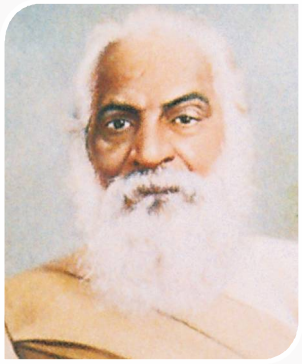
Reflections
2015-16

Charutar Vidya Mandal's

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

Vallabh Vidyanagar - 388 120

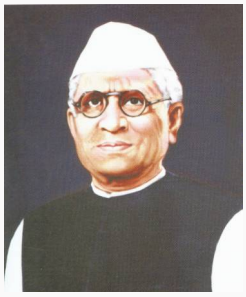
CVM VISIONARIES



Vir Vitthalbhai Z. Patel

Sardar Vallabhbhai Patel

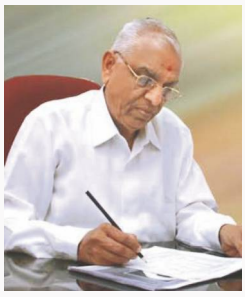
Shri Bhaikaka



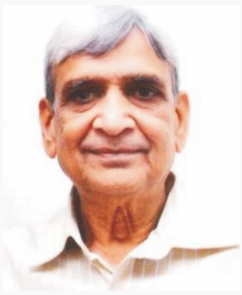
Shri Bhikhabhai

Dr. H. M. Patel

Dr. C. L. Patel
Chairman



Prin. S. M. Patel
Hon. Secretary

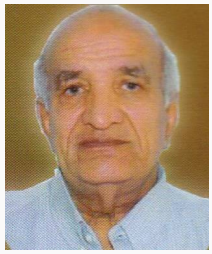


Dr. J. D. Patel
Hon. Jt. Secretary

Dr. V. M. Patel
Hon. Jt. Secretary

Shri B. P. Patel
Hon. Jt. Secretary

Dr. S. G. Patel
Hon. Jt. Secretary



Shri M. J. Patel
Hon. Jt. Secretary

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

VALLABH VIDYANAGAR

Reflections

2015-16

(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 Upto 2019)

Managed By Charutar Vidya Mandal

Website : www.vpscience.org

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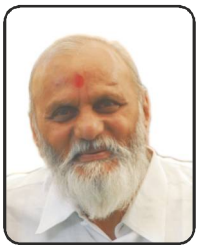


MESSAGE FROM CHAIRMAN

Having a rich historic legacy, V P Mahavidyalaya has grown to heights year after the year since its inception, and has proved to be a very good centre of post-school learning covering a very wide spectrum of scientific arena. It has produced a large number of successful professionals who have been serving not only India but the entire planet Earth. The name and fame of the institute can be built up by the way of high level teaching-learning process, and I am happy to put it on record that this Institute has proved itself for this very vital element of higher studies.

The Institute is taking out its house magazine every year. I am informed of having undertaken the same this year too. Such publications ignite the hidden source of energy of students giving them the flight to attain greater heights of their creativity. I am sure, as has been the practice of the college, this time too the students and staff must have put in their hundred per cent to make the bulletin of long lasting value.

My heartfelt congratulations to all those who spent their energy and time to make it useful and informative.

Date: l 6-02-2016

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

MESSAGE FROM HON. SECRETARY

V. P. & R. P. T.P. Science College is among the most prestigious colleges of Gujarat. The college has a rich legacy and history. It has been publishing the college magazine since the inception of the college. It is matter of great pleasure that science students also take keen interest for language and put their ideas in the logical manner.

Writing is an advanced skill where thoughts need to be expressed logically leading towards a conclusion. For effective writing one needs to read a lot. Students of BSc who are our future scientists and researchers will have to do a lot of both to publish their work in good journals. So this exposure is very useful in their later careers.

I take this opportunity to give my best wishes to all the students in all their intellectual endeavors.

Date:29-03-2016

(Prin. S. M. Patel)
Hon. Secretary
Charutar Vidya Mandal

MESSAGE FROM PRINCIPAL

V.P. and R.P.T.P Science College has a tradition of publishing college annual magazine since its inception. The first volume of it was published in 1948. We are maintaining the great tradition of our founders by publishing magazine meticulously without fail. The magazine of any college is actually the reflection of college and its working. I am happy that college is ready with its yearly publication. I must congratulate the contributors, magazine committee and its coordinator Dr. A. R. Jivani for completing the task in time.

Dr. Bhavesh Patel
Principal & President
Students' Central Committee

MESSAGE FROM VICE PRESIDENT

It has always been a pleasure to get associated with Students Central Committee. But this association is different and more meaningful. The year gave me many opportunities to see our young ones from close angles. I must admit that I am really touched by their simplicity, honesty of purpose and creativity.

You might have hundreds of likes on Facebook but that won't pay your bills. You might have tens of re-tweets on Twitter every day but that's not going to pay your mortgage. You might have heaps of unread messages on WhatsApp but that's not going to pay for your new car. You might have dozens of likes on Instagram but that's not going to pay for your life. Get a life, start working hard today.

Listen to your teachers when they tell you WHAT to do. But more importantly, think about it later and ask yourself WHY they told you to do it.

First thing that is required for becoming happy is to have a good health. If your health is not good, all the wealth in the world will not make you happy. That is why it is said that health is wealth. To get good health, you must refrain from bad habits of smoking, drinking, taking drugs, chewing pans & all kinds of masalas etc.

Second thing that is required for becoming happy is to have a good family life. For a good family life, you must be considerate, tolerant and understand your spouse. If you come across some kind of a problem, think over it calmly. You will find a solution.

Third thing that is required for becoming happy is money. Money earned by honesty and sincere means brings peace of mind and happiness. Therefore be honest in every work you do. You have all the energy and strength within you. Do not underestimate yourself. Do good works in your life and flourish the name of V. P. Science College and your country.

I wish you all very good health and happiness in your life.

Mr. Nilesh Y. Patel
Vice President
Students' Central Committee

MESSAGE FROM EDITOR

It is concluded in a study that for a success in any field needs 13% knowledge and remaining 87% soft skills of the individual person. Soft skills play a very important role for professional success. To be the master of any soft skill is a lifelong process. College students can increase their soft skills during their college life. Apart from the regular studies, they get good chance to increase their self confidence, leadership skills etc. One of the purposes to conduct number of co-curricular and extra-curricular activities by the college under the umbrella of various banners is to provide a platform for holistic development of the students.

It is essential that more and more students actively participate in the events organized by the college for the overall development of the student. Teachers and coordinator students work hard to conduct such activities. So if more students come forward to take part, it is encouraging.

Out of the 60 soft skills, communication is one of the most important soft skills. Good writing skill is an important part of communication as it allows you to communicate your message with clarity and ease to a far larger audience than through face-to-face or telephonic conversations.

Writing is a skill which can be learned like any other skill. There are four skills associated with any language i. e speaking, writing, reading and listening. The college publishes the student magazine every year which provides a golden chance for the students, staff members etc. to flourish and nurture their literary skills.

To write on some topic or share ones views is not an easy task. In the present time, the habit of writing is almost forgotten. Writing about a topic is a creative activity. It needs a lot of passion and dedication and thoughtfulness.

A large number of students have submitted their articles on various topics for the publication in the college magazine. I congratulate all the participants for their valuable contribution for publication of the articles in the magazine. I hope, this skill developed by the students will be fruitful and useful in their life ahead.

We upload our e-magazine on our college website.

Dr. A.R.Jivani
Editor and Ex-Officio,
Magazine Club,
Students' Central Committee

MESSAGE FROM GENERAL SECRETARY

It is a wonderful feeling to put my views in this magazine as the General Secretary of the college. It is really a matter of pride that to give one's introduction as the GS of this college.

Our college is famous for maintaining the highest possible standards in student learning and for giving opportunities to the student to learn not only in the educational field but also in the all extra-curricular activities & sports activities. This college not only gives the formal education but, it also gives the education that shows you can grow up to be a good citizen and how you can the contribute for your country.

At this point, I would like to thank Principal of this college Dr. Bhavesh Patel Sir, Vice President of Student' Central Committee Mr. Nilesh Patel Sir, all the professors, all the teaching and non-teaching staff who have given their whole hearted support to strengthen my career. I am confident that I will definitely do better in my life.

I sincerely thank all the members of Students' Central Committee.

Wishing you a magnificent experience of reading this magazine.

Ms. Smruti Parikh
General Secretary,
Students' Central Committee

MESSAGE FORM MAGAZINE SECRETARY

I was fortunate to work as a Magazine Secretary for Vitthalbhai Patel Mahavidyalaya.

The magazine gives an insight into the cultural and academic, non – academic record of the college. Magazine gives appropriate way of updating readers regarding the advancement and progress of our college.

I express my immense gratitude to respected Principal Dr. Bhavesh Patel Sir, Vice President Mr. N. Y. Patel Sir. I would also like to thank Ex – officio of Magazine club Dr. A. R. Jivani Sir & Vice secretary of Magazine club Mr. Milan C. Makwana for guiding and helping me in my work, my fellow friends for sparing enough time for writing articles, poems etc. It was a pleasure to work with all of them and have a great experience to play the role of a Magazine Secretary.

I hope you find the Magazine informative and interesting. I am sure you will enjoy your journey through the pages of "Reflections" which is sure to be a rich treat for the mind and eyes.

I wish you a happy reading experience.

Milap A. Solanki
Magazine secretary

FROM THE PEN OF VICE MAGAZINE SECRETARY

I was fortunate to work as a vice secretary of college magazine for V.P. & R.P.T.P science college.

I express my immense gratitude to respected Principal Dr. Bhavesh Patel Sir, Vice President Mr. Nilesh Y. Patel Sir, all members of Central Committee and my fellow students for their enormous contribution.

For this magazine, I would also like to thank Ex officio Dr. A. R. Jivani Sir and Magazine Secretary Milap Solanki for great support. I would also like to thank General Secretary of Students' Central Committee Ms. Smruti Parikh. It was a pleasure to work with all of them and have a great experience to act as a secretary as well vice secretary for "Reflections" and I wish you happy reading experience..... Enjoy it.....

Milan C. Makwana,
Vice Magazine Secretary,
Students' Central Committee

69th Annual Report of the College -2015-2016

VP & 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-accreditated "A" by NAAC, Bengaluru and later by KCG, Gandhinagar.

The college is affiliated to Sardar Patel University and offers under-graduate courses in Pure and Applied Sciences. We also run vocational courses like Industrial Chemistry, Instrumentation. The college is a recognized research centre for Microbiology, Chemistry, Industrial Chemistry, Physics and Biology.

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

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

The academic year started on 15th **June 2015**. A total of **1712** students were enrolled which included **922** boys and **790** girls. 273 boys and 286 girls are accommodated in our hostel this year. An orientation programme to make the students aware about the rules and regulations of College was conducted. They were also given detailed information about the college so that they understand the system and perform better from very beginning of the session . This was followed by a counseling meeting with the students and their parents. Separate orientation was conducted for the weaker section students by Equal opportunity cell of College.

Result Analysis, Gold Medals or Awards Won:

The CBCS was introduced in the year 2010 and the results are very promising.

Semester	College	University
BSc [Semester(II)	37.93	22.35
BSc [Semester (IV)	68.45	49.63
BSc [Semester (VI)	86.67	58.08
BCA [Semester (II)	51.24	43.00
BCA [Semester(IV)	85.00	72.16
BCA [Semester (VI)	96.00	67.02

All the results of the college are above the University average result. We are committed for the better performance of students in future.

Achievements of the Students:

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

- Ms. Khyatikumari D. Parmar in Botany
- Mr. Karishman B. Solanki in Mathematics
- Mr. Sanjay M. Thakore in Instrumentation (Vocational)
- Ms Vidya Vijayaraghavanin in Physics

Minaxi-Lalit Science Award Test-2015-16: This is a state level competition conducted by Gujarat Science Academy once a year .This year also 278 students of our college took part in the same. Dr. A. R. Jivani and Dr. H. R. Maradia have successfully conducted Minaxi Lalit Science Award Test -2016 in the college on 17th January.

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 10,11,000/- was distributed to these students.
- UGC 12TH Plan Fund of Rs. 15, 43,250/- has been received till now as an interim allocation.
- The alumni have donated Rs. 5,11,222/- till now.
- College also received RUSA grant of Rs. 32223+177000 i.e. 209223
- College also received Saptdhara and Udisha grant for the AY 2015-16

Achievements of the Staff Members:

84 videos prepared by Dr Nikunj Bhatt's uploaded by NME-ICT (MHRD) on E-Acharya.

Ms Kinjal Tailor of the English department and Ms Dipali Kadchha of the Mathematics Department got M.Phil. degree from Sardar Patel University.

Resource person:

- Dr M V Kumar gave an invited talk at TIFR, Mumbai
- Dr Nikunj Bhatt was Invited as a resource person at Ramkrishna Computer & Applied Science Institute Surat for The NME ICT conference and at ASC Sardar Patel University

- Mr. Mr. H B Madhwani, is a visiting faculty at P G Dept. of Bioscience, Sardar Patel University and for teaching Biostatistics to MD Homeopathy students at V H Dave Homeopathy College, Anand. He is a counselor at IGNOU, Vallabh Vidyanagar. He also delivered a lecture on correlation and regression at ISTAR.

- Dr. P. M. Patel delivered a guest lecture on Experiment of light at a district level science exhibition in Kheda.

- Dr. B. C. Dixit and Dr. G. M. Patel worked as visiting faculties at B.V.M. Eng. College for M.E. Environmental Chemistry .

- Ms. Mital D. Pitroda, is visiting faculty for teaching Business Statistics to R N Patel Ipcowala School of Law & Justice.

Reviewer:

- Dr. V.K. Sinha reviewed a DST Project proposal "TECHNOLOGY SYSTEMS DEVELOPMENT (TSD) PROGRAMME", submitted by Sathyabama University, Chennai. He reviewed two papers in two journals.

- Dr. M. V. Kumar refereed IJMS paper.

Technical chairperson:

- Dr. V. K. Sinha coordinated two National seminars organized by chemistry and industrial chemistry departments of ISTAR and VP and RPTP Science Colleges.

- He was appointed Coordinator of central assessment for B.SC. Sem. I at the college and also appointed an expert member for approval of applications made to attain guideship in Applied Chemistry.

- He conducted the orientation course on," Instrumental methods of analysis" for Mr. Keyur Kamani. He is a member of Senate, Sardar Patel University and of Board of Studies, Industrial Chemistry.

- Dr. B. C. Dixit actively worked as a coordinator of UGC sponsored National Seminar organized by Chemistry and Industrial Chemistry Departments of V. P. & R. P. T. P. Science College

- Dr. K. D. Patel worked actively as an organizing secretary of National Seminar organized by Chemistry and Industrial Chemistry, Departments of V. P. & R. P. T. P. Science College.

- Dr. M. M Morekar was an external expert for the 'Board of Studies' for Faculty of Science at CU Shah University, Surendranagar.

- Dr. M. V. Kumar chaired a session at International DEA workshop at TIFR Mumbai.

Miscellaneous:

- Dr. P. M. Patel, Dr. B. C. Dixit, Dr. K. D. Patel, Dr. M. M. Morekar, Mr. Nilesh Patel and Ms. P. B. Patel were invited as judge at different events across the state.

- Mr. L. M. Katara is a visiting lecturer at P. G. Department of Library & Information Science, S. P. University, V. V. Nagar.

- Dr. Sinha was appointed a member of organizing committee at West Zone Inter University Youth Festival at SPU.

- Dr. (Ms.) M. V. Kumar was appointed executive committee member of Indian Society of Atomic and Molecular Physics. She was nominated as committee member representing Atomic and Molecular Physics group of India for next two years. She is also the research coordinator in the college.

Publications:

- The following staff members have publications in renowned national and international journal :

Dr. V. K. Sinha (07), Dr. P. M. Patel (01), Dr. K. D. Patel (01), Dr. T. B. Darji (01), Dr. G. M. Patel (01), Dr. B. C. Dixit (01), Ms. P. B. Patel (01), Dr. P. M. Patel (04), Mr. Mandar Karve, Mr. Chirag Patel, Mr. Amit Barot, Mr. N. K. Patel, Mr. Nisarg Prajapati, Mr. Ashish Joshi, Dr. C. R. Gurjar, Ms. Nayna Brahmbhatt, Ms. M. H. Patel, Ms. Farhin Ansari, Ms. R. H. Solanki, Ms. M. K. Patel, Ms. Dali Varghese, Dr. M. H. Patel, Dr. M. V. Kumar (08), Dr. R. S. Patel, Dr. A. R. Jivani, Dr. J. K. Baria, Dr. P. S. Vyas.

Ph. D. awarded / Pursuing under research Guides:

Mr. Tarosh Patel, Ms Avani Barot, Mr. Rinkesh Patel, Mr. Dhaval Gajjar, Ms Mayuri Barot have been awarded Ph. D. Degree.

Two students have submitted their synopsis while 8 are still pursuing their research.

Research Projects undertaken by Faculty:

Two major projects are going on under Dr. Minaxi Vinodkumar and Dr. J. K. Baria respectively.

Dr. A. R. Jivani Completed UGC minor research project.

A minor research project is in progress under Dr. V. K. Sinha.

A minor research Project has been approved under Dr. M. V. Kumar.

Seminar / Conference / Paper Presented:

The following staff members attended and presented research papers in State/ National/ International Level conferences:

Dr. J. K. Baria (4), Dr. P. S. Vyas (1), Dr. B. C. Dixit (2), Dr. K. D. Patel (2), Dr. V. K. Sinha (4), Dr. Gurjar, Mr. N. K. Prajapati (2), Mr. Chirag M. Patel (2), Mr. Amit A. Barot (02), Ms. P. B. Patel, Ms. Farhin Ansari, Dr. G. M. Patel, Dr. T. B. Darji, Dr. M. H. Patel, Dr. N. B. Brahmbhatt, Ms. R. H. Solanki, Ms. M. K. Patel, Dr. Dali Varghese, Dr. M. V. Kumar (13), Dr. R. S. Patel, Dr. V. K. Sinha.

Dr. V. K. Sinha and his students presented three papers at International Conference ''Advancements in Polymeric Materials APM 2016, Trends & Technology marching towards technological developments'' at CIPET Ahmadabad on 11-13 February 2016.

Various staff members attended International / National Conference :

Dr. G. M. Patel, Dr. M. K. Valand, Ms. P. B. Patel, Ms. V. M. Patel, Mr. A. A. Shukla, Mr. S. A. Shaikh, Dr. R. Z. Bhatti, Dr. H. R. Maradia, Dr. M. M. Morekar, Dr. T. B. Darji, Dr. R. H. Parab, Dr. V. K. Sinha, Dr. J. K. Baria, Mr. Ashish Joshi, Mr. Nirmal Patel

- A faculty development programme was organized by IQAC of V. P and R. P. T. P. Science College and S. M. Patel College of Home Science, Vallabh Vidyanagar. It was attended by all the staff members of the college.

Poster presentation:

The following staff members presented posters at various conferences:

Dr. V. K. Sinha, Dr. B. C. Dixit, Dr. H. R. Maradia, Dr. T. B. Darji, Dr. P. M. Patel, Mr. Mandar Karve, Mr. T. M. Panchal, Mr. Ravindra V. Movliya, Mr. Nisarg K. Prajapati, Mr. Chirag M. Patel, Mr. Amit Barot

Mr. C. M. Patel and Mr. Amit Barot were selected for Oral Presentation in the international conference on 107th AOCS Annual Meeting & Expo at USA.

Books Published:

- Dr. P. M. Patel and Physics faculties published “College Physics Vol. 1 for the students of F.Y.B.Sc (Sem. 1) and “College Physics Vol. 2 for the students of F.Y.B.Sc (Sem. 2)”

- Dr. Sinha served as an editor of the scientific journal, “International Journal of Chemical Sciences and Technology”.

- Dr. B. C. Dixit and Dr. K. D. Patel have been appointed as editorial members of the scientific journal, “International Journal of Chemical Sciences and Technology”

Departmental Activity:

Physics Department :

- The department arranged an academic tour for the Physics students to the *Institute for Plasma Research, Gandhinagar.*

- A National Graduate Physics Examination was conducted at V. P. Science College and was organized by Indian Association of Physics Teachers. Dr. A. R. Jivani is co-ordinator of the examination.

- A workshop for competitive examination in Physics in association with Indian Association of Physics Teachers was conducted. Dr. A. R. Jivani & Dr. J. K. Baria were conducted the workshop.

The department conducted a selection test for Advanced B. Sc. (Physics) Summer Programme.

- Mr. Sanket Patel participated in Physics Training and Talent Search at Kuvempu University, Karnataka.
- Mr. Sanket Patel and Ms. Krishna Panchal attended Three weeks Advanced B.Sc. (Physics) summer programme held at St. Xavier's College, Ahmadabad.
- Mr. Divyesh Baravaliya participated in the Training Programme on Plasma Science & Technology at Gujarat Science City, Ahmadabad.
- Six students participated in two days seminar on "Career in Astronomy and Astrophysics" organized by the Indian Planetary Society (Mumbai) jointly with CHARUSAT, Changa.
- Seven students also participated in Intercollegiate Science Project / Quiz: Kaushalya-2016 jointly organized by N. V. Patel College of Pure and Applied Sciences and C. C. Patel Community Science Centre, V. V. Nagar.

Electronics:

- Dr. M. V. Kumar and Dr. R. S. Patel (Physics Department) were awarded the first prize for best paper at International Conference on women in science and Technology.

Chemistry:

- A two days UGC Sponsored National Seminar on "Chemical Sciences in Present Scenario was organized by Chemistry and Industrial Chemistry Departments of V. P. & R. P. T. P. Science College.
- An educational tour to Parle-India, Madhapar (Bhuj) was organized. A total 53 students along with 3 faculty members visited the same. The students also visited Black Hill and White Desert.
- 10 students of Chemistry department visited CHEMTECH Gujarat Expo 2016 at Ahmedabad.
- 55 students of the department along with Dr. Vipul Kataria visited hands on training program at ARIBAS, New Vallabh Vidyanagar.

MATHEMATICS AND STATISTICS Department:

- The Department of Mathematics Organized UGC Sponsored two days workshop on ''USE OF FREE OPEN SOURCE SOFTWARE IN MATHEMATICS'' for guiding faculties about

free wares, held on 3rd and 4th August, 2015.

- The Department also Organized Lecture, by Dr. Maya Ingle from Devi Ahalya Vidyapith, Indore on Vaidic Mathematics for SYBSc & TYBSc Students.
- The Department organized "Prof. A. R. Rao Mathematics Competition" on 13th September, 2015 for (semester four and six students. One of them, Ms. Disha Barot was awarded a certificate at the same.
- The Department organized study tour for the students to visit Mapro industry (Lonavala), Khandala, Panchgini, strawberry farm (Mahabaleshwar), Daman and Tithal. A group of 52 students was escorted by five staff members.
- One of our students, Ms. Ankita Yadav was selected at TCS Company.
- Mr. H B Madhwani, with a group of 50 students attended one day seminar on ''Career Opportunity in Quality Management" on 20th February, 2016 organized by Department of Statistics, S P University.

Biology Department:

- Ms. Medha Patel, Dr. N. B. Bhatt and Dr. R. Z. Bhatti along with Zoology students visited fish breeding farm at Lingda on 31st July-2015.
- A guest talk by Professor P. C. Mankodi on recent advancement in Zoology was organized on 18th September-2015.
- The students of sixth semester Botany and Zoology attended two workshops.

The students of Botany visited flower show at Ahmedabad. Six students of Botany participated in intercollegiate competitions organized by ARIBAS. Our student Ms. Nehal got third prize in Biorangoli.

Microbiology Department:

- Dr. H. N. Patel and Mr. A. A. Shukla are visiting faculties for ME Environmental Sciences at BVM Engineering College.
- Ms. P. B. Patel attended International Women Conference at BVM engineering College and presented a paper on role of women empowerment in reducing the prevalence of heart diseases in women where she won the best paper award.
- Ms. Damini Shashtri, a student of sixth semester got selected in Tata Consultancy Service.
- Seven students of our department participated in a workshop on Instrumentation organized by ARIBAS.

Industrial Chemistry:

- Our student Mr. Yash D. Bhatt secured first position in Oral presentation at "SCIENCE FEST 2016." Our students Mr. Sajjad Ansari and Mr. Bhavik M. Ram were selected in Tata Consultancy Service.
- The students visited Amul dairy, Anand, Beppee coating Pvt Ltd, Paint Industry Vitthal Udhyognagar, Arch Chem Resin Industry, Vitthal Udhyognagar and Jay Chemicals Pvt Ltd. Dyes Industry, Khambhat.
- The department organized a National seminar on 'Chemical science in present scenario' on 8-9th January and a 'National symposium on renewable energy' on 3rd September 2015
- The department signed MOU with many industries and research centers.
- Mr. Mandar Karve, Mr. Chirag M. Patel, Mr. Amit Barot, Mr. Tirth Panchal attended "Renewable energy symposium" on 3rd September, 2015 jointly organized by ISTAR, Vallabh Vidyanagar and V. P. & R. P. T. P. Science College, Vallabh Vidyanagar, Anand.

Computer Science Department:

- Computer Science department has completed "Software Development" as add-on course.
- The department organized three seminars.
- The students participated in different competition organized by SVIT – Vasad and in different competition organized by ISTAR- V. V. Nagar. Six students were awarded.

BCA Department:

- Mr. Ashish Joshi attended 21 Days Workshop on "Geographical Information System" organized by ISTAR COLLEGE, V. V. NAGAR.
- Ms. Farhin Ansari attended International Conference on "Women Empowerment". Also presented paper on theme "Women Empowerment: today's scenario" and was awarded 1st prize for best paper.
- Mr. Nirmal Patel, Mr. Akshar Parekh and Ms. Farhin Ansari attended two day workshop on "Android Development Application" organized by CHARUSAT-Changa.
- Mr. Akshar Parekh has completed six month's certification course on "Digital Marketing" from NMIMS-Mumbai. The department has completed "Techno-Learning" add-on course. The department organized seminars on "Android Application Development", Software Project Development Concept and Effective Project Report Presentation for the students. The students participated in different competitions organized by SVIT – Vasad, ISTAR-V. V. Nagar and CHARUSAT - Changa.

English Department:

Dr C R Gurjar has chaired a session in a National Level Seminar and presented a paper.

He coordinated SCOPE Activities and registered 580 students for SCOPE Exam.

He coordinated a Guest Talk for Girl Students by a Practicing Psychologist.

Other Activities:

- The college has an active counseling cell. The faculty members are zealous in helping the students not only with their academic work but also by looking after their overall development. The parent teachers meeting was held twice in this academic year.
- As a part of looking after the overall development of our students a special package of personality development program is offered by CVM to them. Internet facility is available to students. The college has Wi-Fi connection.
- The college has an active Women Cell which looks after the requirements of our girl students.
- The college also has an Anti- ragging Cell.
- The college publishes the student magazine where the literary skills of our students flourish. College published Annual e-Magazine '***Reflections***'.
- The college started VPM IAS Study Club for the preparation of the competition examinations for administrative posts. Dr. A. R. Jivani looked after this activity. During the year the club organized various programmes to guide and inspire the students. Free coaching for IAS classes was started with the cooperation of CDC, Vallabh Vidyanagar.
- The college conducted a one week yoga training camp for the staff members.

Golden Jubilee Fund Function:

This year Golden jubilee fund organized the 'Vir Vitthalbhai Patel Memorial lecture' on 28^{h} September, which was delivered by Shri V. S. Gadhvi, Gujarat State Information Commissioner, Gandhinagar.

Alumni Association:

The college has an active alumni association. A grand alumni meet was held on tenth January which was attended by many of our esteemed members.

IQAC :

Objectives:

- The objectives are to develop a system for conscious, consistent and catalytic action to improve the academic and administrative performance of the institution and to promote measures for institutional functioning towards quality enhancement through internalization of quality culture and institutionalization of best practices.

Work done:

- This year MHRD has invited online applications for **National Institutional Ranking Framework [NIRF],** our college has applied for the same
- Our college has prepared the Annual Quality Assurance Report (AQAR) as per guidelines and parameters of NAAC, and submitted to NAAC.
- IQAC has developed quality parameters for various academic and administrative activities in the institution by publishing the news letter **"Pratibimb"** the same will be now published as **"IQAC news Letter"** from this year. The news letter reflects all the activities of college.
- We have created learner-centric environment for quality education and training to faculty to adopt the required knowledge and technology for participatory teaching and learning process through **"Knowledge repository".** For this purpose 264 Video lectures, few power point presentations and notes are made available to the students for various subjects taught in our College.
- **An "Online feedback system"** has been developed and students can respond on Educational and Administrative quality-related institutional processes;
- We have arranged **two IQAC meetings** with different stakeholders to disseminate information on various quality parameters of higher education;
- We have organized a **Faculty Development Program [FDP]** with collaboration of our sister institute S M Patel Institute of Home Science, in which faculties were exposed to spiritual aspect of teaching, academic performance index and followed by group discussion
- IQAC acts as a nodal agency of the Institution for coordinating quality-related activities and created **Syllabi review committee** to look over present syllabi to enrich with current academic innovations.
- IQAC is in the process of developing and maintaining institutional database and **Preparing AISHE database** and submitting the same in time to **MHRD Gov. of India.**
- IQAC has adopted an **educational communication app FLINNT** for student-teacher communication as a part of counseling and educational engagement.
- We are arranging exit meeting with BSc Students of final semester for personal feedback as well as to provide them opportunity to express their views about the College.

LIBRARY

- The college has a separate building for library. The library is named after its donor Shri Chandubhai Patel, Alumni (1969) of the college.

- The library is a rich and well endowed one with a total 50678 books.
- We subscribe 50 periodicals and magazines and 6 news papers.
- The library is enriched with INFLIBNET N-LIST facility providing access to 75,000. e-books and 3000. e-journals to faculties, research scholars and students.
- The library is fully computerized with INFLIBNET SOUL 2.0 Software. All the books are circulated with barcode system.
- This year many books for competitive examination such as: IPS, IAS, Defense, GPSC, L.I.C., Banking, Railways etc were purchased**.**
- A Swami Vivekananda Corner has been started in the Reading Room that houses spiritual and religious literature.
- The departmental library section provides additional reference facility to each department for faculties and students.

NCC :

A total of 110 boys and 38 girls have enrolled for NCC this year

During this academic year NCC cadets attended 20 Camps.

DURING 2015-16 UO Pooja Yadav and UO Prashant Sawant were awarded the best cadet awards.

The best firer was Mr. Suchith Kumar Verma.

The cadets showed their talent and won first and second position in various competitions and during the camps.

The NCC cadets accompanied by Dr. M. M. Morekar participated in Guard of honour of Governor of Gujarat.

The NCC cadets celebrated Independence Day and Republic Day.

NCC OFFICER Dr. M. M. Morekar was promoted by rank from captain to Major.

He was selected as contingent commander of Thal Sainik Team of NCC DIRECTORATE OF Gujarat where he lead the team.

He attended the NCC refresher course at officer Training Academy, Kamptee (Nagpur) from 8 June to 7 July2015

NSS :

- The NSS wing of the college is coordinated by three staff members, Dr. Rajiv Bhatti, Dr. Atul Patel and Ms. Krutika Thakker.
- A blood donation camp was organized with the help of the Red Cross in which 158

students actively participated in the same

- NSS day was celebrated by organizing a one day camp at Chanod
- Four students of the college were selected to attend a One Week State Level Camp at Surat to celebrate NSS day.
- The world religious day was celebrated on 11th September where 100 students took part.
- Forty students were selected from four colleges to attend a one day personality development shibir on twentieth September.
- Sardar Jayanthi was made memorable by the organization of an Extempore Competition "Sardar and today's youth" where twenty students took part.
- A district level camp for three days at BVM Engineering College was held.
- Twenty students participated in "Sinh-Naad" organized by our college where the thoughts of Vivekananda had to be expressed vividly!
- Fifty two students participated in a one week Annual Camp at Anklavadi. Various activities like slogan writing competition, Mime competition & Street plays were held.
- A national level youth festival was held in Chhattisgarh where two students of our college were selected.
- Two students took part in a national level adventure camp at Himachal Pradesh.

Future Plans:

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

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

REPORT OF THE STUDENTS' CENTRAL COMMITTEE

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

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

1. MUSIC CLUB :

Ex- officio: Mr. Kamlesh Raval

Student secretary: Vaibhav Dave

The club organized Independence Day Celebration and Navratri Celebration.

Under the club students participated in Youth Festival, in which

- Ms. Khushboo Zalavadiya of T.Y. B. Sc. (Maths) Secured **1st position** in classical Instrument (Non Percussion).
- Ms. Dipali Prajapati of T.Y. B. Sc. (Maths) Secured **2nd position** in Classical Vocal (Solo).
- Mr. Nikhil Parekh of F.Y. B. Sc. Secured **3rd position** in Classical Instrumental (Percussion).

2. DANCE & DRAMA CLUB :

Ex officio: Dr Trupti K Darji

Student Secretaries: Aditya Panchal and Ritika Negi

The club organized Independence Day Celebration and Navratri Celebration.

On 15th August, 2015 the members of the Dance club gave a group performance on a patriotic song.

The Dance and Drama Club motivated and encouraged the students of the institute to participate in various events and competitions held in the college and outside the college. Under the guidance of club, students participated in Youth Festival and Amul Volcano-2016.

Music, Dance and Drama club organized Talent day named 'Thanganat' on 2nd March, 2016 in which 100 students took part in audition and 40 were selected to perform in group song, solo song, dances, short plays, etc.

3. FINE ART CLUB:

Ex officio: Mr. Lincoln Chauhan

Student Secretary: Saurabh Bhuria

The Club organized VASANTOTSAV-2016 from 11th Feb.' 16 to 13th Feb.' 16. In which different competitions like Mahendi, Rangoli making, Portrait making, Installation, Poster making, Greeting card making were arranged.

Under the club students participated in Youth Festival, and BHEJA FRY activities organized by the Anand Institute of Management. Mr. Saurabh Bhuria and Mr. Avinash Goswami secured **second position** in the T-shirt painting competition.

Mr. Hardik Rashmikant Upadhyay was participated in Arena Photo contest organized by Arena Multimedia, Anand and secured **first position** from face book viewers.

4. KNOWLEDGE AND SCIENCE ASSOCIATION:

Ex-Officio: Dr. T. H. Patel

Student Secretary: Krishna J. Panchal

The club organized Intercollegiate Science Fest 2016 in which 80 participants participated in Poster Presentation on "Impact of science on Life" and Power Point Presentations on "Evolution of Science in India".

The club organized Guest Lecture by Dr. B.Y. Thakore, Prof. in Physics Department, SPU. on the topic of Indian Calendar.

Under the club Students participated in

i) "ANVESHAN" Students Research Convections-2015-16 at SPU on 28-12- 2015.

ii) "Kaushalya" at N.V. Patel Science College, V.V. Nagar.

iii) "Science Fest 2016 at V.P. Science College, V.V. Nagar on 16-02-16.

5. DEBATE CLUB:

Ex Officio: Ms. Pragnaben B. Patel

Student Secretary: Ms. Zeal Vadodaria

The club organized Debate Competition; The Topic was 'Is India Intolerant?'. Under the auspices of celebrating the 153rd Birth Centenary of Shri Swami Vivekananda, an essay writing competition was organized by the club on 12th Jan 2016. The Topic was 'Swami Vivekanand's Dream: Samast Bharat'.

The club organized slogan writing competition to celebrate Matrubhasha Divas. Under the club students participated in thirteen different Educational & Social Institutions,

in various competitions like Debate Competition, Elocution Competition, Essay Writing competition, Quiz Completion, Essay Reading Competition, Media Reporting, Group Discussion at Inter Collegiate Level & State Level.

Participation of students in other Institutions where they won Prizes:

Sr. No.	Institution	Event	Winner Students name	Class	Subject	Position	No. of participants sent.
1	Waymade College of Education	State level Group Discussion	Zeal Vadodaria	S.Y.B.Sc	Microbiology	Second	1
2	Sri Samast Pushtimargiya Samarpan Trust	Inter college Elocution Competition	Jatinkumar Hirani	T.Y.B.Sc	Chemistry	First	6
			Aditya Thakar	T.Y.B.Sc	Chemistry	Second	
			Zeal Vadodaria	S.Y.B.Sc	Microbiology	Third	
3	Shri Aurobindo Chair of Integral Studies	Inter college Elocution Competition	Zeal Vadodaria	S.Y.B.Sc	Microbiology	Second	2
4	Anand Institute of Management	Inter College Media Reporting	Zeal Vadodaria	S.Y.B.Sc	Microbiology	First	2
			Hardik Upadhyay	S.Y.B.Sc	Physics		
5	Sahitya Pravah, Vadodara	Inter college Elocution Competition	Charmi Chauhan	S.Y.B.Sc	Physics	Third	1
6	Chemistry Dept., V. P. Science College at ISTAR	Inter college Elocution Competition	Farahin Vahora	S.Y.B.Sc	Chemistry	First	2
7	Amul Volcano-2016	Inter college Elocution Competition	Farahin Vahora	S.Y.B.Sc	Chemistry	Second	1

6. YOGA & SPORTS CLUB :

Ex officio: Dr. J. K. Chauhan

Student Secretaries: Mr. Dhaval A. Barot and Ms Ruchi Patel

In the current year 2015 – 16 , boys and girls of our college took part in various competitions organized by Sardar Patel University, District level, state level , Khel Mahakumbh, national and senior national tournaments in the disciplines of in Badminton, Table Tennis, Lawn Tennis, Volleyball, Handball, Basket Ball, Cricket, Kabaddi, Kho-Kho, and Athletics.

ACHIVMENT IN VARIOUS TOURNAMENTS

1. Boys- **Champion** in Sardar Patel University inter college Basketball tournament 2015-16
2. Boys- **Champion** in Sardar Patel University inter college Cricket tournament 2015-16
3. Boys- **Runner's up** in Sardar Patel University inter college Handball tournament 2015-16
4. Boys- **Runner's up** in Sardar Patel University inter college Kabaddi tournament 2015-16
5. Girls- **Runner's up** in Sardar Patel University inter college lawn Tennis tournament 2015-16
6. Girls- **General Runner's** up in Sardar Patel University inter college Athletics tournament 2015-16
7. Girls **Champion in YMCA** inter college Volleyball tournament 2015-16
8. 9 Boys and 4 Girls represented the University in inter University West Zone Tournament in various Games.
9. Raymal Rathwa participated in Senior National Tournament.
10. College boys and girls won Rs 32000/- Prize money in various games of Khel Mahakumbh tournaments
11. 28 boys and 16 Girls participated Sardar Patel University Athletics meet.
12. In all 139 Boys and 70 Girls participated in various inter-college tournaments organized by Sardar Patel University.
13. 10 boys participated in district level, State Level Khel Mahakumbh tournament.
14. 300 Boys and Girls participated our college Annual Sports day celebration.
15. A total of 230 boys and girls participated in various Inter Class Tournaments.

7. NATURE CLUB:

Ex officio: Dr. Mehul Mehta

Student Secretary: Het Patel

The Club organized bird watching trip for interested students on 15/12/2015. The club made an agreement with J & J Science College, Nadiad, according to this agreement, club will exchange rare botanical species with each other.

8. MAGAZINE CLUB :

Ex officio: Dr. A. R. Jivani

Student Secretary: Milap Solanki

The college publishes the student magazine where the literary skills of our students flourish. The club is in the process of bringing out the College e-magazine, for that 70 students have submitted their articles on various topics. The club also organized an article writing competition in which more than 30 students took part. The prize winning articles will be published in the college magazine. The club also keeps a record of the photographs of various events.

9. DISCIPLINE COMMITTEE:

Ex officio: Dr. H. R. Maradia

Student Secretaries: Mit V. Patel and Ms Kunjan Kamani

No function can be conducted smoothly without discipline. Discipline committee has played very crucial role for maintaining discipline in various events like Orientation programme (28/06/2015), Vir Vitthalbhai memorial lecture (28/09/15) Fresher's Party, Navratri Celebration, Annual sports day (20/01/2016), Alumni Meet (10/01/2016), Knowledge and Science Association programme, Talent evening etc. were arranged in college during the year.

10. NCC:

Under NCC officer **Major M. M. Morekar,** the NCC cadets conducted the Independence Day Celebration in the college, actively participated in the Republic day celebration and giving Guard of Honor to the Hon'ble Governor on the convocation day.

During the academic year of 2015-16 NCC cadets have attended different 14 camps. In these camps, NCC cadets won first prizes in Firing , Map reading, Tent Pitching, Group discussion, JDFS, and Group song and second position in Inter group football competition (NCC National games), Volleyball competition, Debate, Quiz and Essay writing competition**.**

11. NSS:

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

The NSS Unit organized Blood Donation Camps, total 158 units of blood was collected. The students also participated in Poster making competition on the celebration of National Voter's Day.

The NSS unit celebrated NSS Day, world religious day, Youth day, etc.

The NSS unit organized competition on “Sardar and today's youth”, and “Sinh-Naad”, the thoughts of Vivekananda.

The NSS unit organized annual camp at Anklawadi (16th January, 2016 to 22 January, 2016).

On 15th August and 26 January students were collected flag from Vidyanagar.

Under the NSS unit students participated in District level and State level camp.

To conclude, I congratulate all the participants and winners in various activities. I take this opportunity to thank the President of

Result Article Writing Competition Year 2015-2016

Ex-officio:
Student Secretary

An article writing competition was organized by our college magazine committee. Students have submitted their articles on topic related to basic sciences. The winners of the competition were:

Sr No	Position	Name of the Student	Class
1	First	Shah Bhoomi Sunilbhai	FYBSc
2	Second	Zeal Vadodaria	SYBSc (Microbiology)
3	Second	Bhavin A. Kathiriya	TYBSc (Chemistry)
4	Third	Hardik Rashmikant Upadhyay	SYBSc (Physics)

Dr A R Jivani,
Ex-Officio,
Magazine Club

USE OF MATHEMATICS IN DAILY LIFE

- The topics which are mainly useful in daily life are:
  - Geometry
  - Calculus
  - Number theory
  - Mechanics
  - Graph theory

Geometry

- It is a part of mathematics concerned with questions of size, shape, and relative to the position of figures and with properties of space.

How Is Geometry Used In Our Daily Life?

- Geometry is especially useful in home building or improvement projects.
- If you want to find the floor area of a house, you use geometry.
- This information is useful for laying carpet or tiles.
- If you want to reupholster a piece of furniture, you have to estimate the amount of fabric you need by calculating the surface area of the furniture.

Calculus

- It is the study of change, in the same way that geometry is the study of space
- It includes the study of limits, derivatives, integrals, and infinite series.
- Calculus has widespread applications in science and engineering and is used to solve problems for which algebra alone is insufficient.
- Calculus builds on algebra, trigonometry, and analytic geometry.
- It includes two major branches, differential calculus and integral calculus, that are related by the fundamental theorem of calculus.

How is Integral and differential calculus useful in daily life ?

- Integration is used to find areas of figures which are not geometric.
- Suppose you spill water on the floor and want to find out what area the water has covered, you can do so by integration.
- What it does is that it breaks up the non geometric shape into a number of tiny geometric shapes.

- It then calculates the area of each of the tiny figures and adds them up. This of course gives only an approximation to the actual area.

Number Theory

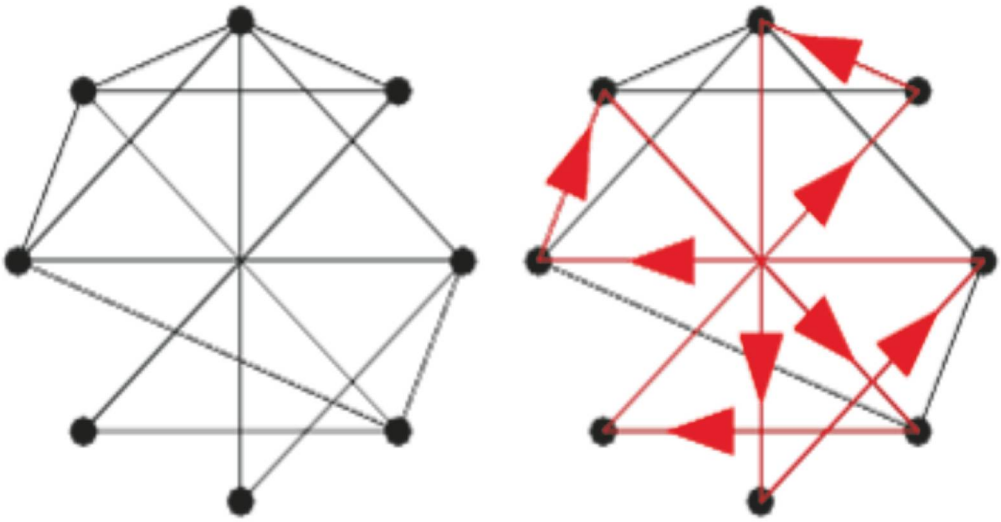
- Number theory is the branch of pure mathematics concerned with the properties of numbers in general, and integers
- The term "arithmetic" is also used to refer to number theory but Number theory used to be called *the higher arithmetic* .
- The Social Insurance Number (SIN) was created in 1964 to serve as a client account number in the administration of the Canada Pension Plan and Canada's varied employment insurance programs. In 1967, what is now Canada Revenue Agency (CRA) started using the SIN for tax reporting purposes.
- Number theory is used in Cryptography (study of hiding information) for creating codes for ATM/Credit cards.

Mechanics

- It is concerned with the behavior of physical bodies when subjected to forces or displacements, and the subsequent effect of the bodies on their environment.
- Covering a long horizontal distance while making a long jump , the angle of elevation should be 45°.
- Riding a bicycle round and round a globe, head downward.

Graph Theory

- Graph theory is the study of *graphs.*
- Mathematical structures used to model pair wise relations between objects from a certain collection.
- A "graph" in this context refers to a collection of vertices or 'nodes' and a collection of *edges* that connect pairs of vertices.
- A problem in **graph theory** requiring the most efficient (i.e., least total distance) **Hamiltonian circuit** a salesman can take through each of cities.
- No general method of solution is known, and the problem is **NP-hard**.
- Solution to the traveling salesman problem is implemented as **Traveling Salesman.**



- The path which is marked by the arrow is the best path to follow by the travelling salesman to cover all the cities without going back to any city again.

Mr. Nilesh Y Patel
Head, Dept. of Mathematics & Statistics
and
Mr Tejas C Sharma
Adhoc/ Trainee Lecturer
Department of Mathematics

Bless you

The sky is like an ocean
The colourful kite is swimming
Like a fish fin is waving
One side the moon is rising
And the over the sun is setting
In between one little star shining
I feel that the God gives me blessings.

Vidhi P. Tripathi
F.Y.B.Sc.

A Historical Account of Light

Light is electromagnetic radiation within a certain portion of the electromagnetic spectrum. Electromagnetic radiation waves, as their names suggest are fluctuations of electric and magnetic fields, which can transport energy from one location to another. Visible light is a tiny portion of a huge smorgasboard of light called the electromagnetic spectrum.

It is convenient at this point to review some of the more important types of lamp used in the laboratory and in every-day life.

(A) Flame Sources: The earliest artificial sources of light were flames. The candles the oil lamps are still sometimes used. As a practical source a flame is very inefficient, most of the energy going to provide heat rather than light. The gas mantle, in which the flame is a hotter flame of the Bunsen type, is much more efficient as a source of light.

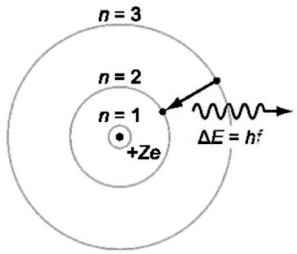
One particular flame source is often used in the laboratory. This is the sodium flame. Such a source is most simply obtained by placing a Bunsen flame under a block of common salt. It is a useful source because the light it emits is monochromatic.

(B) The Electric Arc: If two carbon rods are connected to an electric supply of 100 to 200 V, and if the rods are brought together and then separated, a current passes through the hot air between them. The magnitude of this current has to be controlled by a resistance in series with the arc. The passage of the current causes the air to become luminous, and also heats the ends of the rods. Such an arc forms an intense and reasonably efficient light source. As a powerful point source it has many usages in the laboratory. One disadvantage is that the carbon electrodes are slowly consumed so that continuous adjustment is necessary to maintain a constant length of air gap between them. Arcs have been used in the past for street and stage lighting, but they have now been replaced by more convenient types of lamp.

Isaac Newton's corpuscular model of light, was championed by most of the European scientific community throughout the 1700s, but by the start of the 19th century it was facing challenges. About 1802 Thomas Young, an English physician and physicist, showed that an interference pattern is produced when light from two sources overlaps. He conclusively demonstrated that light has wavelike characteristics. By the latter years of the 19th century, corpuscular theories were abandoned.

In the 1860s when the Scottish physicist James Clerk Maxwell, in a watershed theoretical treatment, unified the fields of electricity, magnetism, and optics. In his formulation of electromagnetism, Maxwell described light as a propagating wave of electric and magnetic fields. More generally, he predicted the existence of electromagnetic radiation: coupled electric and magnetic fields traveling as waves at a speed equal to the known speed of light. In 1888 German physicist Heinrich Hertz succeeded in demonstrating the existence of long-wavelength electromagnetic waves and showed that their properties are consistent with those of the shorter-wavelength visible light.

In 1900 Max Planck made a profound discovery. He showed that light must be emitted and absorbed in discrete amounts if it was to correctly describe observed phenomena (i.e. Black body radiation).



According to the Maxwell theory the frequency v of classical radiation is equal to the rotation frequency (γ_{rot})of the electron in its orbit, with harmonics at integer multiples of this frequency. This result obtained from the Bohr model for jumps between energy levels E_n and E_{n-k} when k is much smaller than n. These jumps reproduce the frequency of the K^{th} harmonic of orbit n. For sufficiently large values of n (so-called Rydberg states), the two orbits involved in the emission process have nearly the same rotation frequency, so that the classical orbital frequency is not ambiguous. But for small n (or large k), the radiation frequency has no unambiguous classical interpretation. This marks the birth of the correspondence principle, requiring quantum theory to agree with the classical theory only in the limit of large quantum numbers.

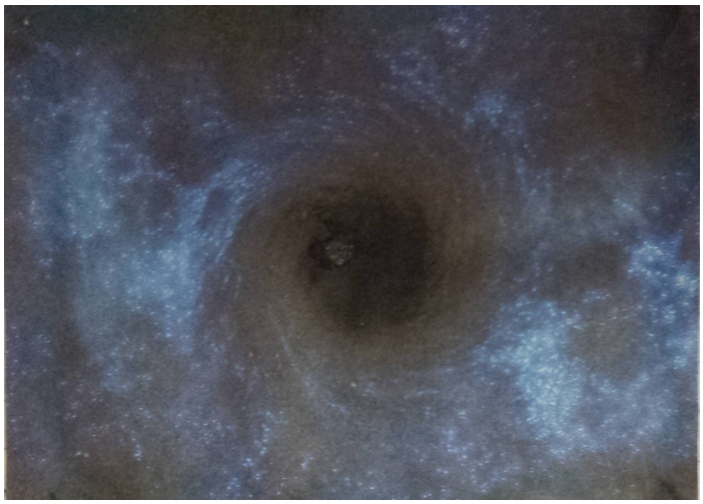
Bohr's condition, that the angular momentum is an integral multiple of ħ was later reinterpreted in 1924 by de Broglie as a standing wave condition: the electron is described by a wave and a whole number of wavelengths must fit along the circumference of the electron's orbit.

This year's Nobel Laureates are rewarded for having invented a new energy efficient and environment-friendly light source – the blue light-emitting diode (LED). In the spirit of Alfred Nobel the prize rewards an invention of greatest benefit to mankind; using blue LEDs, white light can be created in a new way. With the advent of LED lamps we now have more long-lasting and more efficient alternatives to older light sources.

OUR FUTURE IS BRIGHT.....WITH ALL KINDS OF LIGHT.....

Ketulkumar R. Prajapati
SY B. Sc. (Physics)

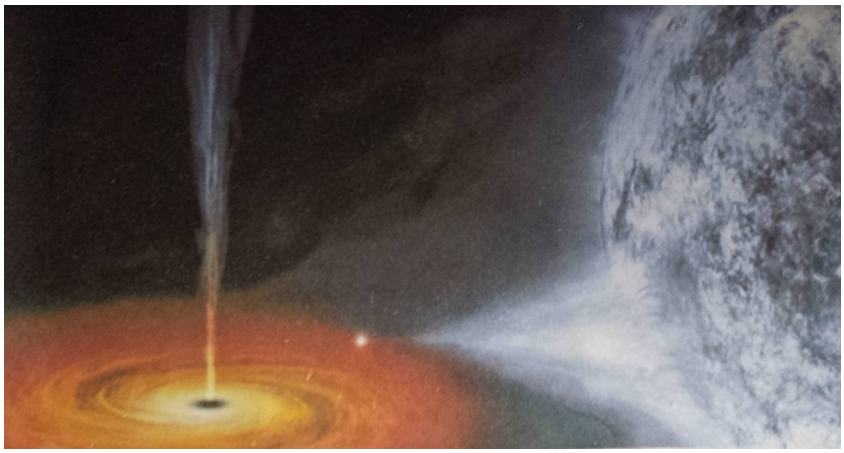
BLACK HOLE



new core will be a neutron star or a

white dwarf. But when a larger star collapses, it continues to fall in on itself to create a stellar black hole. According to the 'Harvard-Smithsonian center for Astrophysics' the milky way contains a few hundred million stellar black holes.

Super massive black holes are 'million or even billions of times' as massive as the sun, but have a radius similar to that of earth's closest star. Such black holes are thought to lie at the center of pretty much every galaxy, including the milky way. Black



n. Because of the relationship between mass and gravity, this means they have an extremely powerful gravitational force such a strong pull creates an observational problem when it comes to black holes. Scientists can't 'see' them the way they can see stars and other objects in space.

People has many superstition about black hole. But some unknown and interesting facts about black holes are like below:

- Weird time stuff happens around black holes:

  Suppose one person falling into a black hole while another is watches. From its perspective, falling person's time clock appears to be ticking slower and slower. This is in accordance with Einstein's theory of general relativity, which says that time is affected by how fast you go.

- Black holes come in a range of size:

  There are 'at least three types of black holes, NASA says ranging from relative squeakers to those that dominate a galaxy's center. For ex. Smallest kinds and range in

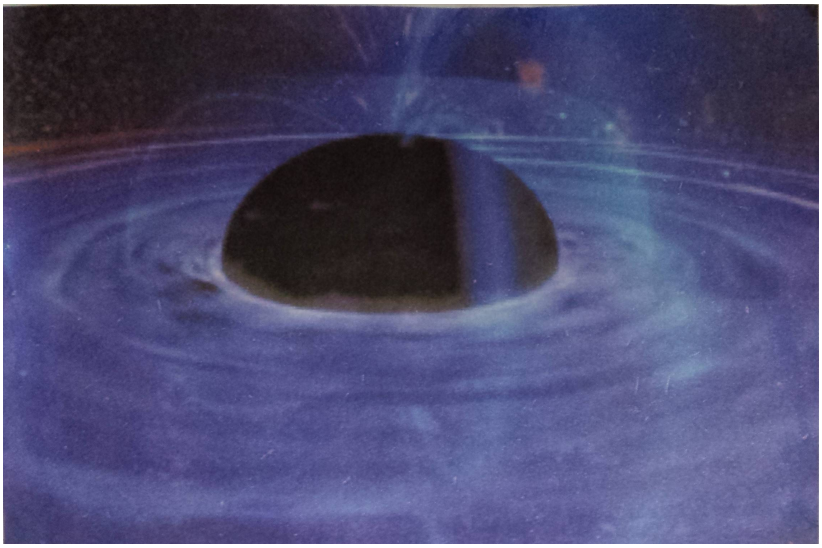
size from one atom's size to a mountain's mass.

- Dying stars create stellar black holes. Is another fact about black hole.
- You can't directly see a black hole.

This is because a black hole is indeed ' black', no light can escape from it it's impossible for us to sense the hole directly through our instruments, no matter what kind of electromagnetic radiation you use (light. X-rays, whatever).

- The first black hole wasn't discovered until X-ray astronomy was used.

Cygnus X-1 was first found during balloon fights in the 1960's but wasn't identified as a



black hole for about another decade.

- Black holes are only dangerous if you get too close:

When you're too close for any hope of rescue. But you can safely observe the black hole from outside of this arena.

Shah Bhoomi Sunilbhai

FYBSc

Chemistry of soda and effect on “Health”

Getting to know soda

Stealing from your body

hormone (PHT) concentrations rise strongly following diet soda consumption. PTH functions to increase blood calcium concentrations by stimulating bone breakdown and as a result release calcium from bone. It has been observed that women who drank diet soda excreted more calcium in their urine, compared to women who drank water.

Teenagers are at an even bigger risk when drinking soda. Teen's whole bones don't get enough calcium have a higher risk of breakings, fracture and later in life, osteoporosis.

Dissolving your teeth.

Though your teeth technically aren't bones, they are composed of many of the same minerals. Teeth are stronger than bones, but they lack restorative properties. Drinking larger quantities of soda can cause tooth deterioration in more ways than just depleting your body's minerals.

According to the academy of general dentistry, regularly drinking soda can cause tooth erosion similar to that caused by illegal drugs. The damage results from the citric acid in regular and diet soda rather than from sugar. The acid damages your enamel and makes your teeth more vulnerable to rot.

Choosing Healthier drinks

Instead of drinking soda, quench your thirst with something that supplies calcium instead of taking it away. Water supplies a small amount of calcium, hydrates your body and is the healthiest thing you can drink. Milk is another excellent option to nourish your body and provide a bit of calcium.

Unsweetened tea and black coffee, provided you drink them in moderation, can also stand in as healthiest alternatives to soda.

Bhaktika Sonagara
F.Y. B.Sc.

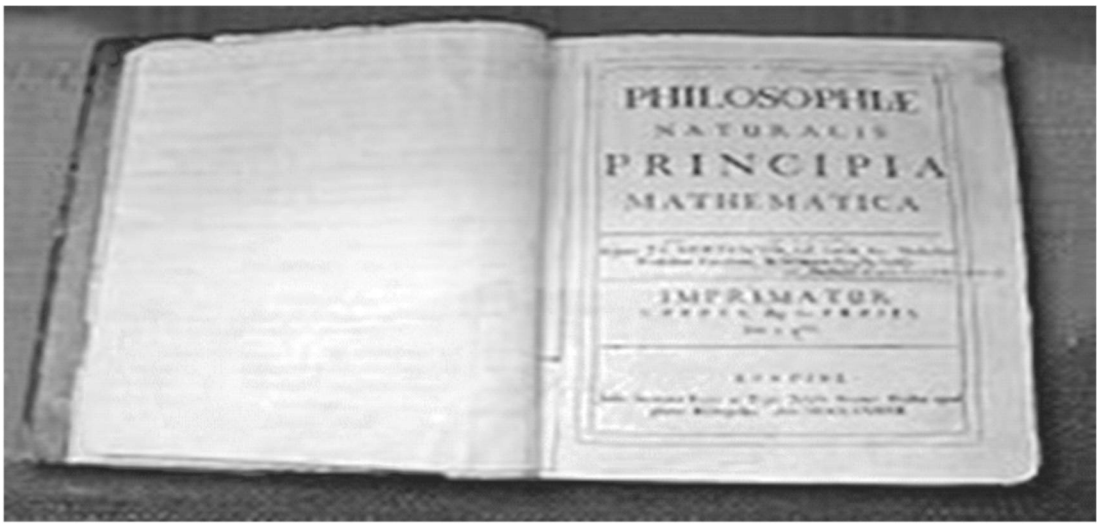
From Newton's Gravity to... Einstein's Relativity...

Scientists: The one's who bring revolution and a vast change by their inventions and discoveries. Their theories predicted are useful even today in everyday life. Their works have created history. Out of these exquisite works here we discuss two of the most celebrated scientist of the century: Isaac Newton and Albert Einstein.

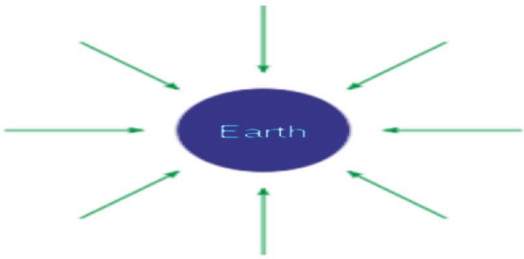
Isaac Newton was born on December 25, 1642 in England. English Physicist and Mathematician: Newton is considered the most original theorist in the history of science.

In the year 1666, Newton again had retired from Cambridge and while roaming in a garden it came into his thought that the power must extend much further than was usually thought. In the year 1679, he returned to his work on celestial mechanics by considering gravitation and it's effect on the orbits of planets with respect to Kepler's motion.

In addition to his infinitesimal calculus and a new theory of light and color, Newton transformed the structure of physical science with his three laws of motion and the UNIVERSAL GRAVITY LAW. Newton's work combined the works of Copernicus, Kepler, Galileo, Descartes and others into a new and powerful synthesis.



As shown above is the handwritten book of Sir Issac Newton “THE PRINCIPIA”. In this work of Principia Newton has stated the three universal laws of motion. In BOOK 3: system of the world is present. Newton extended his three laws of motion to the frame of the world, finally demonstrating that there is a power of gravity tending to all bodies property to the several quantities of matter which they contain.

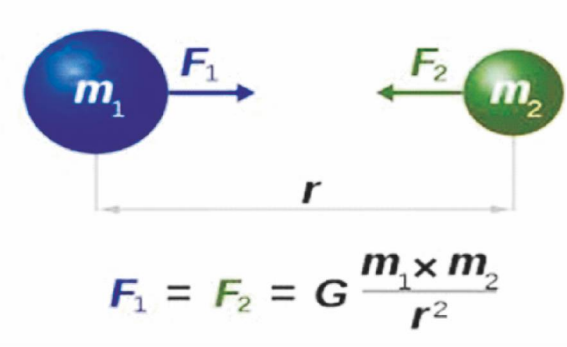


NEWTON'S LAW: “Two masses m and m' attract each other with forces of equal magnitude.”

$$F = \frac{Gmm^1}{r^2}$$

Where $G = 6.67 \times 10^{-11} N m^2 / Kg$

Weight of an object is the force of gravitation which pulls on the object. On the earth it is the gravitational force exerted on the object by the earth. It's units are N and pounds.



Newton's law of universal gravitation states that any two bodies in the universe attract each other with a force that is directly proportional to the product of their masses and inversely proportional to the square of the distance between them.

Newton knew that force that caused apple's acceleration must be dependent upon the mass of the apple. Since the gravitational force is directly proportional to the masses of the interacting objects, more massive objects will attract each other with great gravitational force. So as the masses increases; the gravitational force also increases for example if the mass of one object is tripled; the gravitational force is also tripled. Since this force is inversely proportional to the square of the distance between the objects, more separation will weaken the gravitational force.

Newton's theory of gravitation was soon accepted without any objection, till the time when Albert Einstein shook the platform of physics with the introduction of SPECIAL THORY OF RELATIVTY. Einstein was born on March 14, 1879 in Germany. The German-born theoretical physicist developed one of the two pillars of modern physics-THE GENERAL THEORY OF RELATIVITY. Einstein's work is also known for it's influence on the philosophical science.

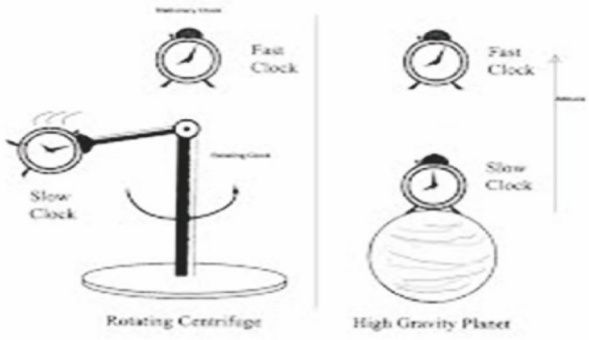
Concepts introduced by the Theory of Relativity include:

Measurements of various quantities are relative to the velocities of observers. In particular space contracts and time dilates.

Space and time should be considered together and in relation to each other.

The speed of light is nonetheless invariant.

The GENERAL THEORY was developed by Einstein between years 1907-1915.



Some of the consequences of General relativity are:

The clocks run slower in deeper gravitational wells. This is called Gravitational time dilation.

Orbits process in a way unexpected in Newton's theory of gravity.

Rays of light bend in the presence of gravitational field.

Rotating masses “drag along” the space-time around them, a phenomenon termed as **“FRAME DRAGGI.NG”.**

The universe is expanding and the far parts of it are moving away from us.

Einstein generalized the principle of equivalence and proposed that the physical laws have similar mathematical forms not only in inertial systems but in accelerated system too. According to him the idea of action at a distance for exploration of gravitation is false and by selecting a suitable coordinate system, the effect of gravitation can be ignored.

ZEAL VADODARIA

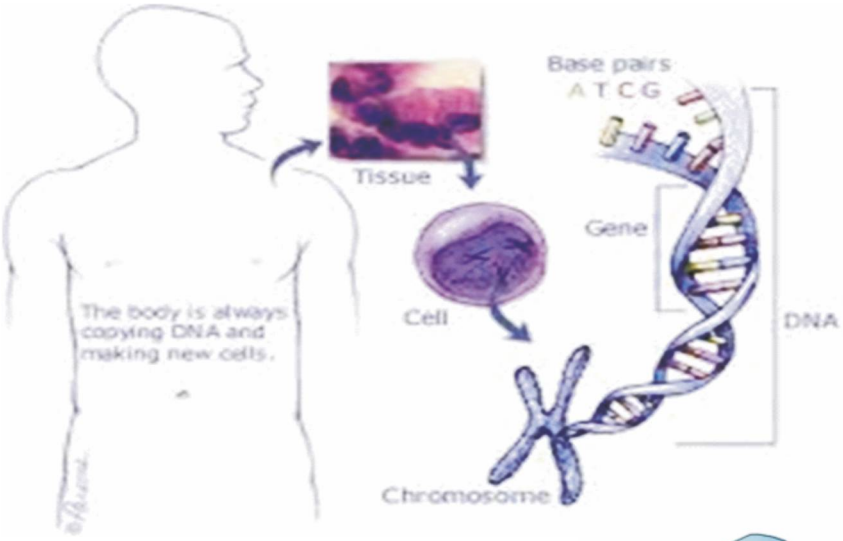
SYBSc (MICROBIOLOGY)

Mechanistic Study of DNA Repair

Today I want to talk about the "mechanistic study of DNA repair" made by three pioneering scientists named Thomas Lindhal ,Paul Mondrich ,Aziz Sanchar was awarded noble prize of 2015 for chemistry. They have mapped out at a molecular level, how cells repair damaged DNA and safe guard our genetic information. Their work has provided fundamental knowledge of how a living cell functions and is for instance used for the development of new cancer treatments.

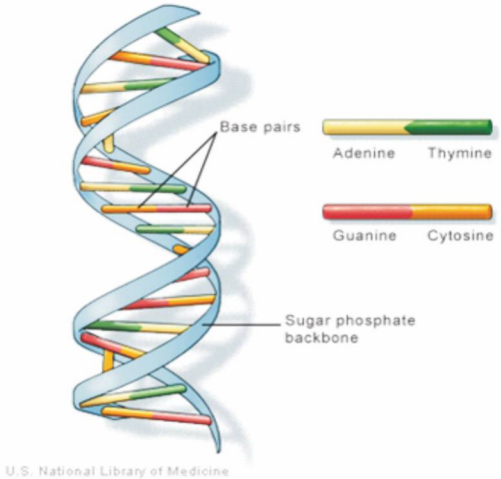
1. What is DNA?

DNA or deoxyribonucleic acid is the hereditary material in humans and almost all other organism. Most DNA is located in the cell nucleus (where it is called nuclear DNA) but a small amount of DNA can also be found in mitochondria (where it is called mitochondrial DNA). The information in DNA is stored as a code made up of four chemical bases adenine (A), guanine (G), cytosine(C), and thymine (T).



Human DNA consists about 3 billion base and more than 99% of those bases are same in all people. DNA bases pair up with each other A with T and C with G to form units called base pairs. Each pair is also attached with to a sugar-phosphate molecule.

An important property of DNA is that it can replicate or make copies itself. This is critical when cell divide because each cell needs to have exact copy of the DNA present in the old cell.



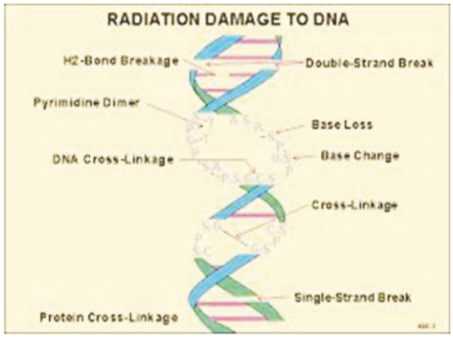
2. How DNA gets damage?

DNA damage is divided into two main types.

1. Endogenous damage such as attacking by reactive oxygen species produced from normal metabolic byproducts (spontaneous mutation).
2. Exogenous damage caused by external agent such as:
   a) Ultraviolet (UV 200nm-400nm) radiation from sun.
   b) Other radiation frequencies including x-rays and gamma rays.
   c) Hydrolysis or thermal disruption.
   d) Human made mutagenic chemicals especially aromatic compound that acts as DNA intercalating agents.
   e) Viruses.

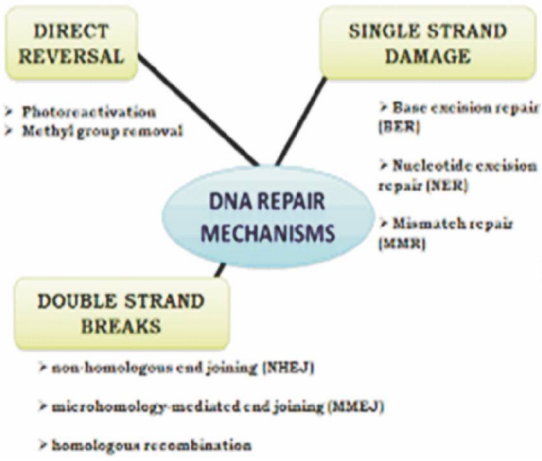
3. How DNA repair mechanisms works?

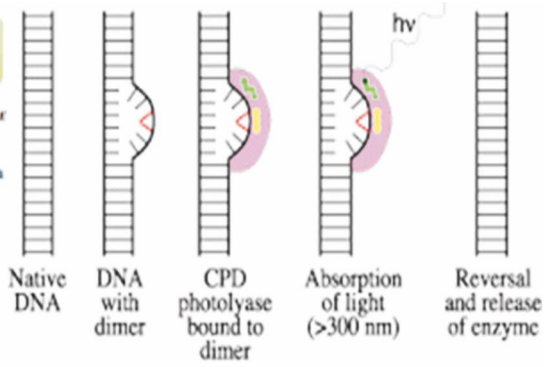
→ DNA repairs its damaged part by three different types of method :



i. Direct reversal method

→ The formation of the pyrimidine dimers upon irradiation with UV light results in an abnormal covalent bond between adjacent pyrimidine bases. The photo reactivation process directly reverses this damage by the action of the enzyme photolyase whose activation is dependent on the absorbed from blue/uv light (300-500nm) to promote photolyase.





ii. Single strand damage.

→ When only one of two strand of double helix has a defect. Then the other strand can be used as a template to guide correction of the damaged strand. In order to repair damage to one of the two paired molecules of DNA there exist two excision repair

mechanism. Such as

a. Base-excision repair (BER)
b. Nucleotide excision repair (NER)

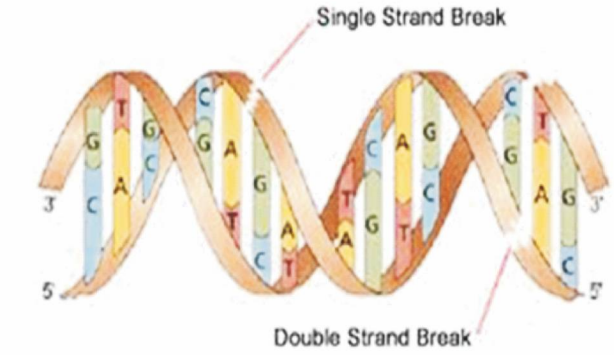
iii. Double-strand damage

→ Double-strand breaks in which both strands in the helix are served as particularly hazardous to the cell because they can lead to genome rearrangement. Three mechanisms exist to repair double-strand damage. Such as

a. Non-homologous end joining (NHEJ)
b. Micro homology-mediated end joining (MMEJ)
c. Homologous recombination

4. How DNA damage checkpoints work?

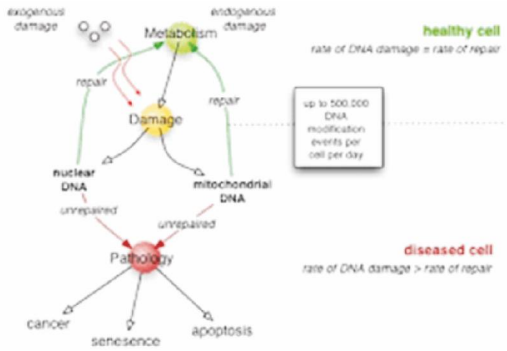
After DNA damage cell cycle check-post are activated. Checkpoints activation pauses the cell cycle and gives the cell time to repair the damage before continuing to divide. If the cell with damaged DNA divides then it causes genetic mutation.



5. DNA repair and evolution.

→ The basic process of DNA repair is highly conserved. But on some occasions DNA damage is not repaired or it repaired by an error-prone mechanism that result in a change from original species. Thus rate and accuracy of DNA repair mechanisms have influence over the process of evolutionary change.

6. DNA repair and aging.



Arjun Vegada

SYBSc (Chemistry)

NEUTRINOS

Neutrinos have oscillations. What.....!!!!! So till the time whatever we have studied in Physics is not correct..!!! Yes, May be we need to change the books now, but why..?? Last year two physicists won the Nobel Prize ***for the discovery of neutrino oscillations, which shows that neutrinos have mass and also determining that the elusive fundamental particles can switch between three types, or flavors***.

Now a day's neutrinos are one of the most interesting topics in particle physics, it's not sudden those physicists are attracted towards neutrinos. In past also scientists have been awarded for various discoveries related to this particle. So what actually these particles are and why they are of that much interest.

Textbooks of particle Physics used to describe the neutrinos as a particle which had no charge or mass. So if neutrinos have no mass or charge than how does one can detect them? These textbooks had to be corrected soon as through independent experiments in Japan & Canada, it was shown that the neutrino do indeed posses a small mass. This discovery is what has led to the researchers Takaki Kajita & Arthur B McDonald being awarded the Nobel Prize in Physics this year.

Many neutrinos are crated in reaction between cosmic radiation & earth's atmosphere. Others are produced in nuclear reaction inside the Sun. The majority of neutrinos in the vicinity of the earth are from nuclear in the sun. About 65 billion solar neutrinos per second pass through every square cm perpendicular to the direction of the sun in the region of the earth.

Neutrinos come in three flavors: e-neutrinos, muon neutrinos & tau neutrinos. The name indicating that they are associated with processes involving the electrons or its close cousin the tau particle or the muon. The researchers made this discovery indirectly by observing that on their route to the earth, the neutrinos undergo a change from one type to the other through a process called neutrino oscillations.

This process can't take place if the **neutrinos had no mass**.

One explanation for the puzzle was that the muon neutrinos were oscillating into a different type. They further suspected that the muon neutrinos are actually changing into the neutrinos. Theoretically explaining this puzzle meant making a big dent in the so far accepted standard model of particle physics because it *meant that the neutrinos had to have small mass*

Neutrinos are produced in a variety of interaction especially in particle decays. In fact it was through a careful study of radioactive decays that physicist hypothesized the neutrinos existence. Neutrinos are produced in a way that conserveslepton number, i.e. for

every e^- neutrino produced a positron (anti e^-) is produced and for every e^- antineutrino produced an e^- is produced as well From cosmological measurements it has been calculated that sum of the three neutrinos masses must be less than one million that of e^-

Neutrino is a lepton, an elementary particle with a half-integer spin. Neutrinos are the only identified consolidate for dark matter, specifically hot dark matter

Neutrinos are as we have said a type of lepton since they have no electrical charge or strung charge. They never interact with any other particles. Most neutrinos pass right through the earth without ever interacting with a single atom of it.

The exciting new directions of research kicked off by the discovery of neutrino oscillations continue to be explored. How fast exactly do neutrinos oscillate? Are there only three types? What are their masses? Do neutrinos and antineutrinos behave the same or are there subtle differences? Maybe the neutrino is even its own antiparticle? SNO (now SNO+) and Super Kamiokande continue to play a role, along with many other current and planned experiments. As Wark says

"These were the experiments that broke the Standard Model of particle physics, which has stood up to every other assault that we have thrown at it."

Understanding neutrinos in depth is critical to understanding how the universe works and where it came from. There is still quite a way to go; and it is the shared vision and dedication of collaborative science that will stay the distance.

Smruti Parikh

TYBSc (Physics)

Retired Staff Members

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

Dr. Ms. Dali Varghese
(Associate Professor, Biology)

Mr. B. M. Parekh
(Accountant, Admin. Staff)

Mr. L. K. Sagathiya
(Lab. Assistant, Elec. Dept.)

NUCLEAR RADIATIONS

A radiation refers to the energy produced by fast moving particles or wave of energy. There are certain radioactive elements that occur as natural minerals in the Earth's crust which continuously emit some degree of radiation. Low levels of radiations occur naturally from several sources and this process has been continuing ever since the universe came into existence. However, high levels of radiation is extremely dangerous to all organisms.

The process of radiation or radioactivity involves radioisotopes of certain elements that undergo radioactive decay. During the process of decay, the radioisotope changes from one isotope to another and emits certain types of radiations.

An important parameter in the study of radioactivity is the half-life period. It is defined as the time required for one half of an isotope to decay into another form. The isotopes with short half life periods are present only for a brief time in environment, whereas those with a long half life remains in environment for a long period.

Types of nuclear radiation:

There are three kinds of nuclear radiation: alpha particles, beta particles and gamma rays. Alpha particles are positively charged, beta particles are negatively charge and gamma rays are uncharged and are high energy electromagnetic radiations.

Thus radioactivity is spontaneous disintegration of atomic nuclei and the emission of subatomic particles called alpha and beta particles or of electromagnetic rays called X-rays and gamma rays.

The alpha particles can travel only up to 5 to 8 cm in the air and are least penetrating. Beta particles are nearly 100 times more penetrating and the gamma rays are much more penetrating than Beta particles.

Alpha radiation is relatively harmless unless inhaled or ingested. Beta radiation is intermediate in toxicity and gamma rays are most toxic and dangerous.

Radiation Pollution

"It refers to the increase in radiation that is injurious to life."

The sources of radiation pollution are classified into two major groups: "(a) natural sources and (b) manmade sources".

The natural sources include solar radiation, cosmic radiation and terrestrial radiation. Whereas the man made sources includes industrial process, wastes from nuclear reactors, x-ray examination, radiation therapy, television, occupational exposure etc.

People who live or work in the vicinity of radioactive substances such as mine workers, medical personnel, technologists working in nuclear power plants etc. the damage to the organisms are of two main types:

(i) Somatic damage
(ii) Genetic damage

Malformations of body at birth, abnormality in organ development are some of the effects of radioactive elements.

Radiation pollution could be a fatal hazard and it can be reduced by following ways:

(i) Proper disposal of radioactive waste from nuclear reactors
(ii) Proper use of radiation technology in hospitals to avoid injuries to technicians and patients.
(iii) Proper maintenance of nuclear power plants.

Bhaktika Sonagara
FYBSc

REPORT OF ALUMNI MEET [10th January, 2016]

The V P Science College was established 1947 and it was inaugurated by the worthy son of the soil and iron man of India, Sardar Patel. It is no surprise that the college has a rich legacy of erudite alumni.

With a view to establish a bridge with our alumni a mega Alumni Meet was held on 10th January 2016 in the Central Hall of the college. Principal Bhavesh Patel apprised the alumni present about the achievements of the college like getting 'A' grade from NAAC and KCG, getting CPE Status for the second time etc. He also emphasized that much more is needed to be done and the college is targeting a higher grade in the next NAAC Cycle. In all the endeavours the college wishes to undertake, he said, the institutions looks for support, guidance and continued association from all its alumni

More than 850 alumni graced the occasion by their presence. Alumni who had studied in this college way back in 1948 were also present. Prominent alumni who were present included Dr C L Patel, Chairman, CVM, Param Pujya Jashbhai Saheb, Anupam Mission, Shri F A Chauhan, Scientist DRDO, Shri GS G Khandelwal, Dy. Director FSL, Ahmedabad ,Shri K D Patel, Industrialist, Ahmedabad , to name a few. On this occasion, 10 alumni were felicitated.

Later Prof P A Lashkari, Coordinator of the Alumni Association, presented a report of the activities. Several alumni came forward to donate funds to the association. Notable among them are Dr C L Patel Rs 1 lakh, Anupam Mission donated Rs 1.75 Lakhs in memory of the Late Dr V S Patel Ex Vice Chancellor, Sardar Patel University and an alumnus of the college, Shri K D Patel (From Ahmedabad)Rs 1 Lakh, Shri Madhusudhan Desai Rs 1,11,111/- and Dr SG Patel Rs 25111/-

Finally, Dr C L Patel and Param Pujya Jashbhai Saheb blessed everybody.

Summary of Work of Dr. S. C. Bose
Bioelectricity and the Rhythm of Sensitive Plants

Research of Dr. Jagdish Chandra Bose

Nearly hundred years ago, J.C. Bose began biophysical experiments on plants & came to some far-reaching conclusions. He was the first to recognize the biquitous importance of electrical signaling between plants cells in co-coordinating responses to the environment. He may have been the first to discover electrical pulsations or oscillations in electric potentials & he proved that these were couples with rhythmic movements in the telegraph plant Disodium. Bose theorized that regular wave-like 'pulsations' in cell electric potential & turger pressure were an endogenous form of cell signaling. He put forth a radical theory for the mechanism of the absent of sap. Based on electromechanical activities of living cells. Bose's place in history has now been re-evaluated & he is credited with the intuition of detection device, Crescograph.

The cells of most perhaps all plants are encitable. Stimuli such as chilling, heating, cutting, touching, electric stimulus or changes in internal osmalaity results in action potentials, transient depolaizations of cell membrane which are electrically transmitted.

Until recently, the hegemony of plant biologist has been reluctant to view action potential as of primary significance in plant responses.

The great Indian Scientist Jagdish Chandra Bose was one of the first biophysicists. His earliest research concerned generating & detecting electromagnetic radiation.

Bose invented a device-

Crescograph is a device for measuring growth in plants. The Bose crescograph uses a series of clockwork gears & a smoked glass plate to record the movement of the tip of a plant.

For the discovery – that plants have life, Dr. J.C. Bose was awarded the Nobel Prize.

Sanskriti Lochan Sahay

T. Y B. Sc.

STUDENTS' CENTRAL COMMITTEE 2015 -16

69th Annual Day Celebration

ALUMNI MEET

STUDENTS' CENTRAL COMMITTEES

FINE ARTS CLUB

KNOWLEDGE AND SCIENCE ASSOCIATION

YOGA AND SPORTS CLUB

NSS TEAM

NATURE CLUB

ALL C.R. & L.R.

DISCIPLINE COMMITTEE

NSS COMMITTEE

NCC GIRLS

NCC BOYS

DEBATE CLUB

DANCE & DRAMA CLUB

MAGAZINE COMMITTEE

MUSIC CLUB

COLLEGE COMMITTEES

TRAINING & PLACEMENT CELL

PROSPECTUS COMMITTEE

PRIZE DISTRUBUTION COMMITTEE

U.G.C. & GRANTS COMMITTEE

PERSONALITY DEVELOPMENT CELL

ALUMNI ASSOCIATION

COUNSELLING & PARENTS CELL

GREEVANCES-REDRESAL CELL

EXAMINATION COMMITTEE

TIME TABLE COMMITTEE

ANTIRAGGING CELL

WEBSITE, INTERNET AND COMPUTER WORK COMMITTEE

IQAC CELL

HOSTEL COMMITTEE

IAS STUDY CLUB

COLLEGE COMMITTEES

EQUAL OPPORTUNITY CELL

RESEARCH CELL

LIBRARY ADVISORY COMMITTEE

EVENTS @ VPM

NATIONAL SEMINAR
NSICS 2016

NATIONAL SEMINAR
NSICS 2016

BLOOD DONATION CAMP

MEHANDI COMPETITION

ORIENTATION PROGRAMME
@ LIBRARY

START UP INITIATIVES FOR
GRADUATES PROGRAMME

WORKSHOP ORGANIZED BY
MATHS & STAT. DEPT.

TALENT DAY

WINNERS OF A QUIZ
COMPETITION

ALUMINI STAFF MEMBERS

STUDENTS OF PHYSICS
VISITED IPR

WORKSHOP ORGANIZED BY
PHYSICS DEPARTMENT

V.P.M. FAMILY

What is a Photon?

We may hear "Photon" word lots of time in physics. But what is that? The name photon was the first time coined by the optical physicist Frithiof Wolfers and a chemist Gilbert Newton Lewis, in 1926. The name photon is derived from the Greek word for "light". A photon is massless, has no electric charge and is stable. Simply it is a "packets" of energy.

Anyway, where does the photon for absorption come from? Strangely. It doesn't seem to come from anywhere. The universe must put the extra energy somewhere and because electrons in atoms are electromagnetic phenomena, a photon is born with the required energy. The simplest answer is that when a photon is absorbed by an electron, it is completely destroyed. All its energy is imparted to the electron, which instantly jumps to a new energy level. The photon itself ceases to be. An electron emits a photon when it goes to lower level. The photon is not selected form a "well" of photons living in the atom, it is created instantaneously our of the vacuum. The electron in the high energy level is instantly converted into a lower energy level, electron back to its orbit and a photon is released.

Photon

energy = electromagnetic energy

velocity= 3×10^8 m/s

mass = 0

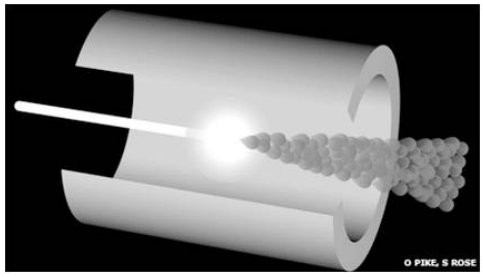
created by emission

destroyed by absorption

can collide with electrons and other particles

Not only this, but there are many natural process in which photons are emitted. When a charge in accelerated it emits synchrotron radiation. A synchrotron radiation is produced when high energy particles are in rapid motion inducing electrons forced to travel in a curved path by a magnetic field. A photon can also be emitted when a particle and its corresponding (electron-positron) are annihilated (total destruction).

Actual physical quanta of light what we now call photon. They have a unique property both particle and wave. They carry energy and momentum which are dependent on the frequency. It also has properties like refraction and diffusion. Photons can be destroyed or created by many natural processes. Photons do not decay on their own.



Ritu K. Shah

F.Y. B.Sc.

Zika Virus

The infections, known as Zika fever, often causes no or only mild symptoms. Since 1950s, it has been known to occur within a narrow equatorial belt from Africa to Asia. In 2014, the virus spread eastward across the Pacific Ocean to French Polynesia, then to Easter Islandand in 2015 to Mexico, Central America, the Caribbean, and South America, where the Zika outbreak has reached pandemiclevels.

Zika virus is related to dengue, yellow fever, Japanese encephalitis, and West Nile viruses. The illness it causes is similar to a mild form of dengue fever, is treated by rest, and cannot yet be prevented by drugs or vaccines. There is a possible link between Zika fever and microcephaly in newborn babies by mother-to-child transmission, as well as a stronger one with neurological conditions in infected adults, including cases of Guillain–Barré syndrome.

The Zika virus belongs to Flaviviridae and the genus Flavivirus, and is thus related to the dengue, yellow fever, Japanese encephalitis, and West Nile viruses. Like other flaviviruses, Zika virus is enveloped and icosahedral and has a nonsegmented, single-stranded, positive-sense RNA genome. It is most closely related to the Spondweni virus and is one of the two viruses in the Spondweni virus clade.

There are two lineages of the Zika virus: the African lineage, and the Asian lineage.Phylogenetic studies indicate that the virus spreading in the Americas is most closely related to the Asian strain, which circulated in French Polynesia during the 2013 outbreak.The complete genome sequence of the Zika virus has been published. Recent preliminary findings from sequences in the public domain uncovered a possible change in nonstructural protein 1 codon usage that may increase the viral replication rate in humans.

Transmission

Global Aedes aegypti predicted distribution. The map depicts the probability of occurrence (blue=none, red=highest occurrence).

The vertebrate hosts of the virus were primarily monkeys in a so-called enzootic mosquito-monkey-mosquito cycle, with only occasional transmission to humans. Before the current pandemic began in 2007, Zika virus "rarely caused recognized 'spillover' infections in humans, even in highly enzootic areas". Infrequently, other arboviruses have become established as a human disease though, and spread in a mosquito–human–mosquito cycle, like the yellow fever virus and the dengue fever virus (both flaviruses), and the chikungunya virus (a togavirus).

Vector

The Zika virus is transmitted by daytime-active mosquitoes as its vector. It is primarily transmitted by Aedes aegypti, but has been isolated from a number of arboreal mosquito species in the Aedes genus, such as A. africanus, A. apicoargenteus, A. furcifer, A. hensilli, A. luteocephalus and A. vittatus with an extrinsic incubation period in mosquitoes of about 10 days.

The true extent of the vectors is still unknown. The Zika virus has been detected in many more species of Aedes, along with Anopheles coustani, Mansonia uniformis, and Culexperfuscus, although this alone does not incriminate them as a vector.

Transmission by A. albopictus, the tiger mosquito, was reported from a 2007 urban outbreak in Gabon where it had newly-invaded the country and become the primary vector for the concomitant Chikungunya and dengue virus outbreaks. There is concern for autochthonous infections in urban areas of European countries infested by A. albopictus because the first two cases of laboratory confirmed Zika virus infections imported into Italy were reported from viremic travelers returning from French Polynesia.

The potential societal risk of Zika virus can be delimited by the distribution of the mosquito species that transmit it. The global distribution of the most cited carrier of Zika virus, A. aegypti, is expanding due to global trade and travel. A. aegypti distribution is now the most extensive ever recorded – across all continents including North America and even the European periphery. A mosquito population capable of carrying the Zika virus has been found in a Capitol Hill neighborhood of Washington, D. C., and genetic evidence suggests they survived at least four consecutive winters in the region. The study authors conclude that mosquitos are adapting for persistence in a northern climate.

Since 2015, news reports have drawn attention to the spread of Zika in Latin America and the Caribbean. The countries and territories that have been identified by the Pan American Health Organisation as having experienced "local Zika virus transmission" are Barbados, Bolivia, Brazil, Colombia, the Dominican Republic, Ecuador, El Salvador, French Guiana, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Martinique, Mexico, Panama, Paraguay, Puerto Rico, Saint Martin, Suriname, and Venezuela.

Indian scientists have had a major breakthrough as they claimed they have successfully made first Zika virus vaccine.

BHAVIN A. KATHIRIYA
TYBSc (CHEMISTRY)

ROBOTS

Robot is a computer-controlled machine that is programmed to manipulate objects and accomplish work while interacting with its environment. Robots are able to perform repetitive tasks more quickly, cheaply and accurately than humans.

The term robot originates from the Czech word “robota” meaning “compulsory labor”. It was first used in 1921 play RVR (Rossum's Universal robots) by the Czech (a country in Europe) novelist & play writer Karel Capek.

The word robot has been used since to refer a machine that performs work to assist people on work that human finds difficult or undesirable.

How Robot works?

The branch of technology that deals with the design, construction operation and application of robots, as well as computer systems for their control, sensory feedback and information processing is called robotics.

The inspiration for the design of a robot is the human arm but with some differences. Many robots are equipped with special purpose grippers to grasp particular devices such as a rack of test tubes.

The joints of robotic parts are usually driven by electric motors. In most robots, the gripper is moved from one position to another, changing its orientation. A computer calculates the joint angles needed to move the grippers to the desired position in a process known as inverse kinematics.

Some multy-joined arms are equipped with server feedback controllers that receive input from a computer. Each joint in the arm has a device to measure its angle and send that value to the controller. If the actual angle of arm does not equal the computed angle for desired position, the server controller moves the joint until the arm's angle matches the computed angle. Controllers and associated computers also must process sensor information collected from cameras that locate objects to be grasped.

Uses of Robots

- Many robot applications are either dangerous or unpleasant for human beings. For example in medical laboratories robots handle potentially hazardous materials such as blood samples.
- In other cases, robots can perform repetitive and high precision operations 24 hours a day without fatigue.
- A major use of robots is in automobile industry.
- Robots are used in electronic assembly where they mount microchips on circuit boards.

Robots in Society

Roughly half of all the robots in the world are in Asia, 32% in Europe and 16% in North America, 1% in the Australia and 1% in Africa. 40% of all the robots in the world are in Japan, making Japan the country with the highest number of robots.

As IMO (2000) is a bipedal humanoid robot. Toy robots are also becoming very popular today. TOPIO is also a humanoid robot.

Robots are becoming so popular today that they are considered as a threat to white and blue collar jobs.

Bhaktika M. Sonagara

F.Y. B.Sc.

Report of Activities of VPM IAS STUDY CLUB [Year 2015-2016]

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

Seminar: About 120 students of our college attended a seminar on "***Format of UPSC Examinations"*** held at the college. **Dr A. R. Jivani** guided the students in the programme about format, scope, syllabus, paper style etc. of UPSC examinations.

Free Coaching Classes for selected students: In our college, we started Coaching Classes for preparation of the competitive examinations. 95 students registered for free coaching classes. Three students Coordinators of our college Hardik Upadhyay, Zeal Vadodaria and Krishna Shah conducted sessions on different topics.

Orientation programme: An orientation programme on scopes after graduation was organized by the club for the benefit of the students of our college. Mr Chiragbhai Patel inspired the student about the various examinations. He suggested few very useful tips to crack the competitive examinations.

Study Materials: The club provided study materials for the preparation of the examinations in soft and hard format.

Hardik Upadhyay,
Zeal Vadodaria and
Krishna Shah
Students Coordinators

Dr A R Jivani
Coordinator

Dr A Vishvakarma
Co-coordinator
VPM IAS Study Club

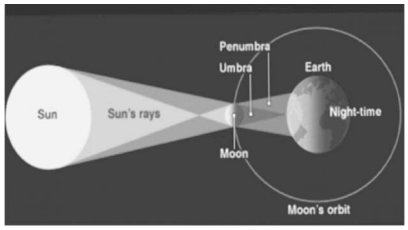
Light Sources - an overview

Light, in language of Physics is propagation of electric field with change in electric field vectors and magnetic field vectors. To a physicist Light is a form of energy that travels from one place to another. It can interact with matter and can be transformed into thermal, electrical or chemical energy.

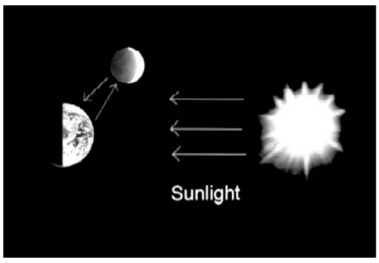
There are two types of light Sources :

1) Natural Light :

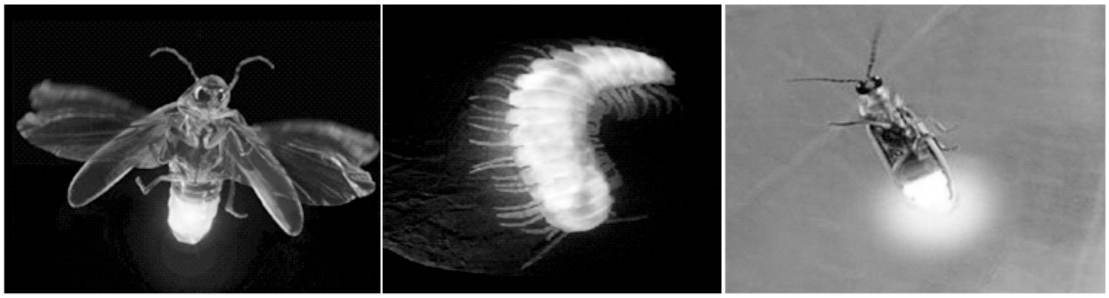
Our main source of natural light is the sun. The sun is a star that is a huge ball of gas. Nuclear fusion process in the center of the sun produce large amount of energy. This energy is released as light and heat. Some of this light reaches Earth and gives us daylight. The light that comes from the sun is known as white light.



Other forms of natural light include the moon and the stars. The stars provide only small amount of light at night as they are billions of kilometers away from Earth. A full moon, however, can provide quite a lot of light. The light from the moon is just light reflected from the sun.



Some animals can produce their own light. This is known as BIOLUMINESCENCE. A chemical reaction is produced in special light-producing cell. This light is then used in a variety of ways but mainly to attract other creatures. Glowworm, fireflies, some fishes and mushrooms are examples of living organism that can create their light.



2) Manmade Light :

Human can create and control light for thousands of years. The earliest form of light was from fire such as burning wood, candles, gas or oil. Candles were made out of beeswax or tallow (animal fat). Oil lamps used plant or animal oil and a wick to burn. Now the most convenient source of artificial light is electric light.

The development of the electric light began in the early 1800s. Many of the first effort were dangerous and not very reliable. In 1879 two very similar electric lights bulbs were invented by two different men; one by an American named Thomas Edison, the other by a British man named Joseph Swan. Both electric lights bulbs had a carbon thread(filament) that glowed when a current flowed through it. The glass bulb contained so little oxygen that the filament could become very hot without catching fire.

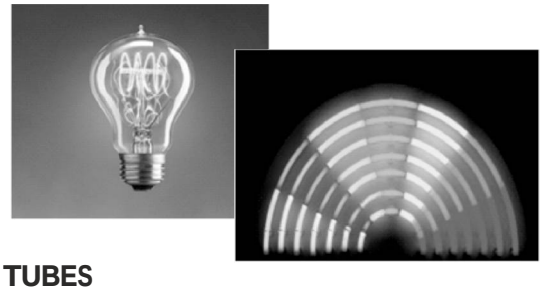
Electric lights are now used every day and night as an artificial form of light. There are several different types of electric lights including tungsten filament light bulbs, neon lights and fluorescent tubes.

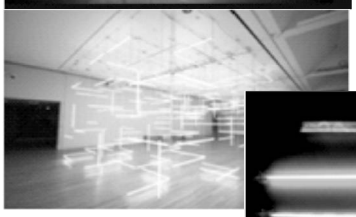
TUNGSTEN FILAMENT BULBS

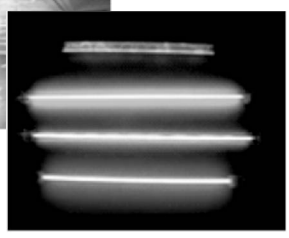
Tungsten filament bulbs are cheap to make and easy to use. They contain a thin metal filament made out of tungsten. This Filament became very hot when electricity flows through it and glows yellow-white. These bulbs last only about 1000 hours because the filament becomes thinner and thinner as it burns.

NEON LIGHTS

A neon light is commonly used for advertising. Neon is a gas that gives out light when high-voltage electricity is passed through it. By changing the electric current, up to five different colours can be produced in the same tube.





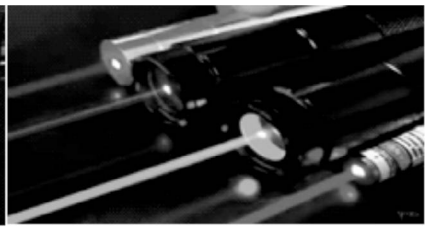


FLUORESCENT TUBES

Fluorescent tubes are widely used in the office and the home. Fluorescent tubes are glass tubes that contain mercury vapour. When an electricity current passed through the mercury vapour it gives off ultraviolet light. This ultraviolet light is absorbed by phosphor powder that coats the inside of the tube and start to glow to make a blue-white light. These lights need special electronic starters to produce the high voltage needed to start the light. In the future, electric lights should become more efficient, use less energy and last a lot longer than they do currently.

LASERS

Lasers were first invented in 1960. Laser light is made up of mainly one wavelength so the laser appears to us as a thin and powerful beam of light. Laser light is very important to us as it is used in all sorts of areas including astronomy, entertainment, information storage and medicine.

INVISIBLE LIGHT

There are some other types of lights that our eyes cannot see e.g. Infrared and Ultraviolet.

Nearly every living things (and very hot objects) give out infrared (IR) light. The sun gives out lot of infrared radiation. We feel this infrared light as heat.

A lot of ultraviolet light also come from the sun. it is very powerful light that cannot be seen by humans. UV light is the light that causes sunburn and can damage our eyes.

LED Light

Light has the pivotal role in our life. We cannot imagine our life without light. From the first ray of sun in the morning to the lamp in the night, light accompany us in all the activites. In modern life, three make important sources of light, which I think make major impact on life are the sun, the light emitting diode (LED) and the laser. We always come across these sources in one way or the other.

Second important light source in our life is the LED. This tiny source of light is not only lighting up our world in a big way but also creating high resolution display screens for our smartphones, computers, and televisions. After the Sun sets down, LED are probably the most seen source of light around us, be it in indicators in electronic devices, in traffic signal lights, remote controls, toys or decorative items.

Advancements in organic LEDs have made it quit efficient and flexible too. White LED lamps are replacing fluorescent tube lights rapidly and white LEDs are creating high resolution display screens. No wonder the Nobel prize in physics 2014 went to the Blue LED, which was crucial to create white light.

HARDIK R. UPADHYAY

S.Y. B.Sc. (Physics)

Benefits to adding fluorine to pharmaceutical compounds

A basic strategy for medicinal chemist when discovering new drugs is, modifying the structure of a molecule to alter its activities and properties. Replacing hydrogen and other functional groups with fluorine has been an immense effect on biological activity. Fluorine substitutions may greatly increase a molecule's lipophilicity, an important consideration when making molecules that are designed to be functional in vivo. Incorporating fluorines result of an increase in fat solubility, its partitioning into membranes and increasing bio availability. Fluorine can also make reversible electrostatic bonds with some additional functional groups.

The compound 5-fluorouracil, one of the most effective anticancer drugs used today, planned drug, the consequence of rational drug design. It has been observed that cancerous cells in the liver used uracil, necessary biochemical more rapidly than normal cells. The idea to replace fluorine for hydrogen in this compound came from the observation that fluorine substituted compounds are often more toxic than unsubstituted analog.

Converting a C-H bond to the C-F bond in a molecule is, from the point of view of altering molecular shape & size, the minimum possible change. So these substituted compounds often successfully mimic their unsubstituted version in biochemical processes. However, carbon forms stronger bonds with fluorines with a higher oxidative & thermal stability than a C-H bond. This makes the deceptor group (C-F bond) unreactive enough to stop all metabolic steps that require breaking the bond. Thus, 5 -fluorouracil masquerades as uracil & enter the cells. Fluorine atom blocks an essential change at the 5th – position & inhabits synthesis of genetic material of the cell, which no longer reproduces. The drug acts preferentially against tumors because it concentrates fast growing cells. This drug is rarely given alone: in combination with other drugs it usually achieves large synergetic effect; other fluorine substitute compounds are effective against viruses such as herpes, against many bacteria & in the treatment of inflammation of rheumatoid arthritis therefore it is hardly a surprise that many common drugs contain fluorine. Pfizer's cholesterol lowering agent atorvastatin, containing an aromatic fluorine substituent.The proton pump inhibitor lansoprazole (prevacid) from TAP contains a difluoromethylene unit. And the fluticasone component in GlaxoSmithKline's combination asthma treatment Seretide has three separate aliphatic fluorine substituent.

Heena Purohit

S.Y.BSc (Chemistry)

Some Renewable Sources of Energy

Growth of renewable energy:

From the end of 2004, worldwide renewable energy capacity grew at rates of 10–60% annually for many technologies. For wind power and many other renewable technologies, growth accelerated in 2009 relative to the previous four years. More wind power capacity was added during 2009 than any other renewable technology. However, grid-connected PV increased the fastest of all renewables technologies, with a 60% annual average growth rate. In 2010, renewable power constituted about a third of the newly built power generation capacities.

Projections vary, but scientists have advanced a plan to power 100% of the world's energy with wind, hydroelectric, and solar power by the year 2030.

Solar thermal energy stations operate in the USA and Spain, and the largest of these is the 354 MW Solar Energy Generating Systems power plant in the Mojave Desert. The world's largest geothermal power installation is The Geysers in California, with a rated capacity of 750 MW. Brazil has one of the largest renewable energy programs in the world, involving production of ethanol fuel from sugar cane, and ethanol now provides 18% of the country's automotive fuel. Ethanol fuel is also widely available in the USA.

Solar thermal

Solar Towers of the PS10 and PS20 solar thermal plants in Spain

The United States conducted much early research in photovoltaics and concentrated solar power. The U.S. is among the top countries in the world in electricity generated by the Sun and several of the world's largest utility-scale installations are located in the desert Southwest.

The oldest solar thermal power plant in the world is the 354 megawatt (MW) SEGS thermal power plant, in California. The Ivanpah Solar Electric Generating System is a solar thermal power project in the California Mojave Desert, 40 miles (64 km) southwest of Las Vegas, with a gross capacity of 377 MW. The 280 MW Solana Generating Station is a solar power plant near Gila Bend, Arizona, about 70 miles (110 km) southwest of Phoenix, completed in 2013. When commissioned it was the largest parabolic trough plant in the world and the first U.S. solar plant with molten salt thermal energy storage.

The solar thermal power industry is growing rapidly with 1.3 GW under construction in 2012 and more planned. Spain is the epicenter of solar thermal power development with 873 MW under construction, and a further 271 MW under development. In the United States, 5,600 MW of solar thermal power projects have been announced. Several power plants have been constructed in the Mojave Desert, Southwestern United States.

Photovoltaic power stations

Nellis Solar Power Plant, photovoltaic power plant in Nevada, USA

Many solar photovoltaic power stations have been built, mainly in Europe. As of May 2012, the largest photovoltaic (PV) power plants in the world are the Agua Caliente Solar Project (USA, 247 MW), Charanka Solar Park (India, 214 MW), Golmud Solar Park (China, 200 MW), Perovo Solar Park (Ukraine, 100 MW), Sarnia Photovoltaic Power Plant (Canada, 97 MW), Brandenburg-Briest Solarpark (Germany, 91 MW), Solarpark Finow Tower (Germany, 84.7 MW), Montalto di Castro Photovoltaic Power Station (Italy, 84.2 MW), and the Eggebek Solar Park (Germany, 83.6 MW).

There are also many large plants under construction. The Desert Sunlight Solar Farm is a 550 MW solar power plant under construction in Riverside County, California, that will use thin-film solar photovoltaic modules made by First Solar.The Topaz Solar Farm is a 550 MW photovoltaic power plant, being built in San Luis Obispo County, California. The Blythe Solar Power Project is a 500 MW photovoltaic station under construction in Riverside County, California. The California Valley Solar Ranch (CVSR) is a 250 MW solar photovoltaic power plant, which is being built by SunPower in the Carrizo Plain, northeast of California Valley.The 230 MW Antelope Valley Solar Ranch is a First Solar photovoltaic project which is under construction in the Antelope Valley area of the Western Mojave Desert, and due to be completed in 2013.

Light is most important thing in our lives and all living things. We use properly and get better life.

Himanshu M. Khanapara

SYBSc (Physics)

Multiplication through Vedic Mathematics

There are several methods in Vedic Mathematics for multiplication. Here, I introduce two methods,

- **Multiply any two digits number with 99.**
- **Multiply any two digits number with 11.**

❖ ***Multiply any two digits number X with 99. (i.e. X × 99)***

We know that multiplication of two digits number gives three or four digits number. This method gives short cut trick to multiply any two digits number with 99. The steps are given below

➢ **Step: 1**

First, subtract **1** from the number **X**, which gives you one number **X – 1**, which is the **first two digits** of **multiplication**. (i.e. (X – 1) = First two digits of multiplication)

➢ **Step: 2**

After that, subtract that number **(i.e. X – 1)** from **99,** gives you **remaining two digits** of **multiplication.** (i.e. 99 – (X – 1) = Remaining two digits of multiplication)

➢ For example, ***Multiply 67 with 99***

⟹ **By Direct multiplication Answer is**

67 × 99 = 6 6 3 3

⟹ **Now, by Method,**

Here, **X** = **67**,

By step: 1 we get **X – 1**, **i.e. 67 – 1 = 66** (First two digits of multiplication)

By step: 2 we get **99 – (X – 1), i.e. 99 – (67 – 1) = 99 – 66 = 33** (Remaining two digits of multiplication)

Therefore, **Multiplication of 67 × 99 = 6633**

Note: Same thing apply for three digits number with 999 and four digits number with 9999, it works.

e.g. ***Multiply 376 with 999***

Here, X = 376

By step 1 we get, X – 1 = 376 – 1 = 375
By step 2 we get,
999 – (X – 1) = 999 – 375 = 624
Therefore, Multiplication of 376 with 999 gives 375624
i.e. 376 × 999 = 375624

e.g. ***Multiply 3479 with 9999***

Here, X = 3479
By step 1 we get, X – 1 = 3479 – 1 = 3478
By step 2 we get,
9999 – (X – 1) = 9999 – 3478 = 6521
Therefore, Multiplication of 3479 with 9999 gives 34786521
i.e. 3479 × 9999 = 34786521

❖ ***Multiply any two digits number N(= xy) with 11. (i.e. N × 11)***

Suppose, we have to multiply two digits number N with 11, it gives you three or four digits number. This method provide you easy step to do multiplication.

➢ **Step: 1**

Put First digit as ***x*** and **last digit** as ***y*** in the multiplication.

i.e.

N(= *xy*)	×	11	= *x*	*y*

➢ **Step: 2 If *t* = *x* + *y* is single digit number**

After that, we obtain remaining digit ***t*** by taking addition of digits ***x*** and ***y*.**
(i.e. *t* = *x* + *y*) Therefore, Multiplication is

N(= *xy*)	×	11	=	*x*	*t*	*y*

➢ **Step: 3 If *t* = *x* + *y* is two digits number (i.e. *t* = *pq*)**

If remaining digit ***t*,** is two digits number (i.e. ***t* = *pq***), then **take *q* as remaining digit** and ***p* as carry, to add in first digit *x*,** that gives you **new first digit *x* + *p*.**

Therefore, multiplication is

N(= *xy*)	×	11	=	*x* + *p*	*q*	*y*

➢ For example, ***Multiply 72 with 11***

⟹ **By Direct multiplication Answer is**

72 × 11 = 792

⟹ **Now, by Method,**

Here, **N** = **72 (*x* = 7 & *y* = 2),** Therefore, **by step: 1**

72	×	11	=	*7*		*2*

Here, ***t* = *x* + *y* = 7 + 2 = 9 (single digit)**

Therefore, **by step: 2 multiplication is**

72	×	11	=	*7*	*9*	*2*

➢ For example, ***Multiply 98 with 11***

⟹ **By Direct multiplication Answer is**

⟹ **Now, by Method,**

98 × 11 = *1074*

⟹ **Now, by Method,**

Here, **N** = **98 (*x* = 9 & *y* = 8),** Therefore, **by step: 1**

98	×	11	=	*9*		*8*

Here, ***t* = *x* + *y* = 9 + 8 = 17 (two digits number)**

Therefore **by step : 3** ***q* = 7 is remaining digit** and ***p* = 1 is carry, so New first digit is** ***x* + *p* = 10** Therefore, multiplication is

98	×	11	=	*10*	*7*	*4*

Mr. Tejas C Sharma
Adhoc/ Trainee Lecturer
Department of Mathematics

A HEALTHY RELATION

Hello pals!!

There may be many thoughts arising in your mind as the title reads – A healthy relation.

A relation which is healthy and happy at the same time is rare to view now a days.

Do we mean Luxuries, attraction, intelligence the only sources for a healthy relation?

Do we mean jealousy, hatred and success will not be able to establish a healthy relation?

A healthy relation is the one where both the partners trust, respect, loyal and sincere and each other.

The partners can be best friends, spouse, colleague, senior-junior', siblings etc.

When a relation is made on a tough platform of trust – neither competition nor can jealousy ruin that building of confidence. When we were born, we brought so many relations with us, we made parents, we made Grandparents, we made uncle-aunt, and we added a child to other siblings. All this relations last till our last breath. In each role of our relation we make to the fullest a success.

We set a great example to the ones around us too. We compromise, we sacrifice, we demand, we share, we give, we smile, spread happiness all remaining the same person handling different relations.

Sometimes unwanted factors such as competition, hatred, jealousy, partiality tend to ruin a healthy happy going relation in a loving family which causes clouds of sadness and each one loses hope and trust.

A healthy relation is the one where a partner knows, understands the other mate, there may come many unexpected circumstances in that relation – but it can surely be made through by the support of one another.

A healthy relation is one's strength, the reason to live and the only support which is built without keeping any expectations.

Life is all about missing the expected and facing the unexpected. We suffer more from imagination than from reality.

Zeal Vadodara

SYBSc (Microbiology)

A TRUE SOLDIER

A true soldier is the greatest honor of a country. He is the sentinel of his frontiers. He is a true guardian. He will lay down his life for the honor of his motherland. Nothing is dearer to him than the soil of his country. He is a great protector. He protects his boundary walls even at the cost of his life. If an enemy raises a finger against his country. He will cut his throat. He will bath in his blood. He will be head the rogue.

He is very bold and brave. He is a man of great fortitude. He take risks. Adventure is in his very breath. The battlefield is his real home. He is married to the battle. Abdul Hamid was such a soldier. In his Indo-Paw war, Hawaldar Hamid showed an exemplary courage and the highest sense of duty. He was awarded president's medal for bravery. It was his widow who accepted it after his death.

A soldier is not that one who puts on a khakhi uniform & is decorated with a gun or a pistol. Even a common man can be a soldier. A laborer working in the factory or a farmer harvesting the crop is no less than a true soldier. All are soldiers and sentinels in their own way. The important word is 'sacrifice' one who personifies 'selfless sacrifice'; he is the rare of the rarest.

The history books are replete with the heroic deeds of such soldiers. They are the cream of the soldiery. They remain enshrined in every heart even long after death. They are immortal in their works. They live forever. There is a very famous story given in the books of European History. In a particular battle a soldier lay-wounded on the battle-ground. He was groaning with pain. Blood was oozing out from the fresh-cut wounds of the sward. He was drowning slowly. He was very thirsty. He was about to quench his thirst from his bottle of water when he heard the cries of “water, water” from the lips of a dying soldier. His sense of duty awoke. Hamid dragged himself towards the thirsty soldier even at pain of death. He reached there and poured water into his mouth. The unlucky soldier passed away quite peacefully. His last wish was granted by another soldier who died 'thirsty'. What a great sacrifice he made, what a noble gesture he showed towards a dying soldier. He himself could have taken water. But he considered the need of his brother-soldier 'uppermost'.

Can anyone quote a better example than this? No, certainly not. This short story teaches us a great lesson of self-sacrifice. Those who die for a noble cause, remain 'alive' forever. Their instances of heroism are long after remembered. We salute to such soldiers. We bow down before them in all humility & reverence.

Tiwari Vibha

DROUGHT AFFECTED ZIMBABWE: 24 lakh people have to live without food.

The president of Zimbabwe Robert Mugabe had announced the scarcity in the country. Thousands of birds and animals died due to scarcity of water.

People from different areas were leaving the drought affected area.

1/4th part of that Zimbabwe's population died due to the severe drought occurred that there.

The government of Zimbabwe had instructed an export of crop from its neighbour country Zambia.

On the advice of European Union (EU), the government of Zimbabwe had declared scarcity.

Basing on European Union (EU), on announcing the scarcity the government can collect the funds from different countries.

According to Unite Nations World Food Programme (UNWFP) in most of the regions of South Africa around 1.4 corers people, are facing the problem of scarcity.

Prashant Dubey
F.Y. B. Sc.

FAR FROM HOME!!

Hello readers!

As children where ever we went- school, playground, gardens, funfair, restaurants, cinemas, etc... we knew that the final destination would be our home!! Where we rule, we are pampered and every wish is fulfilled.

As time passes, we add years to our life and pack ourselves with busy schedules, appointments etc. simply workaholic. Some move places, change rooms, get into a hostel and some just disappear into another vity. Leaving behind everything and everyone with just memories.

Some people have a habit of overcoming their loss by gaining too much.

For higher studies – we move away from the only heaven – home.

For better carrier opportunities we move away from the place of our comfort – Home. For earning our daily bread. We move away from the place we love the most – HOME. Esulting into Homesickness.

Money can't buy everything. Money can't buy the joy we have with our family at the dining table. Nothing in this world is as precious as gifting our time and attention to our loved ones – our home mates. No one can be the strength our family gives us when we need the most nothing can compensate the loss of being away from home.

It's hard to get a person with the features of an understanding father, caring mother, experienced around parents and always there for you like siblings. Such features are presented in a family beneath the shelter of home.

During special occasions, when the entire family gathers after a long time with many surprises and talks is the best time a person can experience in today's workaholic lifestyle. Family gatherings, lunch, dinner, picnics are always worth remembering and to take a picture of.

What really matters is even if how far one stays from home, the love, affection and bonding does not change, even if times change.

Far from home is just another journey a person begins.. all alone!

It may be exciting, tiresome, adventurous..

But home is always a home!!

Zeal Vadodaria

S.Y. B. Sc. (Microbiology)

How Wildlife Photographers disturbs Wildlife

The reason to write this is to share the experience which I had during one of my camp. I was with other three fellows. I remembered that day; it was another day of camp at 10:30 AM we got a bamboo pit viper (Trimeresurus gramineus) we had caught it, to show it to the students and left for the trek. After we coming back to the camp site we had planned to photograph and release that venomous snake. When we took it out of the container, we observed its aggression towards us. I noticed a freaky trick of my fellow getting photographs by disturbing it. No doubt, the photographs were really great, but what about the story behind the picture????.... It was on a branch of a tree and one of my fellow took his camera lens near to its mouth, I was surprised when the snake replied. I had captured the disturbance and I was fortunate enough as I captured the snake's aggression. It was the fangs of bamboo pit viper. I was kind of happy with that shot, but I realised that if this type of disturbance is created to get the good shots. What kind of wildlife photographers we are...??? I was happy with that shot but not that much as it was not a natural shot it was a disturbed shot just as created shot in a Photoshop. So, a humble request to my nature clickers that please do not disrupt the wildlife.

Het Patel

TYBSc

Importance of Communication in Management

Communication is just an indispensable part of the process of management. The success of an enterprise depends upon the effectiveness of communication. Every manager must communicate in order to get things accomplished through others.

A good communication system provides the following benefits.

Basis of decision – making and planning

Communication is key to decision-making and planning. It enables the management to secure information without which it may be feasible to take any decision. The quality of managerial decisions is dependent on the quality of communication. Further the decisions and plans of the management have to be communicated to the subordinates.

Smooth and efficient working

Communication makes possible the smooth and efficient working of an enterprise. It is only through communication. Thus, the management changes and regulates the action of the subordinates in the desired direction.

Facilities co-ordination

Management is the art of achieving results through others and this objective of management cannot be achieved unless there is unity of purpose and harmony of effort. Communication through exchange of ideas and information serves to bring about unity of action in the pursuit of common purpose.

Increases managerial efficiency

Effective communication increases managerial efficiency. It is rightly said that nothing happens in management until communication takes place. The efficiency of a manager depends upon his ability to communicate effectively with the members of his organization.

Sound industrial relations

Effective communication creates mutual understanding and trust among the members of the organization. It is merely through communication that workers can put in their grievances, problems and suggestions to the management.

Helps in establishing effective leadership

Communication is the foundation of effective leadership. There cannot be any leadership action without the effective communication between the leader and the led. Communication is indispensable maintaining a man to man relationship in leadership.

Effective control

Communication acts as a tool of effective control. The plans need to be communicated to the subordinates. The actual performance has to be measured and communicated to the top management and a corrective action has to be taken or communicated so as to achieve the desired goals.

Job satisfaction

Effective communication creates job satisfaction among employees as it increased mutual trust and confidence between management and the employees is reduced through the efficient means of communication and a sense of belongingness is created among employees. They work with real and enthusiasm.

Ninama Heena K.
F.Y. B. Sc.

Report on "WORKSHOP ON PHYSICS FOR COMPETITIVE EXAMINATIONS"

Under a junction of Department of Physics, V.P. and R.P.T.P Science College and IAPT (Indian Association of Physics Teachers) Local chapter, Vallabh Vidhyanagar, a "Workshop on Physics for competitive examinations" was organized in our V.P. Science College, on 6th and 7th January under the coordination of Dr. A.R. Jivani (coordinator) and Dr. J. K. Baria (Co-coordinator).

The motto of the Workshop was to make students aware about the level of caliber and pattern of the questions asked in the competitive exams and to provide information of such various competitive examinations held at national level and state level for Physics.

The speakers of this workshop were distinguished personalities like Dr. Kamalnayan Joshipura (Retd. Professor of Physics, Ex-Director of Community Science Center, V.V Nagar and Dr. A. R. Jani (Retd. Professor of Physics, Ex-Head of Department of Physics, SPU and Ex-Director of Academic Staff College). Both of them motivated us in different ways. They made us do the exercise of solving sample questions and provided ample amount of information about the entire spectrum of Physics that included a number of fields in which students can build a great career in the future.

Material containing all the detailed information like the syllabus, dates of application and procedure, etc about various competitive exams like JAM, JEST, NGPE, NET, etc. was provided in the workshop as a guide for students interested in appearing for the same.

Physics Professors of V.P. Science College like Dr. A.R. Jivani, Dr. J.K. Baria, Dr. Mehul V. Mehta, Dr. Rekha Vyas, and Ms. Sandhya Shukla had even given lectures on discrete topics selected from different principles of Physics.

Quiz Competition (on Physics) was also organized in both Written and Oral, in which many S.Y.BSc and T.Y. BSc Physics students had participated enthusiastically and even won prizes.

Prof. S. G. Patel (Honorable Joint Secretary, Charutar Vidya Mandal and Retd. Prof. of Physics) had inspired the students by providing tips of success from the knowledge and experience he gained in his life. He even awarded the winners of the Quiz Competition.

Total 137 students from V.P. Science College, M. B. Patel College, Anand and P. M. Patel College, Anand had participated in this workshop with great zeal and enthusiasm showing their keen interest in the subject which is King of Science "Physics".

This workshop was overall a great success and a very fruitful experience.

Krishna Panchal,

Smruti Parikh

TYBSc (Physics)


SPORTS DAY




V.P. SCIENCE COLLEGE
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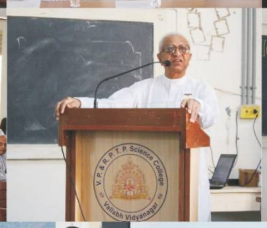
VP&RPTP Sc
Workshop on Physics for Competiti
Department of Phy
VP&RPTP Science College,
IAPT local chapter



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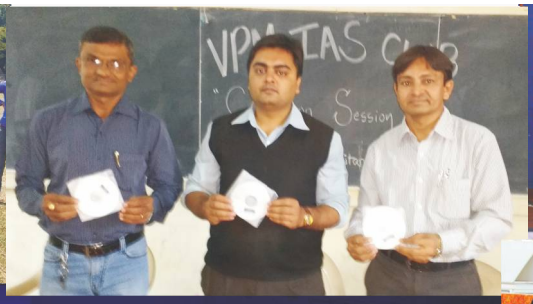






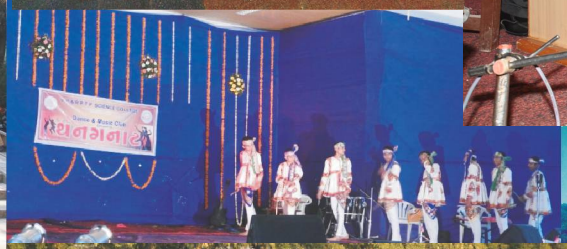


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