We definitely watch or read about this problem in TV, newspaper and even express our feelings also at that moment but as soon as we switch off the TV or fold the paper our feelings also vanishes!!! We never think how to eradicate these problems...

It is not about the government, not about education system, not about social ethical codes but it's about how we perceive India. How many times have we said that "India ka kuch nahi ho sakta" or" India me sab chalta hai".

We appreciate other countries for their development and many more things then why don't or why can't we say the same for our country.

India is us and we are India, the sooner we understand this the better it is good for us and the nation. The solutions to most of our problem lie within us and our outlook.

So, "***ZARA YAAD KARO KURBANI***" of our brave martyrs, leaders and of very innocent people who died for our country.

"***JAI HIND***"

"***VANDE MATRAM***"

ROSHANI SOLEMAN
SY BSc (Chemistry)

In 3 words I can sum up everything
I've learned about life: it goes on
-Robert Frost

ॐ मानवता के शब्दकोष में सबसे मूल्यवान शब्द

दोस्तो, सनातन धर्म और ईश्वर में आस्था रखने वाला हर व्यक्ति देव उपासना के दौरान शास्त्रों, ग्रंथों में या भजन और कीर्तन के दौरान ॐ **महामंत्र** को कई बार पढ़ता, सुनता या बोलता है। धर्मशास्त्रो में यही ॐ प्रणव नाम से भी पुकारा गया है। असल में इस पवित्र अक्षर व नाम से गहरे अर्थ व दिव्य शक्तियां जुडीं हैं, जो अलग-अलग पुराणों और शास्त्रों में कई तरह से बताई गई हैं। विशेषरूप से शिव पुराण में ऊंकार के प्रणव नाम से जूडी शक्तियों, स्वरुप प्रभाव के गहरे रहस्य बताए हैं, शिव पुराण के अनुसार - **प्रणव यानी वो शब्द जो आपको अंधकार से प्रकाश की और ले जाता हो।** (ॐ) शब्द तीन अक्षरों से मिलकर बना है.. अ उ म। अ का मतलब हौता है उत्पन्न होना, उ का मतलब होता है उठना यानी विकास और म का मतलब होता है मौन हो जाना यानी कि ब्रह्मलीन हो जाना।

हमारे हिन्दू धर्म में ॐ का बहूत महत्व है। इसको सभी मंत्रों का राजा कहा जाता है। ॐ को 'ओम' शब्द से उच्चारित किया जाता है। इसे बोलते बक्त 'ओ' शब्द पर ज्यादा जोर पढता है। ॐ ब्रह्मांड की अनाहत ध्वनि है। इस मंत्र का प्रारंभ तो है पर अंत नहीं है।

सभी बीजमंत्र ओम मंत्र से ही उत्पन्न हुए हैं। इसलिए इस मंत्र को सभी मंत्र, ध्वनियों एवं शब्दों की जननी कहा जाता है। जो लोग ओम शब्द का नियमित उच्चारण करते है उनके शरीर में मौजूद आत्मा जागृत हौ जाती है इससे शारीरिक और मानसिक तनाव से भी मुक्ति मिलती है।

इसलिए ओम मंत्र से मिलने वाले लाभो को केवल धर्मगुरु ही नहीं बल्कि विज्ञानं भी मानता है। रिसर्च एंड इंस्टीट्यूट ऑफ न्यूरो साइंस के प्रमुख प्रोफ़ेसर जे. मार्गन ने उनके सहयोगियों के साथ मिलकर तकरीबन सात वर्षो तक'ओम' मंत्र के प्रभावों पर अध्ययन किया था। इस अध्ययन में पाया गया की मात्र ओम का उच्चारण करने से शरीर में मौजूद कई मृत कोशिकाएं पुनः जीवित होती है।

ओम मंत्र के शारीरिक लाभः

१. इससे खून का प्रवाह सुचारु रहता है और हृदय स्वस्थ रहता है।

२. एड्स की बीमारी में भी इसे करना फायदेमंद होता है।

३. इसका जप करने से बांझपन की समस्या से निजाद मिलती है।

४. ओम मंत्र के उच्चारण से पाचन शक्ति सुधरती है। इससे शरीर भी तनाव रहित हो जाता है।

५. इसका अभ्यास कुछ विशेष तरह के प्राणायाम के साथ करने पर फेफड़ो में मजबूती आती है।

६. Om Mantra Meditation करने से शरीर में स्फूर्ति का संचार होता है, थकान से बचने के लिए यह सबसे अच्छा विकल्प है।

७. ओम के दूसरे शब्द का उच्चारण करने से गले में कंपन पैदा होती है। जो की थाइरीड ग्रंथि पर प्रभाव डालती है।

८. तनाव से मुक्ति पाने के लिए भी यह फायदेमंद है। यह शरीर के विषैले तत्त्वों को दूर कर तनाव के कारण पैदा होने वाले द्रव्यों पर नियंत्रण करता है।

९. जिन लोगो को नींद ना आने की समस्या होती है उनके लिए भी यह फायदेमंद है जब आपको नींद नहीं आ रही हो तो मन में इसका उच्चारण करे आपको निश्चित नींद आएगी।

ओ३म् के उच्चारण से मानसिक लाभ :

१. जीवन जीने की शक्ति और दुनिया की चुनौतियों का सामना करने का अपूर्व साहस मिलता है।

२. इसे करने वाले निराशा और गुस्से को जानते ही नहीं!

३. प्रकृति के साथ बेहतर तालमेल और नियंत्रण होता है, परिस्थितियों को पहले ही भांपने की शक्ति उत्पन्न होती है ।

४. आपके उत्तम व्यवहार से दूसरों के साथ सम्बन्ध उत्तम होते हैं, शत्रु भी मित्र हो जाते हैं ।

५. जीवन जीने का उद्देश्य पता चलता है जो कि अधिकाँश लोगों से ओझल रहता है ।

६. इसे करने वाला व्यक्ति जोश के साथ जीवन बिताता है और मृत्यु को भी ईश्वर की व्यवस्था समझ कर हँस कर स्वीकार करता है ।

७. जीवन में फिर किसी बात का डर ही नहीं रहता।

८. आत्महत्या जैसे कायरता के विचार आस पास भी नहीं भटकते। बल्कि जो आत्महत्या करना चाहते हैं, वे एक बार ओ३म् के उच्चारण का अभ्यास ४ दिन तक कर लें । उसके बाद खुद निर्णय कर लें कि जीवन जीने के लिए है कि छोडने के लिए!

ओ३म् के उच्चारण के आध्यात्मिक (रुहानी) लाभ :

१. इसे करने से ईश्वर/अल्लाह से सम्बन्ध जुडता है और लम्बे समय तक अभ्यास करने से ईश्वर/अल्लाह को अनुभव (महसूस) करने की ताकत पैदा होती है ।

२. इससे जीवन के उद्देश्य स्पष्ट होते हैं और यह पता चलता है कि कैसे ईश्वर सदा हमारे साथ बैठा हमें प्रेरित कर रहा है ।

३. इस दुनिया की अंधी दौड़ में खो चुके खुद को फिर से पहचान मिलती है । इसे जानने के बाद आदमी दुनिया में दौड़ने के लिए नहीं दोड़ता किन्तु अपने लक्ष्य के पाने के लिए दौड़ता है ।

४. इसके अभ्यास से दुनिया का कोई डर आसपास भी नहीं भटकता । मृत्यु का डर भी ऐसे व्यक्ति से डरता है क्योंकि काल का भी काल जो ईश्वर है, वो सब कालों में मेरी रक्षा मेरे कर्मानुसार कर रहा है, एसा सोच कर व्यक्ति डर से सदा के लिए दूर हो जाता है, जैसे महायोगी श्री कृष्ण महाभारत के युद्ध के वातावरण में भी नियमपूर्वक ईश्वर का ध्यान किया करते थे । यह बल ब निडरता ईश्वर से उनकी निकटता का ही प्रमाण है ।

५. इसके अभ्यास से वह कर्म फल व्यवस्था स्पष्ट हो जाती है कि जिसको ईश्वर ने हमारे भले के लिए ही धारण कर रखा है । जब पवित्र ओ३म् के उच्चारण से हृदय निर्मल होता है तब यह पता चलता है कि हमें मिलने वाला सुख अगर हमारे लिए भोजन के समान सुखदायी है तो दुःख कड़वा होते हुए भी औषधि के समान सुखदायी है जो आत्मा के रोगों को नष्ट कर दोबारा इसे स्वस्थ कर देता है । इस तरह ईश्वर के दंड में भी उसकी दया का जब बोध जब होता है तो उस परम दयालु जगत माता को देखने और पाने की इच्छा प्रबल हो जाती है और फिर आदमी उसे पाए बिना चैन से नहीं बैठ सकता, इस तरह व्यक्ति मृक्ति के रास्तों पर पहला कदम धरता है ।

Dr. Nayana H. Bhrahmbhatt
Biology Department

''होमी जंहागीर भाभा''

अगर भारत के महान वैज्ञानिको की बात करें और उसमें डॉ. भाभा का नाम ना आए ऐसा कैसे हो सकता है । डॉ. भाभा का पुरा नाम होमी जंहागीर भाभा था । उनका जन्म ३० अक्टूबर १९०९ में मुंबई के एक सभ्रांत पारसी परिवार में हुआ था । उन्होने अपनी प्रारंभ की शिक्षा मुंबई के कैथड्रल और रोयाल जॉन केनन स्कूल से ली थी। फिर एल्फिस्टन कॉलेज मुंबई और रोयल इंस्टीट्युट ऑफ साइंस से बी.एस.सी. पास किया मुंबई से पढाइ पुरी करने के बाद भाभा वर्ष १९२७ में इंग्लैड के केउस कॉलेज, कैंब्रिज इजीनियरींग की पढ़ाई करने गए । कैब्रिज विश्वविद्यालय में रहकर वर्ष १९३० में स्नातक उपाधि अर्जित की। सन् १९३४ में कैम्ब्रिज विश्वविद्यालय से उन्होने डाक्टरेट की उपाधि प्राप्त की । जर्मनी में उन्होने कास्मिक किरणों पर अध्ययन और प्रयोग किए । हांलाकि इजीनियरींग पढ़ने का निर्णय उनाका नहीं था । यह परिवार की ख्वाइश थी कि वे एक होनहार इंजीनियर बने । उन्होनें सबकी बातों का ध्यान रखते हुए, इंजीनियरिंग की पढ़ाई जरुर की लेकिन अपने प्रिय विषय ''फिजिक्स'' से भी खुद को जोड़े रखा । न्युक्लियर फिजिक्स के प्रति उनका लगाव जुनूनी स्तर पर था । और ये उनका जुनुन ही था की एक बार कैम्ब्रिज से ही पत्र लिखकर अपने पिता को बता दिया की ''फिजिक्स'' ही उनका अतिंम लक्ष्य है । भाभा का फिजिक्स तो वहा पता चलता था जब परिवार द्वारा विवाह के बारे में पूछने पर उन्होने कहा की ''मेरा विवाह तो रचनात्मकता से हो चुका है'' इन शब्दों से ही पता लगता है कि वे अपने काम के प्रति कितने समर्पित थे ।

होमी जंहागीर भाभा भारत के एक प्रमुख वैज्ञानिक और स्वप्नद्रष्टा थे जिन्होने भारत के परमाणु ऊर्जा कार्यक्रम की कल्पना की थी । उन्होंने मुठ्ठी भर वैज्ञानिकों की सहायता से मार्च १९४४ में नाभिकीय ऊर्जा पर अनुसन्धान आरम्भ किया । उन्होने नाभिकीय विज्ञान में तब कार्य आरम्भ किया जब अविछिन्न शृंखला अभिक्रिया का ज्ञान नहीं के बराबर था, और नाभिकीय ऊर्जा से विद्युत उत्पादन की कल्पना को कोई मानने को तैयार नहीं था । इसी कारण से उन्हे- ''आर्किटेक्ट ऑफ इंडियन एंटामिक एनर्जी प्रोग्राम'' भी कहा जाता है । उनकी कीर्ति सारे संसार में फैली । भारत वापस आने पर उन्होने अपने अनुंसधान को आगे बढ़ाया । भारत को परमाणु शक्ति बनाने के मिशन में प्रथम पद के तौर पर उन्होने १९४५ में मूलभूत विज्ञान में उत्क्रष्टता कैद्र ''टाटा इंस्टीट्यूट ऑफ फडामेंटल रिसर्च (टी.आई.एफ. आर.)'' की स्थापना की । भाभा एक आधुनिक कल का सपना देख रहे थे ओर दीर्घकालिन अनुसंधान को बहुत बढावा देते थे । उन्होने कहा था कि ''विश्व मे अग्रणी भूमिका निभाने की आकांक्षा रखने वाले कोई भी देश शुद्ध अथवा दीर्घकालीन अनुसंधान की उपेक्षा नहीं कर सकता ''।

डॉ. होमी जंहागीर भाभा भारतीय परमाणु ऊर्जा कार्यक्रम के जनक माने जाते है । और उन्ही को श्रद्धांजलि देने के लिए भारतीय परमाणु ऊर्जा आयोग को पुनर्निर्मित कर १२ जनवरी सन् १९६७ को इसका नाम ''भाभा परमाणु अनुसंधान केन्द्र'' कर दिया गया।

डॉ. भाभा एक कुशल वैज्ञानिक और प्रतिबद्ध इंजीनियर के साथ-साथ एक समर्पित वास्तु शिल्पी, सतर्क नियोजक, एंव निपुण कार्यकारी थे । वे ललित कला व संगीत के उत्क्रष्ट प्रेमी तथा लोकोपकारी थे । १९४७ में भारत सरकार द्वारा गठित परमाणुं ऊर्जा के प्रथम नियुक्त हुए । १९४८ में जेनेता में अनुष्ठित विश्व परमाणुविक वैज्ञानिको के महासम्मेलन में उन्होनें अध्यक्षता की । भारतीय परमाणु ऊर्जा कार्यक्रम के जनक का २४ जनवरी १९६६ को एक विमान दुर्घटना में निधन हो गया था ।

Dipendrasingh Rathore
SY BSc (Physics)

સંઘર્ષ

હાર મને મંજૂર નથી કેમ કે,
હવે આકાશ મારાથી દૂર નથી.
આવે છે એ સામે ચાલીને,
કેમ કે ઝૂકવા રસ્તો નથી.
એક અસફળતાથી તૂટે,
મારો ઈરાદો એવો સસ્તો નથી.
અટલ મહેનત છે મારી,
એટલે મંઝિલ હવે દુર નથી.
એક સામટી સફળતાના,
મને કોઈ સ્વપ્ન નથી.
આજે નહીં કો કાલે મારા,
પ્રયત્નો આખરે નિષ્ફળ નથી.
ભંડાર સમા જ્ઞાનને,
કાબુમાં કરવું છે મારે હવે.
કુરબાની માટે રહું છું,
તૈયાર હંમેશા મનથી.
કેમકે જાણુ છું મને,
ક્યારેય કોઈનો સહારો નથી.
શોધવા જાઓ તો મળે છે,
ઘણા હાથ સહારો આપવા.
પણ હું શું કરું કાકલૂદીઓ,
મને પસંદ નથી.
હાર મને મંજૂર નથી,
કેમ કે હવે આકાશ મારાથી દુર નથી.

Pooja N. Rathava
FY BSc

બચપન (NGO)

'NGO' નું નામ પડે એટલે પહેલા ખ્યાલ એવો આવે કે '' હશે કોઈ સેવાભાવી લોકો અને ડોનેશન ભેગુ કરી, ગરીબ લોકોને ભોજન કે કપડા પુરા પાડતો હશે!'' સાચી વાત છે NGO નું કામ પણ એ જ હોય છે, જરૂરીયાતમંદ લોકોને મદદ કરવાનું !! બચપન આવું જ કંઈક મદદ કરવાનું કામ કરે છે. પરંતુ તેનું કામ અને ધ્યેય જરાક હટકે છે. કેમ હટકે છે? તેની પાછળના બે કારણો છે. પહેલું કારણ... હાલમાં દેશનો સૌથી મોટો પ્રશ્ન કયો ? ગરીબી, ભુખમરો, બેકારી, ભ્રષ્ટ્રાચાર... નહી, સૌથી મોટો પ્રશ્ન છે શિક્ષણનું નીચું પ્રમાણ. જો વ્યક્તિ સાચા અર્થમાં શિક્ષિત હશે તો બાકીની દરેક મુસીબતનો સામનો કરવા તે સક્ષમ હશે. આવા જ ઉમદા ધ્યેય સાથે બચપન ગરીબી અને બાળમજૂરી કરતા બાળકોને તેમનો સર્વાંગી વિકાસ થાય તેવું શિક્ષણ આપવાનું કાર્ય કરે છે. જો ગરીબ બાળકો સુશિક્ષીત હશે તો તે પોતે પોતાનું ઉજળું ભવિષ્ય જાતે ઘડી શકશે. બીજું અને અગત્યનું કારણએ છે કે બચપનના બધા Volunteers (સ્વયંસેવકો) કોલેજના વિદ્યાર્થીઓ છે. જેવો પોતે પોતાના અભ્યાસની સાથે સમાજ સેવાનું ઉમદા કાર્ય કરે છે. Engineering, B.Sc. B.A. B. Com. લગભગ બધી જ શાખા ના Volunteers 'બચપન' સાથે જોડાયેલા છે. દેશનું યુવાધન યુવા પેઢી એવા યુવાનો માટે કહેવાના શબ્દો પણ ઓછા પડે છે. પહાડોને ઝુકાવી દે અને તુફાનોને પણ થંભાવી દે એવો થનગનાટ. દેશની સૌથી મોટી તાકાત. દેશના સૌથી મોટો પ્રશ્ન સામે લડી રહી છે. આનાથી વિશેષ બીજું શું હોઈ શકે ?

હવે જરાક Flash Back માં જઈએ. એપ્રિલ, ૨૦૧૧ ની વાત છે. વિદ્યાનગર શહેરમાં Engineering કોલેજમાં ભણતા ચાર-પાંચ મિત્રો એક ચાવાળાની લારીએ ચા પીવા ગયા હતા. ત્યાં ચાની લારી પર ૧૪ થી ૧૫ વર્ષના એક છોકરાને કામ કરતો જોયો. એટલે સહજ રીતે તેમને એ છોકરાને પાસે બોલાવી તેના અભ્યાસ વિશે અને તેમના પરિવાર વીષે પ્રશ્નો પુછ્યા, તો જાણવા મળ્યું કે ગરીબીના કારણે તે અભ્યાસ કરવાને બદલે મજૂરી કરે છે. ચા તો પતી ગઈ પરંતુ પેલા યુવાનોના મનની અંદર પ્રશ્નોનો દરિયો ડોલવા લાગ્યો. દેશની ગરીબી, બાળમજૂરી પેલા છોકરાની લાચારી અને તેના અંધકારમય ભવિષ્ય વિશે હજારો પ્રશ્નો અને ચિત્રો ઉભા થયા. ઘણા બધા વિચાર વિમર્ષને અંતે કોલેજના તે યુવાનોએ ગરીબ અને લાચાર બાળકોના ઉજવળ ભવિષ્ય માટેની જવાબદારી પોતાના માથે લેવાનો નિર્ણય કર્યો.

કામ સહેલું ન હતું અને એકલા હાથે પાર પડે તેમ પણ ન હતું. ઘણી બધી મુશ્કેલીઓ સામે ઉભી હતી. શહેરના એવા દરેક બાળકો સુધી પહોંચવાનું હતુકે જેમને ખરેખર તેમને મદદની જરૂર હતી. અને સાથે જરૂર હતી એક એવી સમર્પિત Volunteers ની ટીમની જે દરેક પ્રશ્નોનો સામનો કરવા તૈયાર હોય. બચપનની શરૂઆત ૨૧ મે ૨૦૧૧ ના રોજ થી થઈ. સરકારી ચોપડે રજિસ્ટ્રેશન થયું અને બચપનને NGO ની માન્યતા મળી. શરૂઆતમાં હતા ફક્ત ૧ વિદ્યાર્થી અને ૪ થી ૫ Volunteers. ધીરે ધીરે બચપનનો વ્યાપ વધતો ગયો અને આજે ૨૦૧૭ માં ૬૦૦ તી વધારે બાળકો તથા ૨૫૦ થી વધારે Volunteers ની (Team) ટીમ આ સંસ્થા સાથે જોડાયેલી છે. બચપનનું Slogen છે "We Nurture Innocent Dreams." અને બાળકોને અભ્યાસ સાથે તેમનો સર્વાંગી વિકાસ થાય તેવા ધ્યેય સાથે દરરોજ સાંજે ૬ થી ૭ એક કલાકે તેમને અભ્યાસ કરાવવામાં આવે છે. શિક્ષણની સાથે વિવિધ પ્રવૃત્તીઓ જેવી કે તહેવારોની ઉજવણી, રમતોત્સવ, Annual Day, Science Fair, Awarness Program, ચિત્ર સ્પર્ધા વગેરે જેવી ઘણી બધી પ્રવૃતિઓ કરી બાળકોમાં રચનાત્મક અને સર્જનાત્મક કલ્પનાશક્તિનો વિકાશ થાય તેવો પ્રયત્નો કરે છે. Facebook અને Instagram જેવા Social media પર ફોટો અને વિડિયો તથા ઓફિસિયલી માહિતી પણ ઉપલબ્ધ છે.

સહ્રદય વંદન છે આ યુવાનોને કે જે પોતાના કારર્કિદી બનાવાના સુવર્ણ સમયમાં ગરીબ બાળકોના સપના અને દેશના ઉજવળ ભવિષ્ય માટે પોતાનો અમુલ્ય સમય અને સહકાર આપે છે. બીજાના સપના સાકાર કરવા, નિસ્વાર્થ ભાવે પોતાના સપના સાથે સમાધાન કરવું એ કોઈ નાની સુની વાત નથી...!!!

Kaushik Bhalodiya
TY BSc (Physics)

પાઠ પાકો નથી થયો

શાળાનો પહેલો દિવસ હતો. આચાર્ય નવા હતા, વિદ્યાર્થીઓ પણ નવા હતા.

આચાર્યે લખાવ્યું : 'સત્ય વદામિ' અને કહ્યું, બોલો 'હું સત્ય બોલું છું.' બધા વાંચવા માંડ્યા :'હું સત્ય બોલું છું, સત્ય વદામિ'

આચાર્યે કહ્યું : 'કાલે પાઠ પાકો કરી લાવજો.'

આચાર્ય હતા દ્રોણ, વિદ્યાર્થીઓ હતા કૌરવ-પાંડવો.

બીજા દિવસે દ્રોણાચાર્યે પૂછ્યું, પાઠ પાકો કરી લાવ્યા છો?

બધા કહે, 'હા'

આચાર્યે લખ્યું: 'સત્ય વદામિ' અને કહ્યું, 'વાંચો જોઈએ' બધાએ એક પછી એક વાંચવા લાગ્યા : 'સત્ય વદામિ'....

હું સત્ય બોલું છું. અર્જુને વાંચ્યુ, દુશાસને વાંચ્યુ, વર્ગમાં ધ્યાન ન આપનાર ભીમ પણ કડકડાટ વાંચી ગયો ! યુધિષ્ઠિરનો વારો આવ્યો, યુધિષ્ઠિરે હાથ જોડીને ગુરુને પ્રણામ કરીને કહ્યું: 'ગુરુજી, મને હજુ પાઠ નથી આવડ્યો.'

દ્રોણાચાર્યે કહ્યું : 'ભલે, કાલે પાકો કરી લાવજો.'

બીજા દિવસે પૂછ્યું : 'કેમ પાઠ પાકો કરી લાવ્યા છો ને?'

વળી યુધિષ્ઠિરે કહ્યું : 'હજુ પાકો નથી થયો.

આચાર્યે વળી એક દિવસ વધારે આપ્યો. પણ યુધિષ્ઠિર તે દિવસે પણ પાકો ન કરી શક્યા. ચાર - પાંચ દિવસ ગયા, એટલે દ્રોણાચાર્યે એક દિવસ કહ્યું: 'આમાં તે પાકું શું કરવાનું હતું કે હજુ પાઠ નથી આવડ્યો ?'આ જડબુદ્ધિ દુશાસન પણ હમણાં વાંચી ગયો કે 'સત્ય વદામિ', ને તને હજુ ન આવડ્યું ? કાલે પાકો કરી લાવજે !'

વર્ગમાં બધાને થયું કે યુધિષ્ઠિરને આટલુંય ન આવડે તો તે ઠપકાને લાયક જ હતા.

બીજે દિવસે દ્રોણાચાર્ય ફરી પૂછ્યું ત્યારે પણ યુધિષ્ઠિર નો જવાબ તો એ જ હતો : 'હજુ પાઠ પાકો નથી થયો'

'સાવ પોઠિયા જેવો લાગે છે ! આમાં તે શું આવડવાનું હતું ! ' દ્રોણાચાર્યે સહેજ ખિજાઈને કહ્યું; વર્ગ હસી પડ્યો.

આજ ક્ષણે સાહેબ, યુધિષ્ઠિરે જે જવાબ આપ્યો છે ને ! એ જવાબ સાંભળીને તો દ્રોણાચાર્ય પણ સ્તબ્ધ થઈ ગયા.

યુધિષ્ઠિર અચકાતા અચકાતા બોલ્યા : 'ગુરુજી આપ પાઠ પાકો કરી લાવવાનું કહો છો, ને હું ય ઘણી કોશિશ કરું છું. પણ હજુયે મારાથી કોઈ વાર ખોટું બોલાઈ જાય છે, ત્યાં સુધી કેમ કરીને કહું કે 'હું સત્ય બોલું છું' એ પાઠ પાકો થઈ ગયો છે'

બોધ : મિત્રો, ઉપરની વાર્તા પરથી હું મારા V. P. & R.P.T.P. Science College ના વિદ્યાર્થીઓને એક જ વસ્તુ કહેવા માગું છું કે હે દોસ્ત તું સત્ય નો રસ્તો પકડજે. આ સત્યના માર્ગમાં નડતર રૂપી કાંટા તો આવવાના જ છે. પરંતુ જો તમે પસંદ કરેલો માર્ગ સત્યનો હશે. તો આ કાંટાં રૂપી નડતરનો સામનો કરવાનું શક્તિરૂપી મનોબળ તમારી પાસે હશે જ.

Poojan Amrutia
SY BSc (Maths)

જીંદગીની દરેક પળ ઉપયોગી

* જીંદગી એટલે શું ?

''જીંદગી એટલે સુખ અને દુઃખનુ જોડાણ, ખુશી અને અશ્રુનું અનોખું સંયોજન તેમજ પ્રેમ અને દર્દોનું અને ખુબ જ ઉપયોગી એવી સફળતા અને નિષ્ફળતાનો અનોખો અનુભવ કરાવતો એવો અમુલ્ય અવસર''

જીંદગી એ એવી વસ્તુ છે કે આપણા જન્મ અને મૃત્યુની વચ્ચેનો યાત્રા કરાવતો અનોખો એટલે છે જેને આપણે ક્યારેય ભૂલી ના શકીએ તેવો યાદગાર પ્રવાસ. જન્મતાની પહેલાં પણ લોકો આતુરતાથી રાહ જોયા કરે અને મૃત્યુ પછી પણ લોકોની આંખમાં અશ્રુઓની ધારા વહેડાવીની લોકોને રડાવીને એમાની દુર થવાનો અનોખો અનુભવ.

એટલે જ તો કહેવાયું છે કે,

Life is the Most beautiful in the world.

* એક દિવસે એક માણસે ભગવાનને કહ્યું કે હે ભગવાન Please હું જે માગું ને એ બધું તું મને આપી દે ને. ત્યારે તમને ખબર છે ! ભગવાને શું કહ્યું એને !

Man Asked God,
"Give me everything to enjoy life."
I haven given you life
to enjoy everything

એટલે જ તો જિંદગીમાં ભગવાન પાસે કંઈક માગતા પહેલા આપણે તેમનો આભાર માનવો જોઈએ, કારણ કે જે વસ્તુ તમે આપણે તેમની પાસે માંગી જ નથી, તે પહેલા જ તેમણે આપણને આપી દીધી એનું નામ જીંદગી જો જીંદગી જ ના હોય તો આપણે શું કરી શકવાના હતા. માટે જ તો ભગવાન પાસે માંગતા પહેલા એટલું વિચારો કે આપણને કેટલું બધુ આપી દીધું છે.

જિંદગી બે હિસ્સાઓમાં વહેંચાયેલી છે. ૧) સુખ અને ૨) દુઃખ

એટલા માટે જ તો ચાણક્યએ કહ્યું છે કે જીવનમાં સુઃખ અને દુઃખ બંનેનો અનુભવ હોવો જરૂરી છે. પણ આપણે તો સુઃખની જ વધારે આંશા રાખીએ છીએ, ક્યારેય, એવું બન્યુ છે ખરૂં કે દુઃખ પણ એટલું જ મહત્વનું છે જેટલું સુઃખ મહત્વનું છે. પરંતુ સુખ અને દુઃખ પણ જીવનના બે પાસાં છે.

જેમ સિક્કાની બંન્ને બાજુની કિંમત સરખી હોય છે. તેમ જિંદગીમાં પણ સુઃખ અને દુઃખની કિંમત તો પણ સરખી જ હોય છે. એકલું સુખ હોય તો પણ મજા નથી આવતી અને દુઃખ હોય તો પણ મજા નથી આવતી.

એટલે જ તો કહેવાયું છે ને કે જીવનમાં સફળ થવું હોય તો બંને વસ્તુની જરૂરિયાત જરૂરી છે. સફળતા અને નિષ્ફળતા.

''સફળતા એ સ્વાર્થી પ્રેમિકા જેવી હોય છે.
ગમે ત્યારે સાથ છોડી દે છે.
જ્યારે નિષ્ફળતા માઁ જેવી હોય છે,
જે કંઈક ને કંઈ શીખવી જાય છે''

એટલે જ તો જીવનમાં સફળ થવું જેટલું કઠિન તેનાથી પણ વધારે સફળ થઈને ખુશ રહેવું વધારે કઠીન છે.

જિંદગીમાં એ લોકો સફળ થયા છે જે લોકો પોતાની જીંદગીમાં બિન્દાસ હસી શકતા હોય નિરાંતે ઊંઘી શકતા હોય અને ખુબ જ ખુશીથી બીજાની મદદ કરી શકતા હોય છે. અને એ જ લોકો દુનિયાના ટોચના શિખર પર પહોંચી શક્યા છે કે જે સફળતાની અને નિષ્ફળતાની પરવા કર્યા વગર પોતાના કાર્યે પૂર્ણ કરી શકતા હોય.

છોટી સી જિંદગી હૈ ।
હઁસ કે જિયો ।
ભૂલા કે ગમ સારે
અપનો કે લિએ ના સહી
અપનો કે લિયે જિઓ ।

Wish you all the best for your beautiful life.

Bhargvi C. Patel
FY BSc

રસાયણ ઉદ્યોગના પિતા– ચાંપરાજ શ્રોફ

રસાયણ ઉદ્યોગના પિતા એટલે શ્રી ચાંપારાજ શ્રોફ, તેમનો જન્મ કચ્છના ખ્યાતનામ શ્રોફ કુટુંબમાં થયો હતો. બી.એસ.સી. થયા પછી એક કારખાનામાં નોકરી સ્વીકારી ત્યારબાદ ૧૯૪૧ માં તેમણે ''એકસેલ'' શરૂ કરી.

''એકસેલ'' ની વિકાસ કથા એટલે જ શ્રી ચાંપરાજભાઈનું શ્રેષ્ઠ પ્રદાન.

એમને સર્જનાત્મકતાની પ્રવૃત્તિમાં સૌથી મોટો આનંદ મળતો. એમણે એમની એક પ્રયોગશાળામાં અઘરાં રસાયણો બનાવ્યા હતા. રમકડાં, ફટાકડા પણ બનાવતા હતા. ૧૯૪૨-૪૩ ની આઝાદીની લડતમાં ભુગર્ભવાસીઓને હાથ-બોમ્બ પણ પૂરા પાડ્યા હતા. તેઓએ હવાઈદળને ટીટેનિયમ ટેટ્રાફ્લોરાઈ ડ્મોકરડીનની જરૂરિયાત પૂરી પાડી હતી. તેમણે સાબિત કરી આપ્યું કે યંત્ર નહિં. પરંતુ યંત્રને બનાવનાર માનવીનું મગજ મહત્વનું છે.

અનાજને જીવાણું મુક્ત કરવા માટે સરકારે સેલ્ફોસની જરૂરિયાત પૂરી પાડી હતી. જે માટે ૧૯૭૦ માં 'એક્સપોર્ટ સબસ્ટિટ્યૂશન' ને સૂવર્ણ શિલ્ડ એકસેલને પ્રાપ્ત થયો હતો. ચાંપરાજભાઈનું સ્વપ્ન રસાયણ ક્ષેત્રે ભારતને સ્વાવલંબી બનાવવાનું હતું.

રસાયણ ક્ષેત્રે અનેક શોધ કરી. આજે પ્લાસ્ટિકનું ફર્નિચર બનાવવાનો જશ પણ ચાંપરાજભાઈને જાય છે.

આ રસાયણ ઉદ્યોગના પિતાનું નિધન તા. ૩-૧-૧૯૮૮ ના રોજ થયું હતું.

Saifulsalim Mathakiya
TY BSc (Physics)

"ખુશીના સરનામે સુખની ટપાલ"

ખુશી અને સુખ આ બંને શબ્દોની શબ્દ રચના જેમ એકબીજાથી ઉલટી છે. તે જ રીતે બંનેના અર્થ પણ ઉલટા છે. પણ મોટે ભાગે મોટાભાગના લોકો ખુશીને જ સુખ અને સુખને ખુશી માની લેતા હોય છે. દરેક સુખ ખુશી આપતું નથી પણ મોટાભાગની ખુશી સુખ આપતી હોય છે. જેમ કે તમે રસગુલ્લા ખરીદી શકો એટલા સુખી છો, પણ તે ખાઈ શકો એવી તમારી હેલ્થ નથી. એટલે રસગુલ્લા ખરીદવાનું સુખ તમને ખુશી આપતું નથી. આવા તો ઘણાય સુખને આપણે ખુશી માની લેતા હોઈએ છીએ.

તો હવે સવાલ એ છે કે ખુશી મળે શેમાંથી ? ખુશી બહુ સરળ વ્યક્તિત્વવાળી છે. તેને મેળવવા માટે કંઈ મોટા પ્લાનિંગ મોટી સકસેસની જરૂર નથી હોતી, તે જીવનની નાની નાની પળોમાં મળે છે.

તમે રોજ રાત્રે, સવારે ફરી ઉઠાસે કે નહી તે ચિંતા કર્યા વિના સૂઈ શકો છો, એ ખુશી છે. તમારે સવારે ઉઠીને આજના દિવસે બે ટાઈમનું જમવાનું મળશે કે કેમ, એ વિચાર નથી કરવા પડતા, એ ખુશી છે. સવારમાં ઉઠીને વાઈફ સાથે મીઠો ઝઘડો કરી શકો છો, એ ખુશી છે. તમારા છોકરાઓના મસ્તીવાળા ઝઘડા માણી શકો છો, એ ખુશી છે. તમને જે મન થાય તે ખાઈ શકો છો, જે મન થાય તે પહેરી શકો છો એ ખુશી છે. સાંજ પડે મિત્રો સાથે વગર ટોપિકના કલાકો સુધી ગપ્પા મારી શકો છો, એ ખુશી છે. રાત્રે ફેમિલિ સાથે ડિનર કરી શકો છો, એ ખુશી છે. આટલા મોટા થયા પછી પણ મમ્મી-પપ્પાના શીખામણના શબ્દો સાંભળી શકો છો, એ ખુશી છે. અને અત્યારે આ લેખ વાંચી શકો છો એ પણ એક ખુશી છે...

કારણ કે આ ઉપર જે બધી ખુશીની વાત કરી તે રોજની જીંદગીમાં તમે રોજ માણો છો. દુનિયામાં એવા ઘણા લોકો છે જેમને આમાંથી એક પણ ખુશી નથી મળતી તો પણ તે લોકો આપણી જેમ ટેન્શનમાં નથી જીવતા. કારણ કે એમને ભરોસો છે કે, "જે ઈશ્વરે નાનામાં નાના જીવડાની બે ટાઈમ જમવાની વ્યવસ્થા કરી છે તેને આપણા માટે પણ કંઈક તો વિચાર્યું હશે ને!!"

આ બધી કથા કરવાનો મતલબ એટલો જ છે કે જો તમે સુખને તમારા જીવનનું લક્ષ્ય બનાવશો તો તમને ખુશી મળશે તેની કોઈ ગેરન્ટી નથી. પણ જો તમે ખુશીને તમારા જીવવનું ધ્યેય બનાવશો તો સુખ મળશે જ તેની ગેરન્ટી છે!!

અને ખુશી માટે કંઈ બહુ મોટા સોદા કરવાની જરૂર નથી. માત્ર જીવનની નાની નાની ક્ષણોમાં ઈન્વોલ થઈને જીવતા રહો, સુખીની ટપાલ તમારી ખુશીના સરનામે આવતી રહેશે.

"તમે જીવી રહ્યા છો એની ખુશી છે તમને, તો તેનાથી મોટું સુખ બીજું કોઈ છે જ નહીં!!"

Juhi Soni
SY BSc (Physics)

પરિવર્તન – It's time to get up

ગીતામાં શ્રી કૃષ્ણ ભગવાને કહ્યું છે. ''પરિવર્તન'' જ સંસારનો નિયમ છે. આજે આપણે દરેક ક્ષેત્રમાં ખુબ પ્રગતિ કરી છે અને ઊંચી નામના મેળવી છે.

એક જગ્યાએથી બીજી જગ્યાએ સંદેશો પહોંચાડવા માણસને કેટલોય સમય લાગતો તો જે આજે એક સેકન્ડ માઈલો દુર રહેલ વ્યક્તિ સાથે વાત કરી શકાય છે. માણસ આજે આકાશ સાથે વાતો કરતી ઈમારતોમાં રહેવા લાગ્યો છે. જરૂરીયાત પ્રમાણે વૃક્ષોનો નાશ કરતો ગયો અને ખુલ્લા મેદાનોનો વપરાશ કરતો થયો છે. જ્યાં ત્યાં ફેક્ટરી ઉભી થઈ અને તેના કારણે હવા, પાણી, ભૂમિ વધુ દુષિત થાય છે.

વિજ્ઞાન ક્ષેત્રે, ઉદ્યોગ ક્ષેત્રે એમ દરેક ક્ષેત્રમાં આપણે પ્રગતી કરીએ તે સારુ કહેવાય. પરંતુ સામે આપણે પર્યાવરણનું જતન પણ કરવું જોઈએ તેનાથી આપણને જ ફાયદો છે.

પહેલાના જમાના કરતા આજે માનવીએ દરેક ક્ષેત્રમાં પરિવર્તન લાવ્યું છે. એનું રહેઠાણ, ખાણી-પીણી, વસ્ત્ર પરિધાન, એમ ઘણા ફેરફાર જોવા મળ્યો છે. પહેલાના જમાનામાં માણસને ફક્ત શરીરને રક્ષણ આપવા માટે વસ્ત્રની અને પેટનો ખાડો પુરવા માટે અન્નની જરૂર પડતી હતી.

આપણે જાણીએ છીએ કે પરિવર્તન આપણા જીવનકાળ દરમિયાન ખૂબ જ મહત્વનું સ્થાન ધરાવે છે. પરંતુ શું તે આપણી ભારતીય સંસ્કૃતીના ભોગે યોગ્ય ગણાશે?

આજે પરિવર્તનના નામે ટેકનોલોજી, મનોરંજન, વસ્ત્ર પરિધાન માં વિદેશી દેશોનું આંધળું અનુકરણ કરે છે. આજે વિદેશની લેટેસ્ટ પ્રોડક્ટનું નામ બધાને ખબર હશે પરંતુ ઈતિહાસમાં ઋષિમુનિઓ દ્વારા આપણા હીત માટે થયેલ શોધ વિશે કોઈ નહિ જાણતું હોય. આજે બધા જેકી ચૈનને ઓળખે છે. પરંતુ એ જ ચીનને સાવલીન માસલ આર્ટ શીખવનાર બૌધી ધર્મનને કોઈ નથી ઓળખતું.

આ તો ફક્ત આપણે પોતાની જાતને અરીસા સામે રાખી છે. તનાથી ખબર પડે છે. કે આપણે તનથી તો ભારતીય છીએ પરંતુ મન આપણું વિદેશી છે.

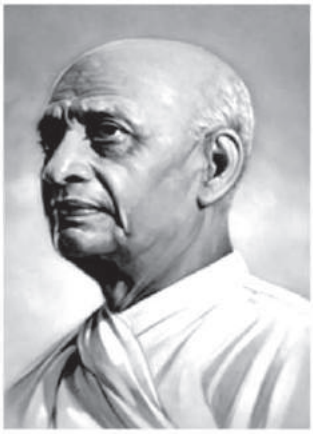
વિદેશી સંસ્કૃતીને અપનાવવી સારું શીખવું તેનું સન્માન કરવું તેના કંઈ જ ખોટું નથી પરંતુ આપણી ભારતીય તરીકેની ઓળખ અને સંસ્કૃતીના ભોગે તે ખોટું કહેવાય.

પરિવર્તન એટલે ફક્ત સુધારો કે પછી ફક્ત પ્રગતી કરવી એવો નથી થતો પરંતુ પરિવર્તન એટલે આપણે આપણી જીવનશૈલીને વધુ સરળ બનાવવી અને સાથે સાથે આપણને પૂર્વજો તરફથી મળેલ વારસાનું જતન કરવું.

ટૂંકમાં માનવીએ પોતાના વિકાસ માટે નાની-નાની વસ્તુમાં પરિવર્તન લાવવું જોઈએ. પરંતુ બધી રીતે સમાનતા રાખવી જોઈએ. વીદેશી ખાણી-પીણી, સંગીત, વસ્ત્ર અપનાવવા ગમે છે તો અપનાવો પરંતુ સાથે સાથે ભારતીય સંસ્કૃતીનું પણ સન્માન રાખવું જોઈએ.

Pooja N. Rathava
FY BSc

અખંડ ભારતના શિલ્પી – સરદાર વલ્લભભાઈ પટેલ



ભારતના ઘડવૈયા અને અંખડ ભારતના શિલ્પી સરદાર વલ્લભભાઈ પટેલનું નામ ઈતિહાસમાં સૂવર્ણાક્ષરે લખાયેલું છે. અને એમનો જન્મ નડિયાદમાં થયો હતો. પિતાનું નામ ઝવેરભાઈ અને માતાનું નામ લાડબાઈ હતું.

સરદાર પટેલનું જીવન અને કાર્ય એક અમર ઈતિહાસ છે. બાળપણથી જ નીડર, નિઃસ્વાર્થપણું, અન્યાય સામે ઝઝુમવાના તેમના ગુણો હતા.

ધોરણ ચાર સુધી વતન કરમસદ, ત્યાર બાદ પેટલાદ અને ત્યાંથી નડિયાદ ખાતે અભ્યાસ કર્યો હતો. નડિયાદમાં મેટ્રીક પાસ કરી વકીલ થયા.

૧૯૧૦ માં બેરિસ્ટર થવા ઈંગ્લેન્ડ ગયા. ત્યાં સફળતા મળ્યા બાદ ૧૯૧૩ માં ભારત પરત ફર્યા. સામેથી આવેલી સરકારી નોકરીની અનેક લોભામણી ઓફરો ફગાવી અમદાવાદમાં વકિલાત શરૂ કરી. ૧૯૨૧ માં વકીલાતને તિલાંજલી આપી. ગાંધીજીના સંપર્કમાં આવ્યા પછી તેમનો જીવનરાહ બદલાયો. કોંગ્રેસમાં જોડાઈ તેઓ ગુજરાત પ્રાંતીય સમિતીના અધ્યક્ષ બન્યા. ૧૯૨૮ ના બારડોલી સત્યાગ્રહમાં તેઓ સફળ થયા જેથી તેઓ 'સરદાર' ના હુલામણા બિરુદથી ખ્યાતિ પામ્યા. સ્વંતંત્રતા મળ્યા પછીના પ્રથમ પ્રધાનમંડળમાં ગૃહ ખાતાના હવાલાની સાથે દેશના પ્રથમ નાયબ વડાપ્રધાન તરીકેની જવાબદારી સંભાળી, ભારત સ્વતંત્ર થયું ત્યારે ભારતની ૪૦ ટકા પ્રજા દેશી રજવાડાઓના શાસન નીચે હતી. માત્ર બે જ વર્ષમાં દેશી રાજ્યોનું ભારતીય સંઘમાં વિલીનીકરણ કરીને અખંડ ભારતનું નિર્માણ થયું. આમ સરદાર લોખંડી પુરુષ કહેવાયા. લોખંડી પુરુષ હોવા છતાં પુષ્પ કરતાંય કોમળ હૃદયનાં હતા.

હું ગુજરાતીઓને કહું છુ કે, ''તમે ભલે દુબળા હોવ, પણ કાળજુ વાઘ-સિંહનું રાખો. સ્વમાન ખાતર મરવાની તાકાત હૃદયમાં રાખો. કોઈ તમને અંદરોઅંદર લડાવી ન શકે એટલી સમજણ રાખો''

દેશ સામે અનેક પડકારો આવ્યા. દરેક વખતે વલ્લભભાઈએ દેશના હિતમાં કાર્ય કર્યું. દેશની અખંડિતાનું એમણે જતન કર્યું. અખંડ ભારતનાં શિલ્પી તરીકે તેમનું કાર્ય સદા અવિસ્મરણીય રહશે. ભારતની ભાવી પેઢી માટે તેઓ લોકપ્રિય નેતા, અખંડ ભારતના શિલ્પી તથા 'સરદાર' તરીકેની કાર્ય પધ્ધતિથી સદા પ્રેરણા આપતા રહેશે.

સરદાર વલ્લભભાઈ પટેલનાં લોખંડી નેતૃત્વની એક અદ્‌ભુત દેણ તે દેશી રજવાડાઓનું ભારતમાં એકત્રીકરણ. આ પ્રયત્ન ભારતની એકતાને મૂર્તિમંત કરવાનો હતો. આ યુગકાર્યને સન્માનનીય ઊંચાઈ મળે તે માટે પૂર્વ મુખ્ય મંત્રીશ્રી નરેન્દ્રભાઈ મોદીએ સરદાર વલ્લભભાઈ પટેલની જગતની સૌથી ઊંચી પ્રતિમા રચવાનો સંકલ્પ કર્યો જે સરદાર સાહેબના વિરાટ વ્યક્તિત્વની વિશ્વને પેઢીઓ સુધી અનુભૂતી કરાવાના અર્થે સરદાર સરોવર ડેમ નજીક સરદાર વલ્લભભાઈ પટેલની ૧૮૨ મીટરની વિરાટ પ્રતિમાનો શિલાન્યાસ કર્યો. જે 'સ્ટેચ્યુ ઓફ યુનિટી' ના નિર્માણથી દેશની એકતા અને દેશની અખંડિતાનું વિશ્વને યાદગારી આપતું રહેશે.

Saifulsalim Mathakiya
TY BSc (Physics)

"સેલ્ફ – સેલિબ્રિટી" નું સેલિબ્રેશન

"નિજાનંદ-પરમ્આનંદ"...ઘણીવાર આ સાંભળ્યું છે પણ ઘણી ઓછીવાર અનુભવ્યું છે. નિજાનંદમાં હોવું એટલે પોતાની સાથે અને પોતાની માટે જીવવાનો આનંદ માણવો તે પણ આપણે તો એવું જ માનીએ છીએ કે પોતાના માટે જીવવું એ સ્વાર્થ છે. એટલે તેના વિશે વિચારતા જ નથી. પણ ખરેખર તો બીજા કોઈનું વિચાર્યા વગર પોતાના માટે જીવવું એ સ્વાર્થ છે. બાકી તો પોતાના માટે જીવવું એ તો એક 'ઉત્સવ' છે. એક એવો ઉત્સવ કે જેમાં તમે તમારી સાથે હોવ, તમારી પોતાની કંપની એન્જોય કરો એવો આ ઉત્સવ છે. તમારો 'પોતાનો' આ ઉત્સવ છે. જેમાં માત્ર તમારી જ પૂરેપૂરી હાજરી હોય છે.

પણ આપણે આવો ઉત્સવ તો ક્યારેય ઉજવતા જ નથી. કારણ કે આપણે બહુ બીઝી હોઈએ છીએ બીજા લોકો કેવું વિચારશે તે વિચારવામાં, લોકોને ગમતું કરવામાં, લોકોના ડરથી આપણને પોતાને કેવું ગમશે, કેવું લાગશે તેનો વિચાર કરતા જ નથી... આપણે આવા દિવસ દરમિયાન એવી કેટલી વસ્તુ કરીએ છીએ કે જેમાં આપણેને મઝા આવે છે. જે કરવાથી ફક્ત આપણને આનંદ મળે છે એટલે કરીએ છીએ... અરે, આપણે તો ટાઈમ જ નથી મળતો આપણા પોતાના માટે જ....

આ આપણી અંદર રહેલી એક એવી વ્યક્તિ માટે ઉત્સવ મનાવવાની વાત છે જે હંમેશા આપણી જોડે રહે છે. દરેક સાચા નિર્ણયો લેવામાં સાથ આપે છે અને દરેક ખોટા નિર્ણયો લેતી વખતે જે ખચકાટ થાય છે તે આ વ્યક્તિ છે... આપણા દરેક રીએક્શન પાછળનું ડ્રિએશન આ વ્યક્તિ છે આપણી દરેક ખુશીમાં ખુશ થાય છે. અને દુઃખમાં આપણને રડાવીને દુઃખ હલકું કરે છે તે આ વ્યક્તિ છે. આ તે વ્યક્તિ છે જે આપણા માટે શું સાચુ છે તે નહી પણ શું સારું છે તે પસંદ કરે છે.

પણ આપણે તો એકાંતમાં રહેવાનું પસંદ જ નથી કરતા, કારણ કે જ્યારે એકાંતમાં હોઈએ છીએ ત્યારે પોતાની સાથે હોઈએ છીએ અને ત્યારે જ તે અંદર રહેલી વ્યક્તિ બૂમો પાડીને આપણને જે કંઈ ખોટું કર્યું છે તેના પ્રત્યે સભાન કરે છે. આપણે પોતાના પ્રત્યે પ્રામાણિક નથી હોતા એટલે જ એકલા રહેવાનું ટાળીએ છે. પોતાના પ્રત્યે પ્રામાણિક હોઈશું તો અંદરથી આવતા અવાજથી ભાગવાની જરૂર નહીં પડે...

ક્યારે ક્યારે, કોઈકવાર પોતાને પણ ટ્રીટ આપતા રહેવું જોઈએ. કોઈક કમીટમેન્ટ પૂરું કર્યું હોય તો પોતાની પીઠ પર હાથ થાબડવો જોઈએ. પોતાની સાથે પોતાનું જ સેલીબ્રેશન કરવું જોઈએ. તો જ પોતાને લવ કરી શકશો.

"જો તમે તમારી જાતને પ્યાર કરતા હશો તો તમારા કોઈ દુશ્મન નહી હોય, કારણ કે તે અંદરનો અવાજ જેને તમે પ્રેમ કરો છો તે ક્યારે ખોટું થવા જ નથી દેતો અને તે જ આવાજને પ્રેમ કરતા હશો એટલે તેના નિર્ણય અસ્વિકાર તો કરી જ નહીં શકો!!"

"Love yourself, Celebrate yourself"

Juhi Soni
SY BSc (Physics)

"દિકરી"

દિકરીનું નામ સાંભળતા જ એક પિતાને એની દિકરી યાદ આવી જાય છે. એક પિતા આ દુનિયામાં સૌથી વધારે કોઈને જો પ્રેમ કરતા હોય ને તો એ દિકરી છે. અને પિતાને જો કોઈ રડાવી શકતું હોય ને તો એ પણ દિકરી છે. દિકરીના લગ્નની જ્યારે વાત આવે છે ને ત્યારે સૌથી વધારે દુઃખ દિકરીની માતા કરતા દિકરીના પિતાને થાય છે. જ્યારે દંપતિના ઘરમાં દિકરીનો જન્મ થાય છે ને ત્યારે લક્ષ્મી ઘરમાં આવી એવું આપણા શાસ્ત્રમાં લખવામાં આવ્યું છે. અને જ્યારથી તે આવે છે ત્યારથી ઘરમાં આનંદ અને ઉલ્લાસનું એક અનેરૂ વાતાવરણ છવાઈ જાય છે.

એક પિતાની દિકરીએ દિકરી જ નથી હોતી, તે એક ભાઈની બહેન, તેના પતિની પત્ની અને તેના બાળકોની માતા હોય છે. દિકરીને તેના જીવનકાળમાં અનેક રૂપે નિહાળી શકાય છે. ક્યારેક માતા, તો ક્યારેક બહેન અને ક્યારેક સાસુની અવળી-સવળી વાતોનો ઝેર જેવો વાટકો હસતા મોઢેથી પી જતી વહુના સ્વરૂપે અને આજ એ જ દિકરીનું આ સમાજમાં નિર્મમતાથી બળાત્કાર, ભ્રૂણહત્યા, વગેરે જેવા દૃષ્ટ કૃત્યોથી તેનું જીવન વેરવિખેર કરી નાખવામાં આવ્યું છે. શું આ છે એ દિકરી? જેના પર આપણે ખુલ્લેઆમ સમાજમાં અપમાન કરીએ છીએ. આ એજ દિકરી છે, જે લગ્ન પછી પોતાના માતા-પિતા, ભાઈ-બહેન, કુંટુંબીજનો, ઘર, મોજ-શોખ, રમત-ગમત અને પોતાના જીવનની અમૂલ્ય ક્ષણો જ્યાં તેણે વિતાવી છે એ શહેર અને એનું એ ફળિયું મુકીને આવે છે. માત્ર પોતાનું નવું દાંપત્ય જીવન શરૂ કરવા અને ત્યાં પોતાના પતિના માતા-પિતા તેના પર અત્યાચાર કરે છે. જેને પોતાને પણ દિકરી છે. શા માટે તે આવું કરે છે ? શું દિકરાની વહુ કોઈની દિકરી નથી ? તે તેના પૌત્રની માતા નથી ? શું તે કોઈ ભાઈની બહેન નથી?

આપણે આપણા વિચારો બદલવા જોઈએ. આપણે આપણી દિકરી માટે સારું ઘર, સારો પરિવાર ઘરાવતા છોકરા શોધવા નિકળી છીએ અને એ તમને ત્યારે જ મળશે જ્યારે તમે આવનાર દિકરાની વહુ માટે એક આદર્શ માતા-પિતા બનો. તમે આવનારી દિકરીને દિકરાની વહુ સમજીને નહી, પરંતુ તેને પોતાની દિકરી સમજીને માન, સન્માન અને પ્રેમ કરો. તેને પોતાના માતા-પિતાની ગેરહાજરીના વર્તાવા દો. અને આવું થાશે ત્યારે જ આપણા સમાજમાં સ્ત્રીઓને સુરક્ષા અને તેમના હકો મળશે.

કહેવાય છે ને કે ભગવાન તેના બધા બાળકો પાસે પહોંચી નથી શકતા એટલે તેને માતા (દિકરી) ના રૂપે પોતાનો અવતાર ધારણ કર્યો છે. એટલે જ માતાનું સ્થાન ભગવાનથી પણ વિશેષ છે. આથી જ કહેવાય છે કે,

"મા તે મા બીજા બધા વગડાના વા"

Shreya C. Parsanya
SY BSc (Physics)

There are three constants in life.....
Change, choice and principles
-Stephen Covey

"નોટબંધી એક ઐતિહાસીક નિર્ણય"

નોટબંધી કેવો નાનો ચાર શબ્દ નો અક્ષર જેણે ૮ નવેમ્બરે ભારતની ૧૨૫ કરોડની જનતાના વિચારો થોડી વાર માટે થંભી ગયા. આપણા વડાપ્રધાન શ્રી નરેન્દ્રભાઈ મોદી એ કરેલ ઐતિહાસિક નિર્ણય જે ભારતના અર્થશાસ્ત્રને અસર કરીદે તેમ હતું. આ નિર્ણયમાં એક હજાર તથા પાચસો રૂપિયાની નોંટો પાછી ખેંચવામાં આવશે તેમ જણાવી દેવામાં આવ્યું.

નોટબંધી કરવા પાછળનું કારણમાં તેમ હતું કે આપણા દેશ ને વિકસીત દેશોની હરોળમાં લાવવાનું અને મુખ્યત્વે વધતી જતી ગરીબી, આંતકવાદ, કાળાનાણાં પ્રત્યે ઓછુ કરવાનું સાહસિક પગલું હતું.

નોટબંધી થવાથી એકાએક થયેલી રૂપિયાની અછત, જનતાને પોસ્ટ, બેંકમાં ઊભા રહેવામાં થયેલી મુશ્કેલી તથા ATM માં પૈસા ન હોવાથી થયેલી મુશ્કેલીથી કેટલીક જગ્યાએ નોટબંધીના નિર્ણયને નકાર સાંપડવો પડ્યો છે તો કેટલીય જગ્યાએ આજ નિર્ણય પર જનતાનો સાથ સાથે આવકારી લેવાયો છે. આ બધી જ મથામણમાં અર્થશાસ્ત્રીઓના કહ્યા મુજબ આપણો દેશ પચાસ વર્ષ પાછળ થઈ ગયો છે. તેમ છતાય રૂપિયાની અછત ઓછી કરવામાં તથા સમયસર જેમ બંને તેમ વહેલી તકે રૂપિયા પહોંચાડવામાં એર ઈંડિયાએ કરેલ મદદ તથા બેંકના કર્મચારી વર્ગનો ખુબ જ મહત્વનો ફાળો રહ્યો છે.

નોંધબંધીનો આશય સારો નિર્ણય છે. જેનાથી મેક ઈન ઈન્ડિયા, ડિજીટલ ઈન્ડિયા જેવા પ્રોજેક્ટ પુરા કરવામાં થોડી ઘણી સફળતા રહે. અને આમાનો જ એક ભાગ એટલે કે કેશલેશ ઈન્ડિયા. કેશલેશ ટ્રાન્ઝેકશન દ્વારા ખોટુ થતા રોકી એટલે કે ગરીબી, આંતકવાદ જેવા પરિબળોને મોટાભાગે રોકી શકાશે. કેશલેશ દ્વારા બધુ સારી રીતે અને સરળ બનાવી શકાશે.

આ નિર્ણય સારી રીતે સફળ નથી રહ્યો કારણ કે નેટવર્કની અસુવિધા તથા નેટવર્ક હોય છે છતા પણ ઈંટરનેટ નો ઓછો વપરાશ તથા આપણી સરકારી શાખાઓમાં મોટાભાગે જૂના ઉપકરણો જેવા કે કમ્પ્યુટર પ્રિન્ટર તથા હમણા કેટલાક સમયથી ઉપલબ્ધ કરેલી ઇન્ટરનેટ ઓછી સ્પિડ જેવા પરિબળો દ્વારા આ ઓછો સફળ સાબિત થયો છે. જ્યારે એક બાજુ આપણા દેશમાં ગામડામાં રહેતા લોકોનો ઓછો કમ્યુનિકેશન વપરાશ જવાબદાર રહ્યા છે.

આ બધુ ઝડપી સરળ ત્યારે જ બનશે જ્યારે આ સમાજમાં એક બીજા પ્રત્યે ભાઈચારો તથા કોમ્યુનિકેશન વધશે. જ્યારે લોકો એકબીજાને સાચી માહિતી આ માટેની જાણકારી આપી શકશે. હા આ બધુ કરવામાં સાઈબર ક્રાઈમ પણ વધશે. તો આ માટે જરૂરી પગલા લેવા પડશે.

આજે દુનિયામાં કેટલાય એવા દેશ છે. જ્યાં રૂપિયા દેખાતા નથી પણ વપરાય છે. હું કેશલેશ મનીની વાત કરું છું. કે જે વપરાય છે. તમારા ખાતામાંથી બીજાના ખાતામાં ટ્રાન્સફર કરી તેમે લેવડ દેવડ નો વ્યવહાર કરી શકશો.

નોટબંધી એ આવનાર સમયમાં દેશને ઊજવળ, ભ્રષ્ટ્રાચારવિહિન તથા વિકસિત બનાવવા માટેનું એક સુવર્ણ સોપાન છે. જેથી કરીને આપણે આપણા દેશને અર્થતંત્રને ઊંચુ લાવવામાં મદદ કરવી જોઈએ.

Khanapara Himanshu
TY BSc (Physics)

''સપનાની સફળતા''

ખ્વાબ, ડ્રીમ્સ, સપના આ શબ્દો સાંભળતા જ આપણે પોતે જોયેલા સપનાઓમાં ધીમે રહીને સરકી જતા હોય છે. આ સપનાઓમાં સરકી જવું આપણને ગમતું હોય છે. કારણ કે તે આપણે પોતે બનાવેલી આપણી દુનિયા છે. આપણું ડ્રીમ વર્લ્ડ છે. જેમાં આપણને ગમતી વ્યક્તિઓ હોય, આપણને ગમતી વસ્તુઓ હોય અને આપણા પ્રમાણે ચાલતો સમય હોય અને વિચારો કે આ બધા જ સપનાઓ સાચા થઈ જાય તો તમારી વાસ્તવિક જીંદગી પણ સપના કરતા વધારે મઝાની બની જાય અને આ બધુ શક્ય બનાવવા માટે બસ તમારે માત્ર પ્રયત્ન કરતા રહેવાનું છે અને બસ શરત એક જ છે કે તે સપનાઓ તમારે તમારી શરતોએ પૂરા કરવાના છે કારણ કે જો તમે બીજાની શરતોએ તમારા સપના પૂરા કરશો તો બીજાના સપના પૂરા કર્યાનો અહેસાસ સિવાય બીજું કશું નહીં મળે.

સપના અને વાસ્તવિકતા વચ્ચે માત્ર એટલું જ અંતર છે જેટલું એક પ્લેટફોર્મ પર ધીમે ધીમે પસાર થતી ટ્રેન અને પ્લેટફોર્મ વચ્ચે હોય છે જો તમે પૂરા આત્મવિશ્વાસથી, હિમંતથી, સમજપૂર્વક, પૂરેપૂરી સતર્કતાથી, સમયસૂચકતા વાપરીને છલાંગ લગાવશો તો ચોક્કસ નક્કી કરેલા સ્થળ પર પહોંચી જશો અને જો થોડી અસતર્કતા, બેધ્યાન થયા તો પૂરી જીંદગી સપનાનું જીવન અને વાસ્તવિક જીવન વચ્ચે પીસાયા કરશો.

જ્યારે તમે તમારા સપના પૂરા કરવા આગળ વધતા હોવ અને એ પૂરા કરવામાં જે પણ કંઈ પ્રયત્નો કરવા પડતા હોય તે પ્રયત્નોમાંથી થાકને બદલે ઉત્સાહ મળતો હોય, નિષ્ફળતાને કારણે હતાશાને બદલે શીખ મળતી હોય, ટીકાને કારણે ગુસ્સો નહી પણ સમજદારી વિકસતી હોય અને આ બધી જ પરિસ્થિતિમાંથી પસાર થઈને તેમાંથી મળતી મુશ્કેલીની દુઃખભરી વાતો કરવાની જગ્યાએ આ બધી જ પરિસ્થિતિ માટે ઈશ્વરીય શક્તિને થેંક્યું બોલવાનું મન થાય તો સમજજો કે હવે તમે તમારા જીવનની મોટામાં મોટી સફળતા પચાવવા તૈયાર છો. કારણ કે જે મોટામાં મોટી મુશ્કેલી એક પણ અવાજ કાઢ્યા વગર પચાવી શકે એ જ એક મોટી સફળતા પચાઈને તેની મઝા માણી શકે છે.

તમારા જીવનમાં આવતી મુશ્કેલી તો બસ એક ઘડાને ઘાટ ઘડવા માટે મારવા પડતા ડફણા જેવી છે. જો તમે તેનો સામનો કરશો તો તમારો ઘાટ ઘડાશે અને તમે તેનાથી હારી જશો તો માત્ર ગોબા જ પડશે અને તમારું જીવન કદરૂપું થઈ જશે. એટલે જ ક્યારેય મુશ્કેલીઓ સામે દલીલ નહીં કરવાની બસ એમાંથી જે શીખવા મળે તે શીખી લેવાનું. શું ખબર મોટામાં મોટી મુશ્કેલીમાં જ મોટામાં મોટી તક છુપાયેલી હોય!

જે વ્યક્તિ પોતાની શરતો પર પોતાના સપના જીવે છે અને પૂરા કરે છે એ વ્યક્તિ તેના ક્ષેત્રમાં ટોચ પર પહોંચે જ છે કારણ કે તેને એ સપનાને પોતાની શરતો પર પૂરા કરવાની બહુ મોટી રકમ ચૂકવી હોય છે. ઘણું બધુ છોડવું પડતું હોય છે અને ઘણું બધું છૂટી જતું હોય છે. ઘણા બધા અનુભવો કરવા પડતા હોય છે અને ઘણાને અનુકુળ થવું પડતું હોય છે. જીવનની ઘણી શીખ મોટી ખોટ ખાઈને શીખવી પડતી હોય છે. અને આ બધી જ પરિસ્થિતીમાંથી પસાર થઈને જે વ્યક્તિ બહાર નીકળે છે તેને દુનિયા સફળ વ્યક્તિ તરીકે ઓળખે છે.

દુનિયા માત્ર તમારી સફળતા જ દેખે છે. કારણ કે જે એક ડાયલોગ ડીલીવરી પર બે મીનીટ સુધી તાળીઓ વાગતી હોય તે એક ડાયલોગ પાછળ કેટલીય રાતોના ઉજાગરા હોય તેમાં કોઈને રસ નથી હોતો. એટલે જે તમારા કઠીન સમયની ચર્ચા દુનિયાને નહી કરવી કારણ કે તેમાં કોઈને રસ હોતો જ નથી. દરેકને અંતિમ પરિણામમાં જ રસ હોય છે. આ એવી લર્નિંગ પ્રોસેસ છે. જેમાં તમે જેટલાં કડવા ઘુટડા પીતા જશો એટલા જ મીઠા બનતા જશો.

Juhi Soni
SY BSc (Physics)

આઝાદી '૭૦ યાદ કરો કુરબાની

''कभी ये दीन आयेगा,
की जब आजाद हम होंगे,
ये अपनी ही जमी होंगी,
ये अपना आसमा होगा।''

પ્રસ્તાવના : ઈતિહાસમાં આઝાદી માટે લોહીયાળ ક્રાંતિઓ થઈ, ગાંધીજીએ સત્ય અને અહીંસાની મશાલ જલાવી અને ભારતની ધરતીને અંગ્રેજોના શાસનમાંથી મુક્તિ અપાવી. ત્યારે ભારતની આ મા કહેવાતી ધરતી ૧૫ ઓગસ્ટ, ૧૯૪૭ ના સુવર્ણ દિને લાલકીલ્લા પર ત્રિરંગો જાણે ગર્વથી લહેરાતો હતો. આ ગર્વની લાગણીઓના રોમાંચ અનુભવતા ખબર પણ ન પડતા ૭૦ વર્ષ પુરા થઈ ગયા.

<u>આઝાદી શું છે ? – આઝાદી એક શોધ.</u>

દેશનો પ્રત્યેક વ્યક્તિ પોતાની મા ભોમ પરના પ્રેમને લીધે સ્વાતંત્ર્ય દિન ના મંગલ દિવસે એવા નારા તો લગાવતો હશે કે- 'ઈન્કલાબ જીન્દાબાદ', 'આઝાદી અમર રહો' પણ કદાચ એને એ ખ્યાલ નહી હોય કે આઝાદી એ ખરા અર્થમાં શું ચીજ છે ? આઝાદીએ કોના અવિરત પરિશ્રમનું પરિણામ છે? કારણ, આજે ભારતની ધરતી પર હાજર લગભગ ૭૦% લોકોનો જન્મ સ્વતંત્ર ભારતમાં થયો છે. તેમને કદાચ ખબર જ નથી કે ગુલામી શું છે ? પરતંત્રતા શું છે ? દેશના શહીદવીરો પ્રત્યે માનની દ્રષ્ટિથી જોનારા કેટલાક લોકોએ આઝાદીનો ઈતિહાસ વાંચ્યો હશે તો થોડીઘણી ખબર હશે કે આઝાદી શું હોઈ શકે ? માત્ર ખબર જ હોઈ શકે. પણ પરાધીનતામાં શું શું ભોગવ્યું છે. તનો ખ્યાલ તો કદાચ એ શહીદવીરો અને સ્વતંત્રતા પહેલા જન્મેલા ભારતપ્રેમીઓને જ હોય, આઝાદ હિંદ માં જન્મેલા મારા તમારા જેવાને નહીં.

થોડો ઊંડો વિચાર કરીએ તો ખબર પડે કે આઝાદી શું હોઈ શકે ? ૧૯૪૭ પહેલાના લોકોને આઝાદીની કલ્પના હશે કે નહી? જ્યારે અંગ્રેજો ઈ.સ.૧૬૦૦ની સાલમાં ભારતમાં વેપાર અર્થે આવ્યા પણ ભારતની 'સોને કી ચિડીયા' જોઈને તેમને ભારત લુંટવાની અને ભારત પર પોતાનું આધિપત્ય સ્થાપવાની ઈચ્છા જાગી. મનમાં મનોરથ જાગ્યા, કે પછી તરત જ લગભગ ૫૦ વર્ષ પછી ઈ.સ.૧૬૫૦ થી બંગાળમાં પોતાના શાસનનો પાયો નાંખ્યો. ત્યાર પછી તો બક્સરનું યુદ્ધ, પ્લાસીનું યુદ્ધ વગેરે યુદ્ધો દ્વારા શાસકોને નબળા પાડ્યા. આમ, મુઠ્ઠીભર અંગ્રેજોએ ભારતની પ્રજાને અંદરો અંદર ઝગડી મારી, કોમવાદ, ભાગલા પાડો અને રાજ કરો વગેરે જેવી નીતિ અપનાવીને ભારતને જડબેસલાક લુંટ્યું અને અત્યાચારો આચર્યા.

અંગ્રેજોએ શાસનની શરૂઆત કરી ત્યારે (ઈ.સ.૧૭૦૦) ભારતની જે પ્રજા હતી તે સો વર્ષ પછી (ઈ.સ.૧૮૦૦) કદાચ નહી હોય. તેથી આ પ્રજા અંગ્રેજોના આગમન વિશે એટલી સ્પષ્ટ નહી હોય કે જેટલા તેઓના પૂર્વજો માહીતગાર હતા. અને હજીયે બીજા સો વર્ષ (ઈ.સ.૧૯૦૦) પછીની ભારતીય પ્રજા લઈ લઈએ તો એ પ્રજાને એવું તદ્દન નહીં લાગતું હોય કે અંગ્રેજો એ બહારથી આવેલી પ્રજા છે. કારણ કે ભૂરીયાઓએ સતત ભારતની પ્રજા પર અત્યાચાર કરીને, ભાગલા પાડીને, કોમી એકતા તોડીને તેમજ આપણા દેશના સાંસ્કૃતિક મૂલ્યોનું અધઃપતન કરીને અને પોતાના દેશની શિક્ષણપદ્ધતિ દાખલ કરીને ભારતીયોનું મનોબળ તોળી પાડ્યું હતું, આ અંગ્રેજી પ્રજાએ ભારત પર રાજ કરીને એવો તો સુમેળ સાધી લીધો હતો કે ૨૦૦ વર્ષથી ગુલામી કરી રહેલી ભારતની પ્રજાને સ્વતંત્રતાનો વિચાર સુદ્ધાં આવે તો એ એક ક્રાંતિ સમો હતો. કારણ એજ કે કોઈ વ્યક્તિને આપણા ઘરમાંથી ભગાડવો હોય તો પહેલાં તો એ પારકો લાગવો જોઈએ. અને આ અંગ્રેજ પ્રજા સતત ૨૦૦ વર્ષ સત્તાનો મારો ચલાવીને ભારતની પ્રજા સાથે વણાઈ ગઈ હતી કે જે પારકી લાગતી જ ન હતી. અને આ પારકી ન લાગતી પ્રજાને ભારતમાંથી ભાગડવાનો તદ્દન નવો જ વિચાર એ એક શોધ સમાન ગણી શકાય.

સ્વાતંત્ર્યવીરોનો કર્મયોગ :-

ગુલામીના એ અંધકારમય સમયમાં પણ કેટલાક એવા રત્નો હતા, કે જેની કદાપી કલ્પના ના થઈ શકે એવી આઝાદીનો વિચાર આવ્યો. માત્ર વિચાર કરીને બેસી રહેવાવાળા તે મીમાંશક લોકો ન હતા. એ તો વિચારને ક્રાંતિમાં બદલનારા ખરા કર્મયોગીઓ હતા. કે જેઓને યાદ કરીને 'મા ભારતી' પણ ગર્વથી લાગણીઓ અનુભવતી હશે. તેમણે ભારતને અંધકારમાંથી અજવાળા તરફ લઈ જતી ઉક્તિ **'तमसो मा ज्योतिर्गमय'** ખરા અર્થમાં સાર્થક કરી બતાવી છે. આવા સમયે રામપ્રસાદ બિસ્મિલે કહેલી એક પંક્તિ ટાંકવાનું મન થાય.

''सरफरोशी की तमन्ना अब हमारे दीलमे है,

देखते है दम कीतना बाजुए कातिल मे है।''

રામપ્રસાદ બિસ્મિલ કે જેમણે કાકોરી ટ્રેનની લુંટ કરી. આપણેને કદાચ એક ટ્રેનની લુંટની વાત તો દુર રહી, પણ રેલવેના પાટાનો નાનકડો બોલ્ટ પણ ચોરી કર્યો હોય તો તેની સજા કેટલી મોટી હોઈ શકે એ આપણને ખબર નહી હોય. રામપ્રસાદ બિસ્મિલે તો આખેઆખી ટ્રેનને રોકી, અંગ્રેજી શસ્ત્રસામાન લુટ્યો હતો. અને બિસ્મિલે આ લુંટ એ સ્વંતત્ર ભારતમાં નહી પણ અંગ્રેજોના શાસનમાં કરી હતી શું તેમને ખબર ન હતી કે આ કૃત્યની સજા શું હોઈ શકે ? બિલકુલ ખબર હતી, કે સજા એક જ હોઈ શકે અને એ પણ ફાંસીની. પણ એ લોકો જ કંઈક જૂદા હતા તેમનો દેશ પ્રત્યેનો પ્રેમ જ કંઈક અલગ હતો અને તેમની સ્વાતંત્ર્યપ્રાપ્તિની ધૂન અદમ્ય હતી.

ભગતસિંહે નેશનલ એસેમ્બલી માં બોમ્બ ધડાકો કર્યો એ શું કોઈને મારવા માટે કર્યો હતો ? અરે ! જો ભગતસિંહને અંગ્રેજોને નેશનલ એસેમ્બલીમાં મારવા જ હોત તો એક નહીં પણ એક સાથે વીસ ધડાકા કરતા, અને એક પણ અંગ્રેજ જીવતો બહાર નહીં નીકળતો. પણ તેમણે તો પોતાના પર લાગેલો આંતકવાદીનો આક્ષેપ દુર કરવો હતો. તેથી જ સામે હાથે ચાલીને ધરપકડને વહોરી હતી. તેમણે તો દેશના યુવાનોને માટે પ્રેરણાસ્ત્રોત બનવું હતું, જેથી આવા હજારો ભગતસિંહ આઝાદીની લડતમા કુદકો મારે. અરે ! ભગતસિંહે તો 'ઈન્કલાબ જીન્દાબાદ' (અમે શહીદ થઈએ છીએ પણ આઝાદીની લડત જીવતી રહેશે) ના નારા સાથે માત્ર ૨૩ વર્ષની ઉંમરે હસતા મોઢે ફાંસીના માંચડાને ચુંબન કરી શહીદીને વહોરી લીધી. આવો પ્રસંગ વિશ્વના ઈતિહાસમાં ભારતની ધરતી સિવાય અન્ય ક્યાંય જવલ્લે જ જોવા મળે.

સુભાષચંદ્ર બોઝ કે જેમણે તો એ વખતના અંગ્રેજી પ્રજાના શાસનમાં અઘરામાં અઘરી કહેવાતી એવી ICS (Indian Civil Services) ની પરિક્ષા દ્વિતિય ક્રમાંકે ઉત્તીર્ણ કરી. તેમને તો ન જરૂર હતી આઝાદીની લડત લડવાની કે ન આવશ્યકતા હતી સાહસ ખેડવાની. બોઝ તો અંગ્રેજી શાસનમાં પણ ઉચ્ચતમ ગણાતા એવા સનદી ઓફીસર બની શક્યા હતા. તેમને અંગ્રેજી સરકારમાં સેવા આપીને પૈસાની સાથે માન, મોભો અને પ્રતિષ્ઠા મળી શકે તેમ હતું, પણ તેમને મન તો મા ભારતીની પ્રતિષ્ઠા એજ પોતાની પ્રતિષ્ઠા એજ પોતાનું ગૌરવ હતું. બોઝ એ અંગ્રેજોની ગુલામીયતને ઠુકરાવી દે છે.

આ જ બોઝ 'આઝાદ હિંદ ફૌઝ' ની રચના કરે છે. અને **'तुम मुझे खुन दो, मै तुम्हे आझादी दूंगा'** ના સુત્રોચ્ચાર નારા અનેક ભારતીય માતાઓને પોતાના દિકરાઓને આઝાદીની લડતમાં હવનમાં હોમવા પ્રેરે છે. અને પોતાનું શહીદીપુષ્પ મા ભારતીના ચરણે ધરે છે.

જ્યારે જ્યારે હિંદ ની આઝાદીની વાત આવે ત્યારે સફેદ ધોતી, પાણીની માત્ર એક લોટી અને સત્ય અને અહિંસાના કપરા માર્ગ પર ચાલીને ભારતની આઝાદીમાં જેમણે મહત્વપુર્ણ યોગદાન આપ્યું તેવા ગાંધીને ભૂલવા તે જ એક મોટી ભૂલ છે.

આઝાદી એ કોઈ એક સ્વાતંત્ર્યસેનાનીના રક્તરંજીત થવાનું પરિણામ નથી, પણ એ તો વીર સાવરકર, બોઝ, ગાંધી, ચંદ્રશેખર આઝાદ, શ્યામજીકૃષ્ણ વર્મા અને મેડમ કામા જેવા અનેક સ્વાંતત્ર વીરોના સહીયારા પુરુષાર્થનું પરિણામ છે. પછી તે સેનાનીએ હીંસક માર્ગ અપનાવ્યો હોય કે અહીંસક, આઝાદી માટે તો બંનેની સહીયારી આવશ્યકતા અનિવાર્ય હતી.

આમ, એક-એક સ્વાતંત્ર્યવીરોની ગાથા પ્રત્યેક ભારતીયો રોમેરોમ ખડા કરે એવી છે.

<u>આઝાદી પછીના અમરવીર :</u>

ભારતની પ્રજા આરામથી ઊંઘી શકે, રસ્તા પર નિશ્ચિત હરીફરી શકે, આ બધુ જ દેશમાં મોકળા મને થઈ શકે તે માટે કોઈ જવાબદાર હોય તો સીમા પર સતત સાડા સત્તર કલાક સાતત્યતાથી સીધો ઊભો રહેતો ભારતનો સૈનિક છે. જ્યાં થરમોમીટરનો પારો પણ માઈનસમાં ગબડી જાય, શરીરની રંગોમાં દોડતું લોહી પણ લાલ બરફ થઈ જાય એવી કાતિલ ઠંડીમાં પણ મા ભોમનો દિકરો સરહદ પર અડીખમ ઉભો રહીને પોતાની માનું રક્ષણ કરે છે. આ સૈનિકને પણ ઘર, સંસાર, પત્નિ, છોકરા, મા-બાપ બધું જ છે. પણ તેને મન મા ભારતીની રક્ષા એ જ પ્રથમ કર્તવ્ય અને સર્વસ્વ છે.

<u>વર્તમાન ભારતના લોકોની મનોવૃત્તિ :-</u>

૧૫ ઓગસ્ટ અને ૨૬ જાન્યુઆરીના દિવસે તો ઘર-ઘરમાં દેશભક્તિના ગીતો વાગે, પ્રત્યેક વ્યક્તિના રોમે રોમમાં આઝાદી અને સ્વાતંત્ર્ય વીરોની યાદો ગુંજતી હોય, અને ચોરે-ચૌટે સફેદ ઝભ્ભાધારીઓ ના ભાષણો થતા હોય કે જેની વાણી પણ સ્વાતંત્ર્યવીરોની શહીદીને શ્રદ્ધાંજલી આપી શકે તે માટે યોગ્ય છે કે નહી એ પણ શંકાજ છે.

ઘણા લોકોને આઝાદીની કિંમત જ સમજાતી નથી કારણ એક જ કે-'ઉત્તમ વસ્તુ અધિકાર વિના મળે, તદ્‌પિ અર્થ નવ સરે' કદાચ આઝાદીનું મુલ્ય આપણે નહી આંકી શકીએ કારણ કે આઝાદી આ ચમક માટે આપણે બિલકુલ ઘસાયા જ નથી. આઝાદી તો આપણને અનાયાસે જ આપણા સ્વાતંત્ર્યવીરોએ લોહીની વહાવેલી નદીઓના પરિણામ સ્વરૂપે મળેલી છે.

સ્વાતંત્ર્યવીરોએ આપણને અંગ્રેજોના શાસનમાંથી તો આઝાદી અપાવી દીધી પણ વિચાર કરીએ તો જણાઈ આવે કે શું ખરેખર એ વીરોની માન્યતા મુજબની આઝાદી આજે મળી છે ? એવું લાગે છે કે અંગ્રેજો શાસનમાંથી મુક્ત થયા અને ઘઉંવર્ણાઓના શાસનમાં આવ્યા. કારણ એક જ કે જ્યાં ભુખ્યાઓ હોય ત્યાં ધૂતારા ભૂખે ના મરે- આરામખોર પ્રજા અને હરામખોર નેતા.

રાષ્ટ્રની માનહાની, રાષ્ટ્રધ્વજની ઉપેક્ષા ન થાય એની જવબદારી પ્રત્યેકે પ્રત્યેક ભારતીયની છે. જો દરેક ભારતીયને એમ લાગે કે ભારત એ મારો પોતાનો દેશ છે ભારત એ મારી મા છે હું એનો દિકરો છું, પ્રત્યેક ભારતીયોએ પ્રત્યક્ષ કે પરોક્ષ રૂપે કરેલું કોઈ પણ કર્મ એ દેશના વિકાસાર્થે મેં મારી માને આપેલી ભેટ છે. જો આવું થશે તો દુષણો અટકાવવાની જરૂર નહીં પડે. પણ, દુષણોએ આપોઆપ દેશના દેશના ભૂષણોમાં પરિણમશે.

સમાપન :-

અંતે તો '૭૦ મો સ્વાતંત્ર્ય દિન એટલે જે-જે શહીદવીરોએ ભૂતકાળ માઁ ભારતીની સ્વંતત્રતા અને રક્ષણ માટે પોતાનું સર્વસ્વ ત્યજી, દેશ પ્રત્યે પોતાનું ઋણ અદા કરી શહીદીની વેળાએ પણ એવું કહેતા ગયા કે - 'માં તારી આટલી જ સેવા કરી શક્યા' અને પછી મા ભારતીના ખોળામાં પોઢી જઈ ચિરવિદાય લીધી તેવા અમર સ્વાંતત્ર્યવીર અને સૈન્યવીરોને કૃતજ્ઞપૂર્વક નમ ભાવે યાદ કરવાનો દિન.

એક પેડ કી આવાજ...

હે માનવ.
શું ફરક છે તારામાં અને મારામાં ?
શું કામ મને નુકશાન કરો છો ?
શું કામ મને કાપો છો ?
તો પછી...
મારો આટલો નાશ શા માટે ?
મારો આટલો વિનાશ શા માટે ?
તું મને રડાવીશ તો,
તું જ પોતે રડીશ.
તું મને કાપીશ તો,
તું જ પોતે કપાઈ જઈશ.
તું મને હસાવીશ તો,
તારી જ દુનિયા હસીન બનશે.
તો પછી...
મારો આટલો નાશ શા માટે ?
મારો આટલો વિનાશ શા માટે ?

હે માનવ,
જેમ તમે એકબીજા પર આધાર રાખો છો,
પણ તમારા બધાનો મુળ આધાર તો હું જ છું.

હે માનવ,
શો ફરક છે તારામાં અને મારામાં ?
જીંદગીની આવતી દરેક પરિસ્થિતિઓમાં તમે જેમ
ગુજરો છો તેમ હું પણ ગુજરું છું.
તમે તો તમારા સુખમાં હસો છો અને દુઃખમાં રડો છો
પણ હું તમારા બધા માટે
ભડભડતા તાપમાં હસું છું.
ઠંડીમાં થરથર ધ્રુજું છું.
અને વરસાદના ટીપાને ઝીલું છું.
તો પછી....
મારો આટલો નાશ શા માટે ?
મારો આટલો વિનાશ શા માટે ?
જેમ તમે દુઃખ વેઠીને તમારા કુટુંબનું પેટ ભરો છો.
તેવી જ રીતે હું તમારું પેટ ભરું છું.
તમે તો માનવી થઈને નાત-જાતનો ભેદ રાખો છો,
હું તો એક વૃક્ષ થઈને પશું-પક્ષી,જીવ જંતુ અને
માનવો બધાને એક નજરથી જોવું છું.
તો પછી....
મારો આટલો નાશ શા માટે ?
મારો આટલો વિનાશ શા માટે ?
તમે તો બધે આંતક ફેલાવો છો,
પણ હું તો બધે હરિયાળી ફેલાવું છું.
તમારા ઘા ને પણ મુંગા મોં એ સહન કરું છું.
તો પછી....
મારો આટલો નાશ શા માટે ?
મારો આટલો વિનાશ શા માટે ?
આજનો માનવી તો હિંસક પ્રાણી થઈને ફરે છે,
પણ હું તો પરોપકારની ભાવના ફેલાવું છું.
તો પછી....
મારો આટલો નાશ શા માટે ?
મારો આટલો વિનાશ શા માટે ?

Patel Himani
TY BSc (Botany)

કહેવામાં તફાવત છે...

એક આંધળો છોકરો તેના પગ પાસે ટોપી રાખી બિલ્ડીંગના દાદરા પાસે બેઠો હતો. તેણે એક સાઈન બોર્ડ લગાવ્યું હતું કે,

''હું આંધળો છું કૃપા કરી મને મદદ કરો'' ત્યારે તેની ટોપીમાં માત્ર થોડા સિક્કાઓ હતા.

એક અજાણ્યો માણસ ત્યાંથી પસાર થયો. તેણે તેનાં પાકીટમાંથી થોડાં સિક્કા આંધળા છોકરાની ટોપીમાં નાખ્યા. ત્યાર બાદ તે વ્યક્તિએ સાઈન બોર્ડ લઈ તેની તરફ ફેરવી અને કંઈક લખ્યું. અને ત્યાર બાદ તેણે સાઈબોર્ડ રાખી દીધું. કે જેથી દરેક ચાલતાં માણસો નવા શબ્દ વાંચી શકે. તરત જ ટોપી સિક્કાઓથી ભરાઈ ગઈ. બધા લોકોએ આંધળાં છોકરાને ઘણા પૈસા આપ્યા હતા. તે બપોર બાદ માણસ કે જેણે લખાણ બદલ્યું હતું, તે જોવા આવ્યો. આંધળો છોકરો તેનાં પગલાને સમજી ગયો. અને તેણે પૂછ્યું, ''તમે તે જ છો ને કે જેણે સવારે મારા બોર્ડ પરનું લખાણ બદલ્યું હતું ? તમે શું લખ્યું છે ?'' માણસે જવાબ આપ્યો જે તમે લખ્યું હતું તે સાચુ જ લખ્યું છે કે ''આજનો દિવસ સુંદર છે અને હું જોઈ શકતો નથી!'' તમને ખબર છે કે પેલાં લખાણ અને બીજા લખાણ શું ફરક છે. બને લખાણ એવું કહે છે. કે છોકરો આંધળો છે. પણ ખરેખર બંને સાઈન બોર્ડ લોકોને એવું જ સૂચવે છે કે છોકરો આંધળો હતો, પણ પહેલું વાક્ય સામાન્ય રીતે કહે છે કે છોકરો આંધળો છે. અને બીજું વાક્ય લોકોને કહે ચે કે તમે લોકો કેટલાં લકી છો, તેનાં કરતાં કે તમે આંધળા નથી.

આપણને આશ્ચર્ય થયું કે નહીં. બીજું વાક્ય ખરેખર અસરકારક છે.

The biggest adventure you can ever take is to live the life of your dreams

-Oprah Winfrey