RAMANUJAN

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DEPARTMENT OF MATHEMATICS & STATISTICS

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MESSAGE FROM HEAD, DEPARTMENT OF MATHEMATICS & STATISTICS

At first I thank the entire team who involved in publishing the III Volume of "Ramanujan", The Annual News Bulletin of Department of Mathematics and Statistics, Golaghat Commerce College. I also take the opportunity to congratulate our students Swapnanil Sharma and Rimpi Dutta for securing 87% and 84% marks in "Business Mathematics" in the last 5th Semester Examination conducted by Dibrugarh University. I thank the faculties of the department of Mathematics and Statistics for completing the Bulletin. I request you all to be prepared with the new syllabus of CBCS which is going to be implemented in Undergraduate level by Dibrugarh University from the coming session.

T. K. Saikia

A tribute to Great Scientist

STEPHEN HAWKINS

WOMEN IN MATHEMATICS

Prem Chetri
B. Com. 5th Semester,

This Article is just about a handful of the most famous women in the history of Mathematics with discovering of the planet Uranus.

Caroline Herschel was the sister of a very famous astronomer, William Herschel who was credited cardine assisted her brother with his astronomical observations, and did most of the complicated mathematical calculations that were involved in working on the position of stars & planets. Before long she was conducting observations on her own, and discovered several new comets, which was a major achievement for any astronomer. When King George III gave her an Annual Salary for her astronomical work, Caroline became the first woman ever to be paid for doing a scientific job. The Royal Astronomical Society awarded her a Gold Medal in 1828 and she was honoured throughout Europe.

Another famous woman in **Mathematics** was **Mary Fairfax Somerville** who was born in 1780. She taught herself maths at home because at that time girls didn't learn maths at school. She was married twice, and her second husband was interested in maths and science. He introduced her to all kinds of famous mathematicians who were amazed to find that she understood their work extremely well, which was more than could be said for a lot of the men working in maths at the time. A friend asked her to translate a very important work by a French mathematician called Laplace and she not only translated it, but added some original work and made it much easier for other people to understand. She wrote several other books that made maths and science accessible to a much wider audience.

Ada Lovelace was the daughter of the famous poet Lord Byron, though she never met her father. She was taught by Mary Somerville and through her family and friends she met several influential mathematicians and scientists, one of whom was Charles Babbage. Together, Lovelace and Babbage worked on the theoretical principles of the Analytical Engine, a machine which Babbage designed but which was never finished in their lifetime. The engine was designed to perform vast quantities of complex calculations using a complicated mechanism of wheels and cogs, saving mathematicians' a lot of time and effort. She realised that a calculating machine could be programmed in the same way as a weaving machine, using cards with holes punched in them min a specific arrangement. She is now regarded as one of the earliest pioneers of computer programming.

Did you know that **Florence Nightingle** was a mathematician as well as a nurse? She developed systems of collecting, analyzing interpreting and displaying data about diseases and patients' death that are now considered to be quite advanced statistical methods Because she presented her statistics so clearly and persuasively, civil servants could understand them and were more easily convince by her arguments for improved health care. She was the first woman to be elected a member of the Royal Statistical Society, and he work contributed to the improvement of medical care in India as well as Britan.

RAMANUJAN

FAMOUS INDIAN MATHEMATICIANS AND THEIR CONTRIBUTIONS


Asif Ahmed, Sakir Hussain
B. Com. 5th Semester

Mathematics has a great contribution from the Indian mathematicians over many centuries. Indian mathematicians have been contributing in the field of algebra, arithmetic, geometry, trigonometry and differential equations, infinite series and expansion of trigonometry functions. In other words, Indian scholars have always led the development of mathematics from the front. Other than these, Indian Mathematicians made contribution in the creation and refinement of the current decimal place value system, including the number zero, without which higher mathematics would not be possible.

Here are some of the most famous Indian mathematicians and their contributions to mathematics.

- **Baudhayana (800 BCE) :** Baudhayana discovered the Pythagoras Theorem around 1000 years before Pythagoras was even born. In the book, 'Baudh?yana? ulbasutra' (800 BC) he wrote, "A rope stretched along the length of the diagonal produces an area which the vertical and horizontal sides make together." This is nothing, but a different way of looking at Pythogoras theorem. Apart from this, the book contained geometric solution of a linear equation in a single unknown.
- **Aryabhatta (476-550 CE) :** Aryabhatta is undoubtedly the most celebrated Indian mathematics. His most significant contributions to mathematics include approximation of the value of 'pi' upto five decimal places, and he also discussed the concept of 'sine'. Aryabhatta was the one who calculated the area of the triangle as perpendicular multiplied by the half side. He was the one to calculate that the time that Earth takes to complete one rotation is 365 days. In algebra, he summed series of squares and cubes and solved equation.
- **Brahmagupta (598-670 CE) :** Brahmagupta is the man who gave the world the concept of negative numbers and zero. He also proposed rules for solving simultaneous and quadratic equations. He calculated the area of a cyclic quadrilateral with semi-perimeter(s). Brahmagupta is the founder of "Numerical analysis", a branch of higher mathematics.
- **Bhaskara-I (600-680 AD) :** Bhaskara-I expanded on the work of Aryabhata, and found an approximation of the sine function. Bhaskara laid the foundation of differential calculus and gave an example of the differential coefficient and discussed the idea of what we know as Rolle's Theorem today. He told the world that sum of any number and infinity is infinity, and any number divided by zero is infinity. He was the one to introduce the cyclic method of solving algebraic equations. The "inverse cyclic" method was derived from this.
- **Mahavira (800-870 CE) :** Mahavira was a Jain mathematician. He worked with logarithms in base 2, base 3 and base 4. He authored the book Ganita Sara Sangraha (GSS) in 850 AD, which included teachings of Brahmagupta, but also contained simplifications and solve additional information. It includes chapters on arithmetical operation, mixed operation, functions, calculation of areas and others.
- **Varahamihira (505-587 CE) :** Varahamihira was a mathematician, astrologer and astronomer. Varahamihira improved the accuracy of Aryabhatta's sine tables. He defined the algebraic properties of zero and negative numbers. He was among the first mathematicians to discover a version of Pascal's triangle as we know it today.
- **Bhaskara-II (1114-1185 CE) :** Bhaskara-II was a prominent mathematician and astronomer, who proved that any number divided by zero is infinity. He also found that a positive number has two square roots. Bhaskara-II was the one to discover the differential coefficient and derivative Bhaskara authored six books in mathematics.
- **Srinivasa Aaiyangar Ramanujan (1887-1920) :** Ramanujan is probably the best known mathematicians of modern India. Some of his most credible contributions to the world of mathematics are the Hardy-Ramanujan little wood circle method, elliptic functions, work on the algebra of inequalities, partial sums and products of hypergeometric series, Rogor-Ramanujan identities, the partition of numbers and continued fractions. 1729 is known as the Ramanujan number.

PROBABILITY

Abhijit Dutta
B. Com. 5th Semester,

Probability is the measure of the likelihood that an event will occur. In other words it is the mathematical measurement of uncertainity. Probability is quantified as a number between '0' and '1', where loosely speaking '0' indicates impossibility and '1' indicates certainity. The higher the probability of an event the more likely it is that the event will occur. Though probability started with gambling, it has been used extensively in the fields of physical sciences, commerce, Biological sciences, Medical sciences, Weather forecasting etc.

The word probability derives from the latin- 'probabilitas' which can also mean 'probity', a measure of the authority of a witness in a legal case in Europe, and often correlated with the witness's nobility. much from the modern meaning of probability, which in contrast, is a measure of evidence and is arrived at from inductive reasoning and statistical inference.

Probability theory like many other branches of mathematics evolved out of practical consideration. It had its origin in the 16th century when an Italian physician and mathematician Jerome Cardan wrote his first book on the subject "Book of Games of change". In 1654 a gambler Chevalier de Metre approached the well known French philosopher and mathematician Blaise Pascal for certain dice problem.

Theory of probability is a representation of its concepts in formal terms- that is in terms that can be considered separately from their meaning. These formal terms are manipulated by the rules of mathematics and logic and any results are interpreted or translated back into the problem domain.

Some basic terms which are related to probability :

Pobability or the mathematical chance that something might happen is used in numereous day-to-day applications including in weather forecasts. For example a weather forecast that predicts a 75 percent chance of snow is using probability to communicate that people should be prepared to deal with snowy conditions.

In addition to being used for predicting potential outcomes for things like weather forecasts and political elections, probability is used in several different professional fields, public health workers can use probability to warm a high-risk population about the danger of contracting a discover to illness and example of which would be a cancer charity publishing material that state that smokers have a certain percentage chance to developing lung cancer.

Other fields can use probability in different ways to communicate risk or benefit to clients. Or the general public and probability can also be used to help people in non-public facing professions such as farming and rancing. The automotive insurance industry uses probability based on demographic information to set premiums for their customers. The industry uses demographics such as age, gender and the distance an individual tends to drive to determine how at risk each individual insurance customer is for getting into a car accident. These demographics are then used in a formula to calculate risk probability.

ICAI

Hrishikesh Goswami
B. Com. 5th Semester,

ICAI stands the Institute of Chartered Accountants of India. It was established in 1st July, 1949. Its headquarter is situated at New Delhi. Its regional offices are situated at New Delhi, Mumbai, Kolkata, Chennai, Kanpur. It has 157 branches in India. ACAI was established as a statutory body under the Chartered Accountants Act, 1949 enacted by the parliament to regulate the profession of Chartered Accountancy in India. It recommends the accounting standards to be followed by Companies in India to The National Financial Reporting Authority (NFRA) and sets the accounting standards to be followed by other types of organization. ICAI is solely responsible for setting the auditing and assurance standards to be followed in the audit and financial statements in India. It works closely with the Government of India, Reserve Bank of India and the Securities and Exchange Board of India.

INDIAN CHARTERED ACCOUNTANCY COURSE :

The Chartered Accountancy examinations are divided into three levels.

Common Proficiency Test (CPT) : The CPT covers four basic subjects –

a) Fundamental of Accounting; b) Mercantile laws; c) Economics; d) Quantitative aptitude.

One can register for CPT after completing 10th grade and take the exam after completing 12th grade. CPT exams are held in June and December. A candidate is considered to have cleared CPT if he/she obtains in a sitting 30% in each of the 4 sections and a 50% aggregate in the entire examination.

Integrated Professional Competence Course (IPCC) :

The IPCC is the second level of CA examinations. A person can take IPCC exam after passing CPT and nine months of study. IPCC has two groups of seven subjects. Group-I : a) Accounting; b) Business law; Ethics and Communication; c) Cost Accounting and Financial Management; d) Taxation; Group-II : a) Advance Accounting; b) Auditing and Assurance; c) Information Technology and Strategic Management.

A passing grade in IPCC is awarded if the candidate obtain 40% marks in each subject and an aggregate of 50% in the aggregate in each group. Benefit of set-off is also available if the candidate appears for both groups together and obtain 50% collectively in both groups, even if he fails to obtain an individual aggregate of 50% in the each group independently.

CA Final Examination :

The CA Final exam is the last and final level of CA. It is considered as one of the toughest exam in the world. Any person who has passed both the groups of IPCC, during the last six months of the articleship can take the final examination. The exam consists of two groups of four subject each.

Group-I : i) Financial reporting; ii) Strategic Financial Management; iii) Advanced Auditing and Professional Ethics; iv) Corporate and allied daws.

Group-II : i) Advanced Management Accounting, ii) Information System Control and Audit, iii) Direct Tax Laws, iv) Indirect Tax Law.

The passing grade for this exam is the same as the second level i.e. IPCC as mentioned earlier. IPCC and CA Final examination are conducted in May and November. After passing the CA Final one can get the membership of ICAI and recognized as CA.

NASA

Sanku Das
B. Com. 5th Semester,

'NASA' stands for National Aeronautics and Space Administration. NASA was started in 1958 as a part of the United States (US) Government. NASA is in charge of US Science and technology that has to do with airplanes or space. The space age started in 1957 with the launch of the Soviet, the world's first artificial satellite (Sputnik-I). NASA was created in 1958. The agency was created to oversee US space exploration and aeronautics research.

The NASA administration is nominated by the president of the United States and confirmed by a vote in the US Senate.

Many people know something about NASA's work. But most probably have no idea about how many different things the agency does. Astronauts in orbit conduct scientific research. Satellites help scientists learn more about Earth, Space probes study the Solar System and beyong. New developments improve air travel and other aspects of flight. NASA is also beginning a new program to send humans to explore beyond the Moon to Mars. In addition to those major missions, NASA does many other things. The agency shares what it learns, so that its information can make life better for people all over the world. For example, companies can use NASA discoveries to create new "Spin-off" products.

NASA's Headquarters is in Washington, D. C. The agency has nine centers, the Jet Propulsion Laboratory, and seven test and research facilities located in several states around the country. More than 18,000 people work for NASA. Many more people work with the agency as government contractors. Those people are hired by companies that NASA pays to do work for it. The combined work-force represents a wide variety of jobs. Astronauts may be the best-known NASA employees, but they only represent a small number of the total workface.

When NASA started, it began a program of human spaceflight. The Mercury, Gemini and Apollo programs helped NASA learn about flying in space and resulted in the first human landing on the moon in 1969. Currently, NASA has astronauts living and working on the International Space Station. NASA's robotic space probes have visited every planet in the solar system and several other celestial bodies. Satellites have revealed a wealth of data about Earth, resulting in valuable information such as a better understanding of weather patterns.

NASA has helped develop and test a variety of cutting-edge aircraft. These aircraft include planes that have set new records. Among other benefits, these tests have helped engineers improve air transportation. NASA technology has contributed to many items used in everyday life, from smoke detectors to medical tests.

INDIAN SPACE RESEARCH ORGANISATION (ISRO)

Swapnil Sharma
Manish Gupta
B. Com. 5th Semester

India is becoming one of the major players in space research by achieving the new milestone. The Indian Space Research Organisation (ISRO) was established in 1969 by the Government of India. It is headquartered in Bangaluru and is the under the umbrella of the Department of Space. ISRO is the primary space organization of the Indian Government and it is one of the largest space agencies in the world to be owned by a government.

Its vision is to "harness space technology for national development". The primary objectives of ISRO are to develop and enhance space technology and expand its applications for the benefit of the nation. Dr. Vikram Sarabhai, who is considered the father of the Indian Space Program, stated clearly that the establishment of a space research organization is not far conflicts or war. If fact, he believed in the application of advanced technologies to real problems faced by man and the society.

ISRO has achieved a number of milestones since its establishment. ISRO built India's first satellite, Aryabhata, which was launched by the Soviet Union on 19th April, 1975. It was named after the Indian Mathematician Aryabhata. In no more than 5 years, in 1980 ISRO built own Indian-made launch vehicle SLV-3, which placed Rohini, the first satellite to be placed in orbit. Subsequently, ISRO developed a rocket called the Polar Satellite Launch Vehicle (PSLV) to place satellite into Polar orbits. In addition, it developed the Geosynchronous Satellite Launch Vehicle to place satellites into geostationary orbits. Over the years, these rockets have launched a number of satellites, including communication satellites and earth observation satellites. ISRO has become one of the six largest space agencies in the world. ISRO maintains one of the largest fleet of communication satellite (INSAT) and remote sensing satellites (IRS), that cater to the ever growing demand for fast and reliable communication and earth observation respectively. ISRO develops and delivers application specific satellite products and tools to the nation broadcasts, communications, weather forecasts, disaster management tools, Geographic Information Systems, Cartography, navigation, telemedicine, dedicated distance education satellite being some of them.

Chandrayaan-I was India's first unnamed lunar probe, which was launched in October 2008. After the successful mission to moon, ISRO embarked on another mission. In 2014, ISRO launched a Mars orbiter 'Mangalyaan' which successfully entered the Mars orbit. This made India the first nation to succeed on its first attempt, and ISRO the fourth space agency in the world as well as the first space agency in Asia to successfully reach Mars orbit. On 18th June, 2016 ISRO successfully set a record with by launching 20 satellites in a single payload and on 15th February, 2017, ISRO launched 104 satellites in a single rocket and created a world record.

ISRO has not only taken India's research and technological capabilities to the next level but also has enhanced the lives of millions through innovative applications.

PYTHAGORAS

Ancient Greek mathematician and philosopher

Pooja Paul
B. Com. 5th Semester,

Pythagoras of Samos was a famous Greek mathematician and philosopher (C.570 – C. 495 BC). He is known best for the proof of the important Pythagorean Theorem, which is about right angled triangles. He started a group of mathematicians, called the Pythagoreans, who worshiped numbers and lived like monks. He had an influence on Plato.

He had a great impact on mathematics, theory of music and astronomy. His theories are still used in mathematics today. He was one of the greatest thinkers of his time.

Pythagoras was born in Samos, a little island off the western coast of Asia Minor. There is not much information about his life. He said to have a good childhood. Growing up with two or three brothers, he was well educated. He did not agree with the government and their schooling, so he moved to croton and set up his own cult of followers under his rule. His followers did not have any personal possessions, and they were all vegetarians. Pythagoras taught them all, and they had to obey strict rules.

In Mathematics, the Pythagorean Theorem or Pythagoras's Theorem is a statement about

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LEIBNIZ AND HIS INVENTIONS

Madhurya Bora
B. Com. 5th Semester,

Gottfried Wilhelm Leibniz was a German philosopher, who was born in 1st July, 1646, who occupies a prominent place in the history of mathematics and the history of philosophy. He became one of the most prolific inventors in the field of mechanical calculators. While working on adding automatic multiplication and division to Pascal's Calculator, he was the first to describe a pinwheel calculator in 1685, and invented the Leibniz Wheel, used in the arithmaneter, the first massproduced mechanical calculator. He also refined the Binary Number System, which is the foundation of virtually all digital computers.

In addition to calculus, Leibniz re-discovered a method of arranging linear equation into an array, now called a "matrix", which could then be manipulated to find a solution. He also introduced notion of self-similarly and the principle of continuity which foreshadowed an area of mathematics which could come to be called "Topology".

During the 1670s, Leibniz worked on the invention of a practical calculating machine, which used the binary system and was capable of multiplying, dividing and even extracting roots, a great improvement on Pascal's rudimentary adding machine and a true forerunner of the computer.

Although the mathematical notion of function was implicit in trigonometric and logarithmic tables, which existed his day. Leibniz was the first, in 1692 and 1694, to employ it explicity, to denote any of several geometric concepts derived from a curve, such as abscissa, ordinate, tangent, chord and the perpendicular. Leibniz was the first to see that the coefficients of a system of linear equations could be arranged into an array, now called a "matrix", which can be manipulated to find the solution of system.

Leibniz is credited, along with Sir Issac Newton, with the discovery of calculus (differential and integral calculus). According to Leibniz's notebooks, a critical breakthrough occurred on 11 November, 1675, when he employed integral calculus for the first time to find the area under the graph of a function y=f(x). He introduced several notations used to this day, for instance the integral sign. "∫", representing an elongated S, from the Latin word summa, and the "d" used for differentials from the Latin word 'differentia'. This clever suggestive notation for calculus is probably his most enduring mathematical legacy. Leibniz did not publish anything about his calculus until 16 Leibniz expressed the inverse relation of integration and differentiation, later called the fundamental theorem of calculus, by means of a figure in 1693 paper supplementum geometriae dimensoriae. The concept became more transparent developed through Leibniz's formalism and notation. The product rule of differential calculus still called 'Leibniz Law'. In addition, the theorem that tells and when to differentiate under the integral sign is called the Leibniz integral rule. Leibniz exploited infinitesimals in developing calculus manipulating them in ways suggesting that they paradoxical algebraic properties. A recent argues that Leibnizian calculus was free contradiction, and was better grounded in Berkeley's empiricist criticism.

Leibniz is also often considered the most important logician between Aristotle in Greece and George Boob and Augustus De Morgan in the 19th century. Even though he published nothing on formal logic in his lifetime, enunciated in his working drafts the properties of what we now call conjunction, disjunction, negation, identity, set inclusion and empty set.

HELLENISTIC MATHEMATICS : ARCHIMEDES

Rimpi Dutta
B. Com. 5th Semester

Archimedes was a Greek Mathematician who was born C.287 BC in the seaport city of Syracuse, located along the coast of Southern Italy.

Archimedes, the greatest mathematician of antiquity, made his greatest contributions in geometry. His methods anticipated the integral calculus before Newton and Leibniz. Also an engineer, inventor and astronomer, Archimedes was best known throughout most of history for his military innovations like his siege engines and mirrors to harness and focus the power of the sun, as well as levers, pulleys and pumps. But his true love was pure mathematics and the discovery in 1906 of previously unknown works referred to as the 'Archimedes Palimpsest' has provided new insights into how he obtained his mathematical results. Today, Archimedes is widely considered to have been one of the greatest mathematicians of antiquity.

Archimedes produced formula to calculate the areas of regular shapes, using a revolutionary method of capturing new shapes by using shapes he already understood. He effectively homed in on a value for one of the most important numbers in all of mathematics π. His estimate was between $3\frac{1}{7}$ (approximately 3.1429) and $3\frac{10}{71}$ (approximately 3.1408) which compares well with the actual value of approximately 3.1416.

He calculated the approximate volume of a solid like a sphere by slicing it up into a series of cylinders and adding up the volumes of the constituent cylinders.

Archimedes had perhaps the most prescient view of the concept of infinity of all the Greek mathematicians. Generally speaking, the Greek's preference for precise, rigorous proofs and their distrust of paradoxes meant that they completely avoided the concept of actual infinity. Archimedes, however in the 'Archimedes palimpsest' went further than any other Greek mathematician when, on compared two infinity large sets, he noted that they had an equal number of numbers, thus for the first time considering actual infinity, a concept not seriously considered again until George Cantor in the 19th century.

He calculated the volume of a sphere as $\frac{4}{3}\pi r^3$ and that of a cylinder of the same height and diameter as $2\pi r^3$. The surface area was $4\pi r^2$ for the sphere and $6\pi r^2$ for the cylinder.

Despite his important contributions to pure mathematics, though Archimedes is probably best remembered for the anecdotal story of his discovery of a method for determining the volume of an object with an irregular shape. King Heiron of Syracuse had asked Archimedes to find out if the royal goldsmith had cheated him by putting silver in his new gold crown, but Archimedes clearly could not melt it down in order to measure it and establish its density, so he was forced to search for an alternative solution. While taking his bath on day, he noticed that the level of the water in the tub rose as he got in and he had the sudden inspiration that he could use this effect to determine the volume (and therefore the density) of the crown. In this excitement, he apparently rushed out of the bath and ran naked through the streets shouting "Eureka! Eureka!" ("I found it! I found it!") This gave rise to what has become known as Archimedes principle : An object is immersed in a fluid is buoyed up by a force equal to the weight of the fluid displaced by the object.

Archimedes died C.212 BC during the second punic war, when Roman forces under General Marcus Claudies Marcellus captured the city of Syracuse after a two-year long siege. According to the popular account given by Plutrach, Archimedes was contemplating a mathematical diagram when the city was captured. A Roman soldier commanded him to come and meet General Marcellus but he declined, saying that he had to finish working on the problem. The soldier was enraged by this, and killed Archimedes with his sword. Plutrach also gives a lesser-known account of the death of Archimedes which suggests that he may have been killed while attempting to surrender to a Roman soldier. According to this story, Archimedes was carrying mathematical instruments and was killed because the soldier thought that they were valuable items. General Marcellus was reportedly angered by the death of Archimedes, as he considered him a valuable scientific asset and had ordered that he not be harmed. Marcellus called Archimedes 'a geometrical Briazeus'. Archimedes' last words are supposed to have been "Do not disturb my circles."

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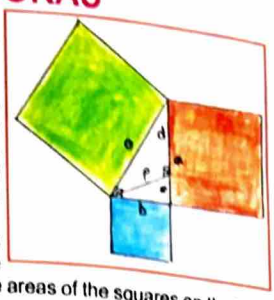
PYTHAGORAS



the sides of a right angled triangle. One of the angles of a right angled triangle is always equal to 90 degrees. This angle is right angle. The two sides next to the right angle are called the legs and the other side is called hypotenuse. The hypotenuse is the side opposite to the right angle, and it is always the longest side.

The Pythagorean theorem says that the area of a Square on the hypotenuse is equal to the sum of the areas of the squares on the legs. In this picture, the area of the blue square added to the area of the red square makes the area of the green square. It was named after the Greek mathematician Pythagoras :

"If the lengths of the legs are a and b, and the length of the hypotenuse is c, then $a^2+b^2=c^2$."

STEPHEN HAWKING

Dr. Karabi Devi

Professor Stephen William Hawking was born on 8th January 1942 in Oxford, England. He was born on the day which was exactly 300 years after the death of Galileo. After schooling at St. Albans School he went to University College, Oxford. Stephen wanted to study mathematics although his father would have preferred medicine. Mathematics was not available at University College, so he pursued physics instead. After three years he was awarded a first class honours degree in natural science.

In October 1962, Stephen arrived at the Department of Applied Mathematics and Theoretical Physics (DAMTP) at the University of Cambridge to do research in cosmology. He was awarded PhD for his thesis titled 'Properties of Expanding Universes'. He won the Adams Prize for his essay 'Singularities and the Geometry of Space-time'. Stephen was employed as a research assistant at Department of Applied Mathematics and Theoretical Physics (DAMTP) at the University of Cambridge and he became a Reader in Gravitational Physics and then progressing to Professor of Gravitational Physics. He then held the position of Lucasian Professor of Mathematics (1979-2009). It was first held once by Isaac Newton.

Professor Stephen Hawking has worked on the basic laws which govern the universe. He proved that Einstein's general theory of relativity implied space and time would have a beginning in the Big Bang and an end in black holes. These results indicated that it was necessary to unify general relativity with quantum theory, which was the great scientific development of the first half of the 20th century.

His famous publications include "The Large Scale Structure of Spacetime", "General Relativity: An Einstein Centenary Survey" and "300 Years of Gravitation". Among the popular books Stephen Hawking has published are his best seller "A Brief History of Time", "Black Holes and Baby Universes and Other Essays", "The Universe in a Nutshell", "The Grand Design and My Brief History".

Professor Stephen Hawking had been honoured with thirteen honorary degrees. He was awarded CBE, Companion of Honour and the Presidential Medal of Freedom. He is the recipient of many awards, medals and prizes, most notably the "Fundamental Physics prize", "Copley Medal" and the "Wolf Foundation prize". He is a Fellow of the Royal Society and a member of the US National Academy of Sciences and the Pontifical Academy of Sciences.

In 1963, when Stephen was of age 21, he was diagnosed with ALS, a form of Motor Neurone Disease. In spite of being wheelchair-bound and dependent on a computerised voice system for communication Stephen continues to combine family life with his research into theoretical physics, in addition to an extensive programme of travel and public lectures.

Sitting (left to right) :
Prem Chetri, Sanku Das, Abhijit Dutta.
Standing (left to right) :
Asif Ahmed, Swapnanil Sharma, Prakash Medhi, Madhurjya Bora.
Absent :
Bidisha Bora, Rimpi Dutta, Chimpi Bora, Pooja Paul, Jayashree Sonowal, Manish Gupta, Raju Biswash, Tilak Chetri, Sakir Hussain, Hrishikesh Goswami.

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