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❖ Solutions to the above problems are invited, at the earliest. The names of the readers who turn out first in providing answers to the problems will be published and the solutions will be published in the forthcoming issue.

FROM THE EDITORIAL DESK

The PG Department of Mathematics has been established in the year 2003. It offers B.Sc., Mathematics with Computer Applications, B.Sc., Mathematics and M.Phil., Programme.

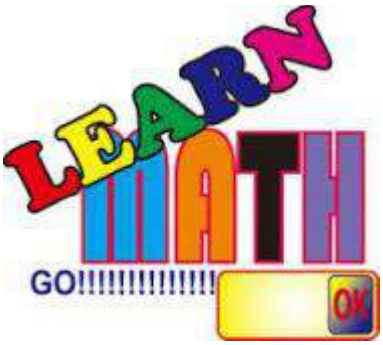
The Department has to its credit, two National Seminars, two National Conferences and an Intercollegiate meet organisized on 11^{th}& 12^{th} August 2005, 30^{th}& 31^{th} August 2007, 9^{th} January 2014, 9^{th} February 2017 and 13^{th} September 2011 respectively. It has celebrated National Mathematical Year on 24^{th} August 2012. On memorial of Ramanujan's birthday Math Expo has been organized by the Department since 2013.

The Department is enriched with twenty one faculty members having wide knowledge in their specializations like Differential Equations, Fuzzy Set Theory, Intuitionistic Fuzzy Set, Graph Theory, Operations Research. The Department has completed two minor research projects funded by UGC. The Department has produced 46 M.Phil., Research Scholars from 2009 onwards.

The Department adds one more feather by publishing a Subject Based Yearly News Letter incorporating History of Mathematician, Crossword Puzzles, Cross out Crossword Puzzles, Solutions to the Problems of Previous issue, Departmental Activities and Placement Details of the Students of Mathematics.

We welcome the suggestions and criticisms for improvement in the content and presentation of materials of "MATH-MAZE".

EDITORIAL DESK



HISTORY OF BIOSTATISTICS

Biostatistics is an application of statistics to a wide range of topics in biology. The science of biostatistics encompasses the design of biological experiments, especially in medicine, pharmacy, agriculture and fishery.The collection of those data with summarization, and analysis of data from those experiments can be interpreted to make new results. A major branch of this is medical biostatistics, which is exclusively concerned with medicine and health.

The history of biostatistics could be viewed as an ongoing dialectic between continuity and change. Although statistical methods are used in current clinical studies, there is still ambivalence towards its application when medical practitioners treat individual patients. Historical episodes and methodological innovations such as debates about inoculation and blood letting, as well as how randomization was introduced into clinical trial design. These historical episodes are a catalyst to consider assistance of non-practitioners of medicine such as statisticians and medical writers.

Bio-statistical modeling forms an important part of numerous modern biological theories. In the early 1900s, after the rediscovery of Gregor Mendel's Mendelian inheritance work, the gaps in understanding between genetics and evolutionary Darwinism led to vigorous debate among biometricians, such as Walter Weldon and Karl Pearson, and Mendelians, such as Charles Davenport, William Bateson and Wilhelm Johannsen. By the 1930s, statisticians and models built on statistical reasoning had helped to resolve these differences and to produce the neo-Darwinian modern evolutionary synthesis.

Ronald Fisher developed several basic statistical methods in support of his work studying in the field of experiments at Rothamsted Research, including in his book *The Genetical Theory of Natural Selection.* Sewall G. Wright developed F-statistics and methods of computing on them. *The Causes of Evolution*, by J. B. S. Haldane's has been re-established with natural selection as the premier mechanism of evolution by explaining it in terms of the mathematical consequences of Mendelian genetics.

Recent developments have made a large impact on biostatistics. Two important changes have been the ability to collect data on a high-throughput scale, and the ability to perform much more complex analysis using computational techniques.

Life is good for only two things, discovering mathematics and teaching mathematics.

- Simeon Poisson

New Biomedical technologies like microarrays, next generation sequencers (for genomics) and mass spectrometry (for proteomics) generate enormous amounts of data, allowing many tests to be performed simultaneously.

Careful analysis with Bio-statistical methods is required to separate the signal from the noise. For example, a microarray could be used to measure many thousands of genes simultaneously, determining which of them have different expression in diseased cells compared to normal cells. However, only a fraction of genes will be differently expressed. On the other hand, the advent of modern computer technology and relatively cheap computing resources have enabled computer-intensive Bio-statistical methods like bootstrapping and resampling methods. In recent times, random forests have gained popularity as a method for performing statistical classification. Random forest techniques generate a panel of decision trees.

Applications

- Public health, including epidemiology, health services research, nutrition, environmental health and healthcare policy & management
- Design and analysis of clinical trials in medicine
- Assessment of severity state of a patient with prognosis of outcome of a disease
- Population genetics, and statistical genetics in order to link variation in genotype with a variation in phenotype. This has been used in agriculture to improve crops and farm animals (animal breeding). In biomedical research, this work can assist in finding candidates for gene alleles that can cause or influence predisposition to disease in human genetics
- Analysis of genomics data, for example from microarray or proteomics experiments
- Often concerning diseases or disease stages
- Ecology, ecological forecasting
- Biological sequence analysis
- Systems biology for gene network inference or pathways analysis

Mathematics is the door and key to the sciences.

- Roger Bacon

Almost all educational programmes in biostatistics are at postgraduate level. They are most often found in schools of public health, affiliated with schools of medicine, forestry, or agriculture, or as a focus of application in departments of statistics.

In the United States, where several universities have dedicated biostatistics departments, many other top-tier universities integrate biostatistics faculty into statistics or other departments, such as epidemiology. Thus, departments carrying the name "biostatistics" may exist under quite different structures. For instance, relatively new biostatistics departments have been founded with a focus on bioinformatics and computational biology whereas older departments, typically affiliated with schools of public health, will have more traditional lines of research involving epidemiological studies and clinical trials as well as bioinformatics. In larger universities, both a statistics and a biostatistics department exist, the degree of integration between the two departments may range from the bare minimum to very close collaboration. In general, the difference between a statistics program and a biostatistics program is twofold:

(i) Statistics departments will often host theoretical/methodological research which are less common in biostatistics programs and

(ii) Statistics departments have lines of research that may include biomedical applications but also other areas such as industry (quality control), business and economics and biological areas other than medicine.

Mathematics cannot handle physical quantities like density that literally go to infinity.

- Gregory Benford

BASIC DEFINITIONS

The application of Statistics in biological problem is called Biostatistics. It is branch of applied mathematics and may be regarded as mathematics applied to the observational biological data. Biostatistics is the application of statistical methods to find the solution for biological problems.

There are two types of statistics more commonly used in biological studies. They are sample statistics and test statistics.

SAMPLE STATISTICS

It is utilised to calculate population parameters, such as mean, standard deviation, etc. It explains the nature of distribution of data. The data in this case are immediately calculated in order to provide biologists the first hand results. It also gives the knowledge of statistically significant or non - significant results.

TEST STATISTICS

It is used to test the hypothesis about one or more sample data. In statistical test, one has to choose more data for analysis, obtained by conducting the experimental design. It includes the study of chi - square and t - test, etc.

Biostatistics can be divided into two categories: descriptive statistics and inferential statistics.

DESCRIPTIVE BIOSTATISTICS

The descriptive biostatistics involves graphical and tabular approaches to describe, summarize and analyze the data.

INFERENTIAL BIOSTATISTICS

The procedures which serve to make generalizations on the basis of the studies of a sample (which is a part of the population) constitute inferential biostatistics. Statistical inference is the process of drawing conclusions about population characteristics based on the information contained in a sample.

The study of mathematics, like the Nile, begins in minuteness but ends in magnificence.

– Charles Caleb Cotton

DATA

While observing various phenomena, one is usually interested in getting information on specific characteristics such as age, sex weight, height, marital status, occupation, blood pressure, body temperature, etc. These characteristics are referred to as variables whereas the values of observations recorded for them are referred to as *data*. Thus, the data are the raw materials of statistics.

PRIMARY DATA

Primary data is the data collected by a particular person or organization for the own use from primary users.

SECONDARY DATA

Secondary data is collected by some other person or organization for the own use but the investigator can also use it. It means that a data can be primary for the one person and secondary for the other.

POPULATION

A *population* is any actual or conceptual collection of individuals defined by stated characteristics.

VARIABLE

A *variable* is any property of an individual (person, tree, bird, rat, etc.) that can be expressed in numerical terms. It may be readily measured or determined for any member of the population. Variable is a property where the members of a group or set differ from one another. A variable may be continuous or discrete.

CONTINUOUS VARIABLE

A *continuous variable* may take any value within a defined range of values. Height, weight and chronological time are the examples of continuous variable.

Mathematical proofs, like diamonds, are hard and clear, and will be touched with nothing but strict reasoning.

- John Locke

DISCRETE VARIABLE

A *discrete variable* or discontinuous variable can take specific values only. Size of a family, the number of female patients, the number of leaves are the examples of discrete variable.

RANKED VARIABLE

A variable which is expressed as a series of ranks such as 1, 2, 3, 4, 5 are called *ranked variable*. For example, in an experiment one may record the rank order of litters born or of emergence or pupae without specifying the exact time.

ATTRIBUTES

Variables which are expressed qualitatively are called *attributes*. These are all properties such as red or white, pregnant or non pregnant, died or alive, etc.

CONSTANT

The term *constant* refers to a property where the members of a group do not differ from one another. In a sense constant is a particular type of variable.

SAMPLE

A *sample* is any subgroup or sub aggregate drawn by some appropriate method from a population.

REPRESENTATIVENESS AND RANDOMNESS

Though any part of a population can be regarded as a sample, for the sample to be useful in making inferences about the population it must be in some sense of representation.

The only way of ensuring that a sample is a representative to be introduced on an element of randomness into its selection.

PARAMETERS

A *parameter* is any numerical property descriptive of a population. Population mean, median and mode are the parameters of location.

Maths is the supreme judge, from its decisions there is no appeal.

– Tobias Dantzig

ACCURACY AND PRECISION

Accuracy is the closeness of a measured or computed value to its true value. *Precision* is the closeness of repeated measurement of the same quantity.

Precise variates are usually a number but not necessarily whole numbers.

Meristic variables are generally measured as exact numbers. Seemingly, continuous variables derived from meristic ones can under certain conditions also be exact numbers.

Those digits in a number that denote the accuracy of the measurement are referred to as significant figures.

CORRELATION

Correlation is a statistical technique that is used to measure and describe the strength and direction of the relationship between two variables. Correlation requires two scores from the same individuals.

REGRESSION

Regression is a statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables.

ESTIMATOR

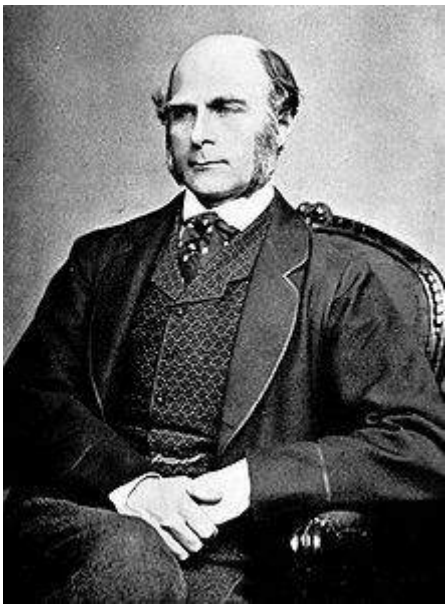
Estimator is a function that maps the sample space to a set of sample estimates. An estimator of θ is usually denoted by the symbol $\hat{\theta}$.

God does arithmetic.

- Karl Friedrich Gauss

KNOW YOUR MATHEMATICIAN

SIR FRANCIS GALTON



Francis Galton was born on February 16th, 1822 Birmingham, West Midlands, England and died on January 17th, 1911 Haslemere, Surrey, England. He was known for pursuing a diverse number of disciplines such as anthropology, statistics, geography, and psychology. He was born in Britain and was the cousin of Charles Darwin. Galton was considered a child prodigy and was reading Shakespeare at the age of six. He studied medicine at the University of Cambridge. He then settled down in Britain to pursue various scientific endeavors. He was considered so impressive by the scientific community and Britain in general that he was knighted.

During his anthropological studies, Galton noticed a great degree of individuality amongst fingerprints. He was the first to comprehensively examine fingerprints and scientifically determine that they could be used for purposes of identification. In his anthropological laboratories, he collected over 8,000 sets of fingerprints and published many scholarly papers about **fingerprint classification**, which was later adapted by **E.R. Henry**. This research was the foundation for use of fingerprints for forensic purposes in crimes. He produced over 340 papers and books.

Since the Mathematicians have invaded the theory of relativity, I do not understand it myself anymore.

- Albert Einstein

One of the topics that Francis Galton was best known for was his work with intelligence. He believed that many aspects of human nature, including intelligence, could be measured scientifically. In a time before I.Q. tests, Galton attempted to measure intelligence through reaction time tests. For example, the faster someone could register and identify a sound, the more intelligent that person was. He also created the statistical concept of correlation and widely promoted regression towards the mean. He was the first to apply statistical methods to the study of human differences, questionnaires and survey.

Galton believed that intelligence and most other physical and mental characteristics of humans were inherited and biologically based. It was the idea that led Galton to develop his most controversial concept of Eugenics, which is the selective breeding of humans deemed to have the most desirable traits and discouraging those with less desirable traits from breeding. This selective breeding would lead to an overall improvement of the human species. People would be more intelligent, physically stronger, and less susceptible to genetic and other types of diseases.

Over the course of his career Galton received many major awards, including

- Founder's Medal, Royal Geographical Society (1853)
- Silver Medal, French Geographical Society (1854)
- Gold Medal, Royal Society (1886)
- Darwin Medal, Royal Society (1902)
- Wallace Medal , Linnean Society of London's Darwin (1908)
- Copley Medal , Royal Society (1910)

Mathematics is not about numbers, equations, computations or algorithm, it is about understanding.

- William Paul Thursten

KARL PEARSON

Karl Pearson was born on March 27th, 1857 Islington, London, England and died on April 27th, 1936. He was an influential English Mathematician and Biostatistician. He has been credited with establishing the discipline of mathematical statistics. He founded the world's first university statistics department at University College London in 1911 and contributed significantly to the field of biometrics, meteorology, theories of social Darwinism and Eugenics. Pearson was also a protégé and biographer of Sir Francis Galton.

Pearson's work was all-embracing in the wide application and development of mathematical statistics, and encompassed the fields of biology, epidemiology, anthropometry, medicine, psychology and social history. In 1901, with Weldon and Galton, he founded the journal Biometrika whose object was the development of statistical theory. He edited this journal till his death. He also founded the journal Annals of Eugenics (now Annals of Human Genetics) in 1925.

Pearson's thinking underpins many of the classical statistical methods which are in common use today. Some of his main contributions are linear regression, method of moments, Chidistance, correlation and classification of distributions.

God used beautiful Mathematics in creative the world.

- Paul Dirac

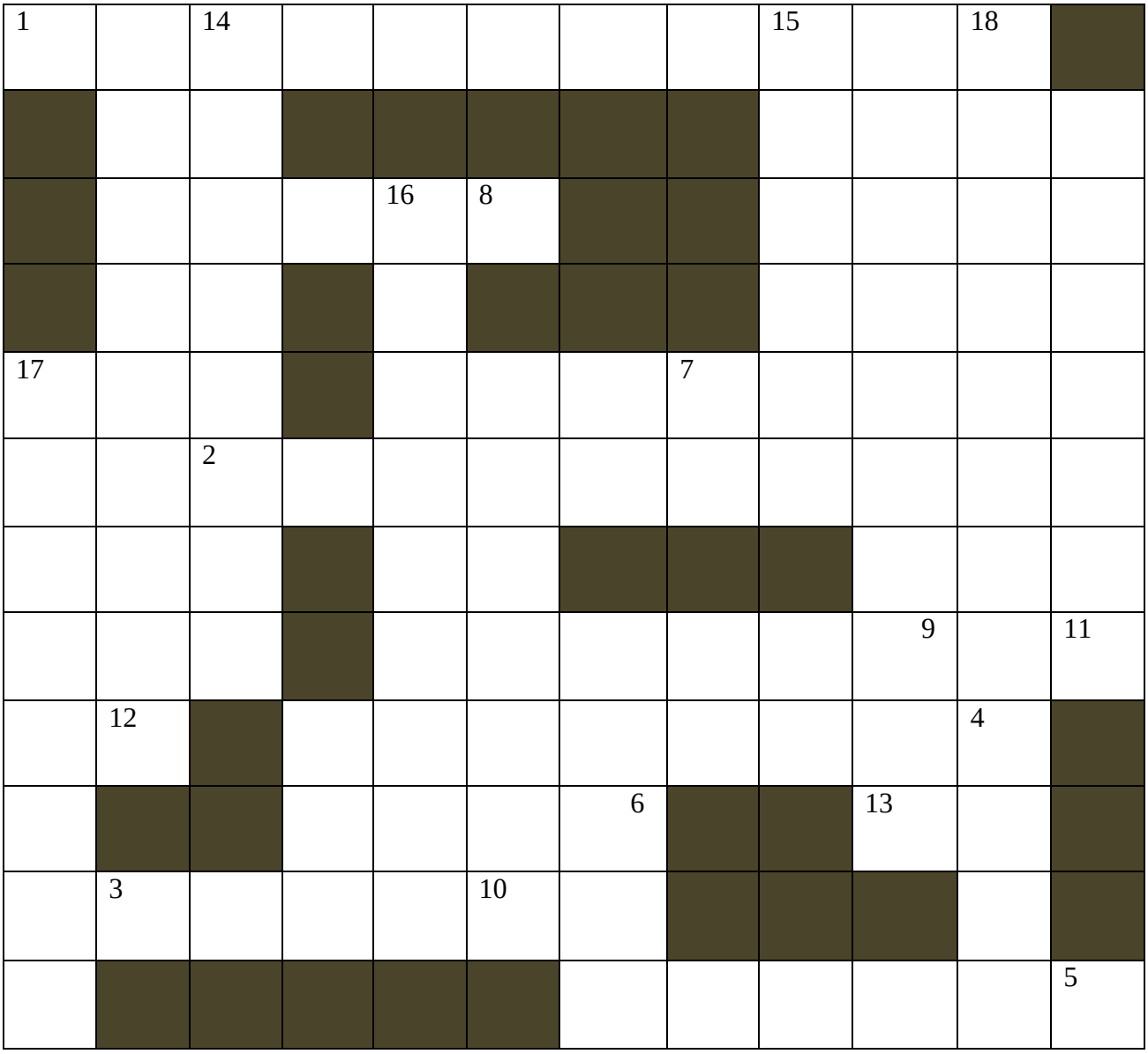
Through his mathematical work and his institution building, Pearson played a leading role in the creation of modern statistics. The basis for his statistical mathematics came from a long tradition of work on the method of least squares approximation, worked out early in the 19th century in order to estimate quantities from repeated astronomical and geodetic measures using probability theory. His positivistic philosophy of science provided a persuasive justification for statistical reasoning and inspired many champions of the quantification of the biological and social sciences during the early decades of the 20^{th} century.

As statistician, Pearson emphasized measuring correlations and fitting curves to the data, and for the latter purpose he developed the new chi-square distribution. Rather than just dealing with mathematical theory, Pearson's papers most often applied the tools of statistics to scientific problems. With the help of his first assistant, George Udny Yule, Pearson built up a biometric laboratory on the model of the engineering laboratory at University College. In 1901, assisted by Weldon and Galton, Pearson founded the journal Biometrika, the first journal of modern statistics. He was honored with Darwin Medal (1898) .

Number Theory is queen of Mathematics.

- Gauss

CROSSWORD PUZZLES



LEFT TO RIGHT

1. The Binomial and Poisson distributions apply to discrete random variables and are called the _____ distributions.

From the intrinsic evidence of his creation, the Great Architect of the Universe now begins to appear as a pure Mathematician. - Sir James Jeans

2. The mean deviation is also known as _____ deviation.

3. When only two variables considered, regression is termed as _____ regression.

RIGHT TO LEFT

4. The first step in the Wilcoxon rank - sum procedure is to rank the _____ data from the two samples from low to high.

5. A variable whose value is determined by the outcome of a random experiment is called _____ variable.

6. The _____ table was developed primarily to meet the needs of life assurance offices.

7. A partial correlation co-efficient is analogous to a partial regression coefficient in that all other factors are _____constant.

8. _____ statistics are conventionally numerical records of marriage, birth.

9. The parametric test is often referred to as a _____ difference test.

BOTTOM TO TOP

10. The term _____ means that an equation of a straight line is of the form $Y = aX + b$.

11. The quartile deviation is not affected by the presence of _____ values.

12. A _____is any property of an individual (person, tree, bird, rat, etc.,) that can be expressed in numerical terms.

13. A _____ is any actual (or) conceptual collection of individuals defined by stated characteristics.

TOP AND BOTTOM

14. The standard deviation of the sampling distributions is called the _____ error.

15. Regression attempts to establish the _____ of the relationship between variables.

Mathematics consists of proving the most obvious thing in the least obvious way.

- George Polye

CROSSOUT CROSSWORD PUZZLES

D	M	A	C	H	I	S	Q	U	A	R	E	I
Q	I	T	E	Y	E	L	P	I	T	L	U	M
N	D	S	A	M	P	L	E	D	M	O	P	E
X	P	F	P	B	C	L	U	S	T	E	R	V
R	O	L	J	E	U	H	S	W	K	S	E	I
U	I	F	P	A	R	T	I	A	L	R	A	T
D	N	B	W	Z	C	S	E	G	R	Z	X	A
O	T	Q	A	J	R	H	I	O	L	G	N	L
S	J	I	Z	K	H	G	R	O	S	S	C	U
S	R	E	L	A	T	I	V	E	N	O	I	M
A	G	K	C	A	L	G	E	B	R	I	C	U
L	L	U	N	B	F	T	M	Y	V	P	V	C
C	E	Q	U	O	T	A	D	C	H	U	N	K

1. The _____ must always be a true representative of the whole population.

2. In which sampling the population is divided into separate groups of elements?

3. _____intervals are usually recorded to the nearest unit and thereby reflect the accuracy of measurement.

4. _____ of class is the value that falls in the middle of the class interval.

5. The _____ frequency is simply the fraction or propagation of the total number of items belonging to the class.

6. The _____ frequencies are obtained by adding successively starting from the top of the individual frequency.

7. _____ is defined as the extend of scatterness - a measure of central tendency.

8. _____signs are ignored when calculating mean deviation.

Mathematics is the art of giving the same name to different things.

- Jules Henri Poincare

9. The measure of _____ enables to find out the degree of discrepancy between observed frequency and theoretical frequency.

10. The function of _____correlation analysis is the measurement of relationship between two functions.

11. The _____ correlation must have linear regression.

12. _____regression analysis represents a logical extension of two variables regression analysis.

13. The method of convenience sampling is also called the _____.

14. _____sampling is a type of Judgement Sampling.

15. The _____hypothesis is very useful tool in test in significance of difference.

16. The standard deviation of the sampling distribution is called the standard _____.

Mathematics is the science of what is clear by itself.

- Carl Jacobi

MATHEMATICAL INNOVATIONS

ARABIC NUMERALS

Great advances in Western European science followed the introduction of Arabic numerals by the Italian mathematician **Fibonacci** in the early 13th century. He learned them from conducting business in Africa and the Middle East. They should really be called Hindu numerals because the Arabs got them from the Hindus. In any case, mathematics would be stuck in the dark ages without such versatile numerals.

NEGATIVE NUMBERS & ZERO

Brahmagupta, a 7th century Hindu astronomer, was not the first to discuss negative numbers, but he was the first to make sense of them. It's not a coincidence that he also had to figure out the concept of zero to make negative numbers make sense. Zero was not just nothingness, but a meaningful number, the number you get by subtracting a number from itself. Zero was not just a placeholder, writes Joseph Mazur in his new book **Enlightening symbols.**

Negative numbers are used to describe values on a scale that goes below zero, such as the Celsius and Fahrenheit scales for temperature. **Zero** is deeply ingrained in the tools and fabric of science. Zero is a central focus of our human spiritual and religious establishments.

DECIMAL FRACTIONS

Stevin introduced the idea of decimal fractions to an European audience in a pamphlet published in 1585, promising to teach, how all computations that are met in business may be performed by integers alone without the aid of fractions. He thought his decimal fraction approach would be of value not only to merchants but also to astrologersand measurers of tapestry. But long before stevin , the basic idea of decimals had been applied in limited contexts. In the middle of 10th century, **Al - Uqlidisi ,** in Damascus, wrote a treatise on Arabic numerals in which he dealt with decimal fractions.

Arithmetic is where numbers fly like pigeons in and out of your head.

– Carl Sandburg

BINARY LOGIC

Boole was interested in developing a mathematical representation of the laws of thought, which led to using symbols (such as x) to stand for concepts (such as Irish mathematicians). He hit a snag when he realized that his system required x times x to be equal to x. That requirement pretty much rules out most of mathematics, but Boole noticed that x squared does equal x for two numbers 0 and 1. In 1854, he wrote a whole book based on logic with 0s and 1s. The book was well-known to the founders of modern computer languages.

NON – EUCLIDEAN GEOMETRY

Gauss, in the early 19th century, was probably the first to figure out an alternative to Euclid's traditional geometry, but Gauss was a perfectionist, and perfection is the enemy of publication. So **Lobachevsky** and **Bolyai** get the credit for originating one non-Euclidean approach to space, while **Riemann,** much later, produced the non-Euclidean geometry that was most helpful for Einstein in articulating general relativity. The Non-Euclidean Geometries are used in NASA for rocket and space exploration.

COMPLEX NUMBERS

Before **Cardano**, square roots of negative numbers had shown up in various equations, but nobody took them very seriously, regarding them as meaningless. Cardano played around with them, but it was **Bombelli** in the mid-16th century who worked out the details of calculating with complex numbers, which combine ordinary numbers with roots of negative numbers. A century later **John Wallis** made the first serious case that the square roots of negative numbers were actually physically meaningful.

Complex numbers are used in electrical engineering all the time, because Fourier transforms are used in understanding oscillations that occur both in alternating current and in signals modulated by electromagnetic waves.

The knowledge of which geometry aims is the knowledge of the eternal.

- Plato

MATRIX ALGEBRA

An ancient chinese math text included matrix like calculations, but their modern form was established in the mid of 19^{th} century by **Cayley** (several others, including Jacques Binet, had explored aspects of matrix multiplication before him). Besides their many other applications, matrices became extremely useful for quantum calculations without even knowing that matrix algebra already existed.

LOGARITHMS

A great aid to anybody who multiplied or messed with powers and roots, logarithms made slide rules possible and clarified all sorts of mathematical relationships in various fields. **Napier** and **Burgi** both had the basic idea in the late 16^{th} century but both spent a couple of decades calculating log tables before publishing them. Napier's came first in 1614. **Briggs** made them popular, though, by recasting Napier's version into something closer to the modern base-10 form. Logarithm have number of applications in real life, especially when calculating the pH of any chemical substance by measuring the loudness of sounds of decibels.

CALCULUS

Newton gets all the credit, even though **Leibniz** invented calculus at the same time and more convenient notation. In any event calculus made all sorts of science possible that could not have happened without its calculation powers. Today everything from architecture and astronomy to neuroscience and thermodynamics depends on calculus. Calculus can give us a generalized method of finding the slope of a curve and it also used to calculating the area of shapes.

Geometry is not true-it is advantageous.

– Henri Poincare

MATHEMATICS IN GAMES

TO FIND OUT HOW MANY BROTHERS / SISTERS A PERSON HAS

We can try trick on others when a person is doing these calculations ask him to take only his siblings (children of the same parents) and ignore the cousins.

STEPS

1. Ask the person, (on whom we are trying the trick). So take the number of brother he as (if no brother, take zero).
2. Add 3 to it.
3. Multiply it by 5.
4. Add 20.
5. Double the answer.
6. Now, ask him to add the number of sister he has (if no sister, take zero).
7. Finally, ask him to add 1.

SECRET

- From the final answer that the other person will tell us, mentally subtract 71.
- The last digit will give you number of sisters and the remaining digits will give you the numbers of brothers he has.

Example

Let us suppose a person has 1 brother and 1 sister. This is how he would work out the steps.

1. Take the number of brothers = 1
2. Add 3 to it = 4
3. Multiply by 5 = 20
4. Add 20 = 40
5. Double the answer = 80
6. Add number of sisters = 81 (80 plus 1 sister=81)
7. Add 1 = 82

Thus, the final answer would be 82. Now, let us see how we can find out siblings from the final answer. Has mentioned earlier, we will subtract 1 from the last digit to get the number of sisters. Next we will subtract 7 from the first digit to get the number of brothers.

8	2
-7	1
1	1
(B)	(S)

I feel unhappy, I do maths to become happy. If I am happy, I do maths to keep happy.

– Alfred Renyi

Similarly if the total was 71, 93,102 the number of brothers and sisters would be (0,0), (2,2) and (3,1) respectively.

7	1
-7	1
0	0
(B)	(S)

9	3
7	1
2	2
(B)	(S)

10	2
7	1
3	1
(B)	(S)

Similarly, we can predict a how many sons and daughters a person has by substituting the word 'brother' with 'sons' and 'sisters' with 'daughters' in the above example.

TO PREDICT A PERSON'S DATE OF BIRTH

With this technique we can predict the date of birth of any number of people simultaneously. We can try this stunt with your family members, friends, relatives, colleagues and even in parties.

STEPS

(a) Ask the people to take the number of the month in which they were born (January is 1, February is 2 and so on……).
(b) Next, ask them to double the number.
(c) Add 5 to it.
(d) Multiply it by 5.
(e) Put a zero behind the answer.
(f) Add their date of birth (if they are born on 5^{th} January then add 5)

After the steps are over, ask them to tell the final answer and just by listening to their final answer one can predict their date of birth!

SECRET

From the answer,

- Mentally subtract 50 from the last two digits to get the date.
- Subtract 2 from the remaining digits to get the month.

Thus the date of birth is calculated easily.

The imaginary number is a fine and wonderful recourse of the divine spirit, almost an amphibian between being and not being.

- Gottfried WhilhemLiebniz

Example

Let us consider the date of birth, 26th June. Then by the steps

(a) Take the month number = 6
(b) Double the number = 12
(c) Add 5 to it = 17
(d) Multiply it by 5 = 85
(e) Put a zero behind the answer = 850
(f) Add the date of birth = 850 + 26 = 876

Thus the final answer is 876. Now the date of birth can be deducted from the final answer. First subtract 50 from the last two digits to get the date. Next, subtract 2 from the remaining digits to get the month.

There is no branch of mathematics, however abstract, which may not some day be applied to phenomena of the real world.

- Nikolai Lobatchevsky

MATHEMATICS DAY CELEBRATION

National Mathematics Day

In India, the day December 22 has been declared as the National Mathematics Day. The Declaration was made by Dr. Manmohan Singh, Prime Minister of India, during the inaugural ceremony of the celebrations to mark the 125th birth anniversary of Srinivasa Ramanujan held at the Madras University Centenary Auditorium on 26th February 2012. He also announced that the year 2012 would be celebrated as the National Mathematics Year.

The Indian Mathematical genius Srinivasa Ramanujan was born on 22nd December 1887 and died on 26th April 1920. In recognition of his contribution to Mathematics the Government of India decided to celebrate Ramanujan's birthday as the National Mathematics Day every year. National Mathematics Day is celebrated with numerous educational events held at Indian Schools and Universities.

Pi Day

Pi Day is an annual celebration of the mathematical constant π (pi). Pi Day is observed on March 14 (3/14 in the *month/ day* date format) since 3, 1 and 4 are the first three significant digits of π. In 2009, the United States House of Representatives supported the designation of Pi Day.

Pi Approximation Day is observed on July 22 ($\frac{22}{7}$ in the *day / month* date format), since the fraction $\frac{22}{7}$ is a common approximation of π, which is accurate to two decimal places and dates from Archimedes.

Square Root Day

Square root day is celebrated on days when both the day and the month are the square root of the last two digits of the year.

The last square root day was April 4 2016 (4/4/2016) and the next square root day will be May 5, 2025 (5/5/2025). The final square root day of this century will be Sep 9, 2081 (9/9/2081).

The square root days fall upon the same nine dates on each century.

Ron Gordon, a Reduced City, California high school teacher, created the first square root day on September 9, 1981 (9/9/1981)

List of Square Root Days

Square root day occurs on following dates on each century.

1/1/01, 2/2/04, 3/3/09, 4/4/16, 5/5/25, 6/6/36, 7/7/49, 8/8/64, 9/9/81.

All mathematics is symbolic logic.

- Bertrand Russell

EXAMS AND INSTITUTES

COMPETITIVE EXAMS

- NET (National Eligibility Test)
- GATE (Graduate Aptitude Test In Engineering
- NBHM (National Board of Higher Mathematics)
- ISI entrance exam
- CMI entrance exam

TOP INSTITUTES FOR MATHEMATICS

- IMSC
- ISI
- CMI
- IISC

INSTITUTES AROUND INDIA

- Chennai Mathematical Institute (B.Sc., M.Sc., Ph.D.,) - Chennai.
- Indian Statistical Institute (B.Math, M.Math, Ph.D.,) - Delhi, Bangalore, Kolkata, Tezpur, Chennai.
- The Institute of Mathematical Sciences (Ph.D.,pdf) - Chennai.
- Tata Institute of Fundamental Research (Int M.Sc., -Ph.D., Ph.D.,) - Mumbai, Bangalore.
- Harish-Chandra Research Institute (Int M.Sc.,-Ph.D., Ph.D.,) - Allahabad.
- Indian Institute of Science (B.S., Int M.Sc.,-Ph.D., Ph.D.,) - Bangalore.
- Indian Institutes of Science Education and Research (Int M.S., Int M.S.–Ph.D., Ph.D.,) - Mohali,Pune, Thiruvananthapuram, Bhopal, Kolkata
- National Institute of Science Education Research (Int M.S., Ph.D.,) Bhubaneshwar.
- Indian Institutes of Technology (B.S.,B.Tech., M.Sc., M.Tech., Int M.Sc., - Ph.D., Ph.D.,) - Bombay,Delhi, Guwahati, Roorkee, Madras, Kharagpur, Kanpur, Ropar, Bhubaneshwar, Gandhinagar,Hyderabad, Patna, Jodhpur, M andi, Indore, Varansi.
- University of Hyderabad (M.A., / M.Sc., Int M.Sc., Ph.D.,) - Hyderabad.
- Institute of Mathematics and Applications (B.Sc., M.A., /M.Sc.,) - Bhubaneshwar.
- Gauhati University (B.S., B.Sc., M.A., /M.Sc., Ph.D.,) - Guwahati.

Statistics: the mathematical theory of ignorance.

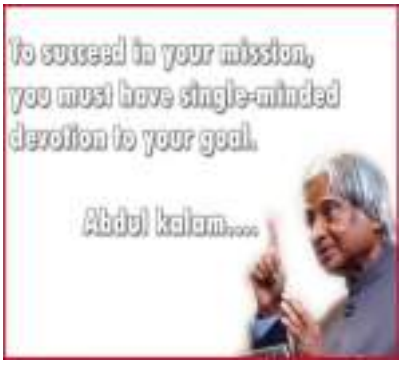
- Morris Kline

CAREER OPPORTUNITIES

There are excellent opportunities for a person with a degree in statistics. Major corporations and most government agencies continually look for talented individuals with this type of education. Since even greater job opportunities are open to those with advanced statistical training, many undergraduates proceed directly to graduate work in statisitcs. The background of students entering the graduate program in statistics varies widely and requires only a quantitative orientation, one year of calculus, and matrix algebra. Many students combine statistics with areas such as business, education, economics, biology, or other fields where statistical training is greatly valued.

- Consult in the design and analysis of clinical studies, evaluating new pharmaceutical agents
- Design experiments for agricultural, ecological, environmental
- Determine mortality, morbidity, and accident rates for an insurance company
- Serve as an opinion pollster for a public relations firm or a television network
- Develop theories of learning and behavior in conjunction with pyschologists
- Determine optimal combinations and evaluate performance of various chemicals in industrial setups
- Conduct reliability and quality control studies in various industries
- Develop econometrics, time series, and forcasting models for determining the cause and effects of various socio-economic variables on the society

In all of these areas and many others, statisticians work closely with other scientists and researchers to develop new statistical techniques, adapt existing techniques, design experiments, and direct analyses of surveys and retrospective studies.



God does not care about our mathematical difficulties. He integrates empirically.

- Albert Einstein

Statistical software

- AcaStat
- Analyse-it
- Analytica
- Data Applied
- Data Desk
- Develve
- Easy Fit
- ESBStats
- EViews
- Forecast Pro
- GAUSS
- Genedata Analyst
- GeneXpro Tools
- GNU PSPP
- Graph Pad InStat
- IBM SPSS Modeler
- JMP
- LIMDEP
- Maple
- Mathematica
- MATLAB
- MaxStat
- MedCalc
- Minitab
- NCSS
- NLOGIT
- NLREG
- Number Analytics
- Origin
- PASS
- PolyAnalyst
- Qlucore
- SAS Visual Statistics
- SigmaPlot
- SmartPLS
- Stata
- Statgraphics Centurion
- STATISTICA
- Statistix
- StatsPlus
- StatsDirect
- Statwing
- StatXact
- SUDAAN
- SuperCROSS
- TIBCO Spotfire
- TurboStats
- UNISTAT
- WinSPC
- XLSTAT
- GenStat
- LISREL
- Sigma Stat
- Wizard

Free Open Source Statistical Software

- GNU Octave
- SAS Studio
- Base SAS
- PSPP
- ADaMSoft
- BV4.1
- R
- PbdR
- Shogun
- CSPro
- CumFreq
- Gretl
- OpenMx
- Open Stat
- Sage
- DAP
- Develve
- ADMP
- Open Epi
- Scilab
- Mac Anova
- Data Plot

Mathematics is a Queen of Science.

- Gauss

AWARDS

Fields Medal

The **Fields Medal** is a prize awarded to two, three, or four mathematicians under 40 years of age at the International Congress of the International Mathematical Union (IMU), a meeting that takes place every four years since 1950. The Fields Medal is sometimes viewed as the highest honour a mathematician can receive. The Fields Medal and the Abel Prize have often been described as the mathematician's "Nobel Prize". The Fields Medal differs from the Abel in view of the age restriction mentioned above. The medal was first awarded in 1936 to Finnish mathematician **Lars Ahlfors and American Mathematician Jesse Douglas**. Its purpose is to give recognition and support to younger mathematical researchers who have made major contributions.

Abel Prize

The prize was first proposed to be part of the hundredth anniversary celebration of **Niels Henrik Abel's** (5 August 1802 – 6 April 1829) in 1902. In August 2001, the Norwegian government announced that the prize would be awarded in the beginning of 2002, the two-hundredth anniversary of Abel's birth. **Atle Selberg** received an *honorary Abel Prize* in 2002, but the first actual Abel Prize was only awarded in 2003.

Beauty is the first test: there is no permanent place in the world for ugly mathematics.

- G. H. Hardy

The Norwegian Academy of Science and Letters declares the winner of the Abel Prize each March after recommendation by the Abel Committee, which consists of five leading Mathematicians. The committee is currently headed by John rognes. The International Mathematical Union and the European Mathematical Society nominate members of the Abel Committee.

Wolf Prize

The Wolf Prize is an International award granted in Israel, that has been presented most years since 1978. The prize is awarded in Israel by the Wolf Foundation, founded by Dr Ricardo Wolf, a German-born inventor and former Cuban ambassador to Israel. It is awarded in six fields: Agriculture, Chemistry, Mathematics, Medicine, Physics and an Arts prize that rotates between architecture, music, painting and sculpture. Each prize consists of a diploma and a Reward of US$100,000.

Chern Medal

The Chern Medal is an international award recognizing outstanding lifelong achievement of the highest level in the field of Mathematics. The prize is given at the *International Congress of Mathematicians (ICM)*, which is held every *four years*.

Without math life is undefined.

– Elmor Earl Leonor

The first such occasion was held at the ICM in Hyderabad, India. The award is a joint effort of the International Mathematical Union (IMU) and the Chern Medal Foundation (CMF). Each recipient receives a medal decorated with Chern's likeness, a cash prize of $250,000 (USD), and the opportunity to direct $250,000 of charitable donations to one or more organizations for the purpose of supporting research, education or outreach in Mathematics.

Ruth Lyttle Satter Prize in Mathematics

The Ruth LyttleSatter Prize in Mathematics was established in 1990 using funds donated to the American Mathematical Society by Joan S. Birman of Columbia University in memory of her sister, Ruth LyttleSatter. Professor Satter earned a bachelor's degree in mathematics and then joined the research staff at AT&T Bell Laboratories during World War II. After raising a family, she received a Ph.D., in Botany at the age of forty-three from the University of Connecticut at Storrs, where she later became a faculty member. Her research on the biological clocks in plants earned her recognition in the U.S. and abroad. Professor Birman requested that the prize be established to honor her sister's commitment to research and to encouraging women in science. The prize is awarded every two years to recognize an outstanding contribution to mathematics research by a woman in the previous five years.

Leroy P. Steele Prize for Lifetime Achievement

The Steele Prizes were established in 1970. In 1993, the AMS formalized three categories for the prizes. The prize for lifetime achievement is awarded for a book or substantial survey or expository research paper.In 2004 Cathleen Morawetz (Citation) Women Mathematician who have won the prize.

Alice T. Schafer Prize

The Schafer Prize is awarded to an undergraduate woman in recognition of excellence in mathematics and is sponsored by the Association for Women in Mathematics The Schafer Prize was established in 1990 by the executive committee of the AWM and is named for former AWM president and one of its founding members, **Alice T. Schafer**, who has contributed a great deal to women in mathematics throughout her career. The criteria for selection includes, but is not limited to, the quality of the nominees' performance in mathematics courses and special programs, exhibition of real interest in mathematics, ability to do independent work, and if applicable, performance in mathematical competitions.

Angling may be said to be so like the mathematics that it can never be fully learned.

- Izaak Walton

MacArthur Fellowships

MacArthur fellowships, popularly known as the *genius awards* cannot be applied for; rather, candidates are drawn from a pool of initial nominations by an anonymous group of 100 people. The John D. and Catherine T. MacArthur Foundation aims to recognize people whose achievements in the arts, humanities, sciences, social sciences, and public affairs show the promise of even greater accomplishments in the future. There are no strings attached. Recipients can spend the money, usually anywhere from $150,000 to $375,000 over a period of five years, anyway they want. The fellowships were established in 1981.

Chauvenet Prize

The Chauvenet Prize is awarded *annually* by the Mathematical Association of America to the author of an outstanding expository article on a mathematical topic by a member of the association. First awarded in 1925, the Prize is named for William Chauvenet, a professor of mathematics at the United States Naval Academy. It was established through a gift in 1925 from J.L. Coolidge, then MAA President. Winners of the Chauvent Prize are among the most distinguished of mathematical expositors.

Beckenback Book Prize

The Beckenbach Book Prize, established in 1986, is the successor to the MAA Book Prize established in 1982. It is named for the late Edwin Beckenbach, a long-time leader in the publications program of the Association and a well-known professor of mathematics at the University of California at Los Angeles. The Prize of $2,500 is intended to recognize the authors of a distinguished, innovative book published by the MAA and to encourage the writing of such books. The award is not given on a regularly scheduled basis. To be considered for the Beckenbach Prize a book must have been published during the *five years* preceding the Award.

The most painful thing about mathematics is how far away you are from being able to use it after you have learned it.

- James Newman

MATH GLOSSARY

Calculus

Calculus is a branch of mathematics and it is a study of infinitesimal quantities. It was classically made sense through the idea of limits and functions, thus they form an important part of the study historically.

Cardinal number

A number used to represent the size of a set. The abstract concept of size in this sense is called cardinality.

Catenary

A plane curve which, if any sections of it are used to represent a string of uniform mass, has the lowest gravitational potential energy for the given length and fixed points.Thus, it is approximately the shape of a string hanging under gravity.

Catenoid

A surface formed by the rotation of a catenary.

Central difference

The absolute or directed difference between values whose argument are a fixed equal interval away from the nominated argument.

Chi-squared test

A test on the goodness of fit of an observation to the theoretical value/assumed distribution through the use of the chi-squared distribution to test its likelihood of deviation due to natural variations.

Circle of convergence

The set of points which is of a fixed distance from a fixed point on an argand diagram which are the set of arguments which converges in an infinite series.

One should study Mathematics simply because it helps to arrange one's ideas.

- Lomonossow

Circle of curvature

A circle which describes correctly the curvature of a curve for the neighbourhood of a point on the curve.

Circumcentre

The centre of a circle which goes through all vertices of a polygon.

Circumcircle

A circle whose circumference contains all points of the polygon.

Circumference

The length of the closed curve of a circle.

Complementary angles

Two angles that sum to a right angle. In this case, each angle is called the complement of the other angle.

Complete lattice

A poset where all subsets have a supremum and an infimum.

Complex function

A function involving complex numbers. It is true that all real variable functions are complex functions, certain results (such as convergence) differs depending on which kind we consider the function to be.

Conic

It is a plane curve which is the intersection of a plane with an infinite right double cone- i.e. a circle, an ellipse, a parabola and a hyperbola. It also called a conic section.

Pure mathematics is, in its way, the poetry of logical ideas.

- Albert Einstein

Consistent estimator

A sequence of estimators that is convergent.

Convex set

A set of points where, given any 2 points in the set, the line segment joining the 2 points consists of points entirely from the set itself.

Coordinate

One within a set of such numbers, called coordinates, which specifies the position of a point.

Coprime

The property of 2 numbers not sharing any prime factors.

Corollary

A theorem which is immediate from another proven statement. That is, a theorem that requires minimally prove, or a simple observation. As such, the difference between a corollary and a theorem is not rigorously defined but rather subjective in its use.

Cubic Polynomial

A polynomial which has the highest power 3 amongst all terms, is known as Cubic Polynomial.

Cuboid

A 3-dimensional analogue of a rectangle, where all faces of a cuboid must be rectangles. A cube can be considered as a special case of a cuboid.

Cycloid

The curve traced out by a fixed point on a circle rolling along a line without slipping.

God used beautiful Mathematics in creative the world.

- Paul Dirac

SOLUTIONS TO THE PROBLEMS OF THE PREVIOUS ISSUE

PUZZLES - STATICS

ANSWERS

LEFT TO RIGHT

6. Ratio

8. Zero

RIGHT TO LEFT

3. Reaction

7. Tangential

9. Moment

BOTTOM TO TOP

10. Middle

TOP TO BOTTOM

1. Friction

2. Parallel

4. Statical

5. Motion

15. Nature

16. Index

17. Biometry

18. Statistical

CROSSWORDS - STATICS

1. Equiliquium
2. Poundal
3. Passive
4. Least
5. Zero
6. Triangle
7. Coincides
8. Resolved
9. Unlike
10. Resultant
11. Sliding
12. Diagonals
13. Rigid
14. Couple
15. Friction

Perfect numbers like perfect men are very rare.

- Rene Descartes

CONGRATULATIONS

Congratulations to the following readers who turn out first in providing answers to the problems of the previous issue:

CROSSWORD PUZZLE

C. Santhiya I B.Sc., (English)

S. Rishidevi I B.Com., (CA)

V.Kanishkaa III B.Sc., (Physics)

CROSSOUT CROSSWORD PUZZLE

V. Brindha I M.Sc., (CS)

S. Meena III B.Sc., (CT)

R. Jeevitha III B.sc., (IT)

DEPARTMENT ACTIVITIES

1. **Bridge Course** was organized on **05.07.2016** by the PG Department of Mathematics for I B.Sc., Mathematics (A&B) and Mathematics (CA) students on the topic **Fundamentals of Mathematics**, to test and improve their knowledge. The aim of the entry level test is to enable them to cope with the transform from school to college level. Basic skills of students was tested through entry level test, which carries questions from the topics Trigonometry, Differentiation and Integration, Statistics, Complex Analysis and Vector Analysis.

2. **Two days workshop on Analysis** was organized by the PG Department of Mathematics, Vellalar College for Women on 06.08.2016 and 07.08.2016. **Dr.G.P.Youvaraj,** Director & Head, Ramanujan Institute for Advanced Study in Mathematics, Chennai was the resource person.

3. The Final UG, PG Students and Staff members of our Department visited three and half days **trip** to **Bangalore, Mysore and Coorg** on 11.08.16 to 14.0816. The students enjoyed the first day trip at Lal park, BAMUL(Bangalore Milk Cooperation Union Limited), Visvesvaraya Industrial and Technological Museum, Siva Temple, HAL(Hindustan Aeronautical Limited), Iskon Temple and Mejestic Mall in Bangalore. The second day, students exalted at Thalacauveri, Thiruvenisangamum and Golden Temple in Coorg. Finally they adored Samundeshwari Temple, Mysore Maharaja Palace, Zoo and shopping in Mysore.

4. **Special Meeting** was organized by PG Department of Mathematics on 27.08.2016. **Miss.A.Saranyadevi,** Ph.D., Research Scholar, Ramanujan Institute for Advanced Study in Mathematics, gave a speech on **Career behind Mathematics**.

5. **One day Workshop** on **Personality Development** organized on 14.09.2016. **Dr.S.Kadhiravan,** Professor & Head, Department of Phychology, Periyar University, Salem, gave a lecture on the topic **"Steps for Achieving Success"** and **Dr.P.Karthikeyan,** Assistant Professor (Sr. Grade), School of Management Studies, Kongu Engineering College, Perundurai, delivered a lecture on the topic **Rebrand Yourself.**

6. **Two days Seminar on Differential Equations** was organized by the PG Department of Mathematics, Vellalar College for Women on 29.09.2016 and 30.09.2016 with

Dr.K.Karuppiah, Programme Associate, Department of Applied Mathematics, Bharathiar University, Coimbatore.

7. **Two days Seminar on Algebra** was organized by the PG Department of Mathematics, Vellalar College for Women on 14.10.2016 and 15.10.2016**. Dr.T.TamizhChelvam,** Professor, Department of Mathematics, Dean, Faculty of Sciences, Manonmaniam Sundaranar University, Tirunelveli was the chief guest.

8. 129th Ramanujan's Birthday Celebration, **"MATH EXPO – 16"** was organized by the PG Department of Mathematics on 22.12.2016, **Dr. M.G.Karunambigai**, Assistant Professor, PG and Research Department of Mathematics, Sri Vasavi College, Erode was the chief guest.

9. The UG & PG students of the department made learning through Math models, an enthusiastic activity for the students of Panchayat Union School, Karaparai, by their innovative pedagogy on 04.01.2017, as a part of **Extension Activity**.

10**. National Conference on "Current Scenario in the Applications of Mathematical Sciences" (CSMAS 2017)** was organized by the PG department of Mathematics on 09.02.2017 in which **Dr. K.S. SubrahamanianMoosath**, Professor & Head, Department of Mathematics, Indian Institute of Space Science and Technology, Trivandrum, Kerala delivered a lecture on the topic "Information Geometry", **Dr. S. Ponnusamy F.N.A.Sc,** Head, Indian Statistical Institute(ISI), Chennai gave a lecture on the topic "Power Series and Bohr's Inequality" and **Dr. Ramesh VenkadachalamPalani**, Assistant Professor, School of Mathematics & Computer Science, Central University of Tamil Nadu, Neelakudi, Thiruvarur delivered a lecture on the topic"A Geometric and Algebraic view of asymptotic analysis : It's application to analyse the Complexity of Sudoku Problems".

11. **Association Competitions** like Paper Presentation and Math sketching were conducted by the PG Department of Mathematics on 14.02.2017 &15.02.2017 to activate the interest of the students.

12.**Special Meeting** was organized by the PG Department of Mathematics on 22.02.2017. **Dr. S.Ponnusamy F.N.A.Sc**, Head, Indian Statistical Institute(ISI), Chennai, deliver a lecture on Complex Analysis.

ACTIVITIES OF THE FACULTY

1. Research Activities of the faculty

- SET Cleared - 1
- M.Phil Produced - 2

2. Details of conference / Seminars / Workshops / Symposium – Resource person / Presented / Attended by the staff members **- Only numbers**

S.No	Department	No. of. Faculty Resource Person/ Presented/Attended	2016-17			
			Institutional Level	State Level	National Level	International Level
1.	PG Department of Mathematics	Resource person	1	7	-	-
		Presented	-	-	9	1
		Attended	-	-	28	11

3. Research Publications by the staff members

S.No.	Name of the Staff	Title of the paper	Name of the Journal/ Book	Journal / Book Volume no.	Month & Year	ISBN/ ISSN
1	G.Thamizhendhi	Forecasting Stock Market Predictions using Artificial Neural Network Models : A Survey	International Journal of Emerging Trends in Engineering and Development	Volume 4, Issue 6, Pages 67 - 85	July 2016	2249 -6149
2	R.Akilandeswari	Square Perfect Fuzzy Matching	International Journal of Fuzzy Mathematical Archive	Volume 11, Pages 45 - 52	November 2016	2320 -3242

STUDENT ACTIVITIES

(i) Participation in Seminar / Conference / Workshop / Symposium **- 144**

(ii) Presentation of Papers in Seminar / Conference / Workshop / Intercollegiate Meet: **41**

S.No	Name and Class of the Student	State/ Regional/ National/ International	Conference/ Seminar/ Workshop/ Symposium/ Intercollegiate Meet	Organizer	Date(s)	Title of the Paper	Remark (Award/ Prize etc.)
1	T.Kiruthika II-M.Sc., Maths	National	Seminar	Vellalar College For Women,Erode	8.9.16 to 9.9.16	Biological Taxonomic Problem Solving Using Fuzzy Decision Making Analytical Tools	-
2	C.Gowthamapriya II-M.Sc., Maths						
3	B.Gobika I-B.Sc.,Maths 'A'					Application Eigen Value And Eigen Vectors of Square Matrix	-
4	G.MohanaPriya I-B.Sc.,Maths 'A'						
5	S.Deepika II-B.Sc.,Maths 'A'					Application of Fourier Transformation in Signal Processing	-
6	T.Harin II-B.Sc.,Maths 'A'						
7	M.Nandhini III B.Sc.,Maths CA	National	Seminar	Maharaja Co-Education arts and science college, Perundurai	23.9.16	Application of Fourier Slice Theorem in Computerized Tomography	-
8	J.S.Pavithra III B.Sc.,Maths CA						
9	G.Kavitha II-M.Sc., Maths	National	Seminar	Sengunthar arts and science college,Tiruchengode	30.9.16	Network Topology in Electric Circuit	-
10	N.K.Kiruthiga II-M.Sc., Maths						
11	P.Asha I-M.Sc., Maths A	National	Conference	PKR Arts College for Women	6.1.17	Differential Equations in Earth Quakes	-
12	A.V.Ghowsigaa I-M.Sc., Maths A						
13	A.Krishnalakshmi II-M.Sc.,Maths					Analysis of PDE Flow of Water in State of Florida	-
14	S. Tamilselvi II-M.Sc.,Maths						

15	P. Maheswari II-M.Sc.,Maths	National	Conference	PKR Arts College for Women	6.1.17	Mathematical Modeling of Road Bump Model Using Laplace Transform	-
16	P. Saranya II-M.Sc.,Maths						
17	P. Hemalatha II-M.Sc.,Maths					To Determine the Estimated Time of Death Using Differential Equations	-
18	P. Saranya II-M.Sc.,Maths						
19	V.Shailaja II-M.Sc.,Maths	State	Inter Collegiate Meet	Erode Arts and Science College	10.1.17	Differential Equations in Biological Science	-
20	M.R.Meha I-B.Sc.,Maths CA					Mathematical Modeling of Tumor Growth	-
21	K.Janaki I-B.Sc.,Maths CA						
22	V.Bhavithra III- B.Sc., Maths	National	Conference	Dr.N.G.P Institute of Technology	3.2.17	Fractional Differential Equation	-
23	R.Mathivathani II-M.Sc., Maths						
24	A.Indhuja II-M.Sc., Maths					Application of Graph Theory in Communication	-
25	P.JenniferNewlyn II-M.Sc., Maths						
26	R.Revathi II-M.Sc.,Maths	State	Inter Collegiate Meet	Sasurie Institutions	3.2.17	ODE in Population Growth	II
27	L. Kavipriya II-M.Sc.,Maths						
28	P. Asha I-M.Sc.,Maths ‘A’	State	Inter Collegiate Meet	Kaamadhenu Arts & Science College	7.2.17	Differential Equations in Earth Quake	I
29	A.P. Ghowsigaa I-M.Sc.,Maths ‘A						
30	P.Geetha II-M.Sc., Maths	National	Conference	VellalarCollege For Women (Autonomous) Erode – 12	9.2.17	Fuzzy Logic in Digital Image Processing	-
31	S.Soundharya II-M.Sc., Maths						
32	B.Kiruthiga II-M.Sc., Maths					Robotics Control in Control Theory	-
33	S.Sivasangavi II-M.Sc., Maths						
34	M.Krishnaveni II-M.Sc., Maths					Application of ODE in Detecting Diabetes	-
35	M.Nivetha II-M.Sc., Maths						

36	P.Parameshwari II-M.Sc., Maths					Application Of Fuzzy Graph Coloring in Traffic Light Problem	-
37	S.Nandhini II-M.Sc., Maths						
38	R.Punitha II-M.Sc., Maths	National	Conference	Kongu Arts And Science College	10.2.17	Fuzzy Comprehensive Model	-
39	R.Sowmiya II-M.Sc., Maths						
40	C.Praveena II-M.Sc., Maths					Application of Differential Equation in Water Purification	
41	S.Sivanandhini II-M.Sc., Maths						

(iii)Co-curricular, Cultural and Sports Activities :**74**

S.No.	Name and Class of the Student	Event/ Programme	Date	Organizer	Award/ Prize/ Position
1	K.VijayaKumari I-B.Sc., Maths 'B'	Football (National)	1.07.2016 To 17.7.2016	All India Football Federation New Delhi	III
2	S. Keerthana I-B.Sc., Maths (CA)	Maths Sketching	17.7.2016	P.K.R. Arts College for Women, Gobi.	III Award (Rs.100)
3	K.Janaki I-B.Sc., Maths(CA)				
4	R.Moushikaa I-B.Sc., Maths 'B'	50m Breast	21.08.2016	Rotary Club, Erode.	II
5	P.Surya II-B.Sc., Maths 'B'	Boxing (Light Heavy)	29.08.2016	Bharathiyar University, Coimbatore.	I
6	R.Moushikaa I-B.Sc., Maths 'B'	100 Mtr Butterfly	2.09.2016		I
7	P.Surya II-B.Sc., Maths 'B'	Foot Ball	20.09.2016		Winner
8	K.VijayaKumari II-B.Sc.,Maths-'B'				
9	R.P.AbinayaLaxmi III B.Sc., Maths 'A'	Math Expo - 16	22.12.2016	Vellalar College for Women (Autonomous) Erode - 12	I
10	K.Suganthi III B.Sc., Maths 'CA'				
11	M.Sandhya III B.Sc., Maths 'CA'				
12	A.Krishnalakshmi II M.Sc., Maths				II
13	P.Pavithra II M.Sc., Maths				
14	A.ShobanaPriya III B.Sc., Maths 'B'				
15	S.Sanjupriya III B.Sc., Maths 'B'				
16	R.SriBhavadharani I MSc., Maths 'B'				III
17	M. Yasotha III B.Sc., Maths 'CA'				
18	E. Vaishnavi I B.Sc., Maths 'CA'				
19	G. Janani I B.Sc., Maths 'CA'				
20	P.Surya II-B.Sc.,Maths 'B'	84^{+}kg power lifting	5.01.2017	Bharathiyar University, Coimbatore	II

22	N. Dharanipriya II-B.Sc.,Maths 'A'	Speech	17.1.2017	Vellalar College for Women (Autonomous), Erode-12.	III Award (Rs.500)
23	S.Madhumitha II-B.Sc.,Maths 'A'				IV Award (Rs.250)
24	D.Nivetha III-B.Sc., Maths'B'	Treasure Hunt	3.02.2017	Velalar College of Engineering &Technology	III Award (Rs.500)
25	M.Parimalajothi III-B.Sc., Maths (CA)				
26	R.Indu III-B.Sc.,Maths (CA)				
27	J.S.Pavithra III-B.Sc., Maths (CA)				
28	M.Sandhya III-B.Sc., Maths (CA)	Word Hunt	3.02.2017	Velalar College of Engineering & Technology	II Award (Rs.750)
29	S.Meena III-B.Sc., Maths (CA)				
30	V.Bhavithra III-B.Sc., Maths 'A'	Dance	7.02.2017	Kaamadhenu Arts and Science College	II
31	C.Parkavi III-B.Sc.,Maths'B'				
32	U.Padmavathi III-B.Sc.,Maths'B'				
33	R. GunaPriya III-B.Sc., Maths (CA)	Kho-Kho	11.02.2017	Vellalar College for Women (Autonomous), Erode-12.	Winner
34	N.Nandhini III-B.Sc., Maths'A'				
35	P.Dhivya III-B.Sc., Maths'A'				
36	V.Vinothini II-B.Sc., Maths'B'				
37	S.Roshini II-B.ScMaths-'B'				
38	P.Gomathi I-B.Sc., Maths'A'				
39	P.Deepika I-B.Sc., Maths'A'				
40	S.Sajitha III-B.Sc., Maths (CA)	Throw Ball			Winner
41	N.DharaniPriya II-B.Sc., Maths'A'				
42	V. Vinothini II-B.Sc., Maths (CA)				
43	P. Surya II-B.Sc., Maths 'B'				
44	S.Roshini II-B.ScMaths-'B'				

45	K.VijiyaKumari II-B.Sc., Maths 'B'				
46	P.Govarthini III-B.Sc., Maths (CA)				
47	S.Sajitha III-B.Sc., Maths (CA)				
48	S.Sajitha III-B.Sc., Maths (CA)	100 Mts			III
49	K.VijayaKumari II-B.Sc., Maths'B'	4×400 Mts			I
51	K.VijayaKumari II-B.Sc., Maths 'B'	200 Mts			II
52	S.Roshini II-B.ScMaths-'B'	Shot put			I
53	S. Saranya II-B.Sc., Maths 'B'	Fancy Dress			III
54	S. Kavina I-B.Sc., Maths 'A'				
55	S. Indhumathi I-B.Sc., Maths 'A'	March Past	11.02.2017	Vellalar College for Women (Autonomous), Erode-12.	I
56	J. MohanaPriya II-B.Sc., Maths 'A'				
57	S.Kavimani II-B.Sc.,Maths 'A'				
58	V.Geetha II-B.Sc., Maths 'A'				
59	S.Kaviya II-B.Sc., Maths 'A'				
60	V.Dharani II-B.Sc.,Maths-'A'				
61	V.Gowsalya II-B.Sc., Maths 'A'				
62	A.Agalya II-B.Sc., Maths 'A'				
63	T.Ahalya II-B.Sc., Maths 'A'				
64	P.Swathi II-B.Sc., Maths (CA)				
65	T.Saranitha II- B.Sc., Maths (CA)				
66	S.Vinitha II-B.Sc., Maths-'B'				
67	S.Lakshmiprabaa I-B.Sc., Maths 'A'				
68	R.Kiruba I-B.Sc., Maths 'A'				
69	S.Keerthika I-B.Sc., Maths 'A'				

70	S.Sinduja I-B.Sc., Maths 'B'			Vellalar College for Women (Autonomous), Erode-12.	
71	N.Shanmathi I-B.Sc., Maths 'B'				
72	K.Priyadharshini II-B.Sc., Maths 'B'				
73	K.Janaki I- B.Sc., Maths (CA)	Essay Writting	16.02.2017		II
74	K. Keerthana III -B.Sc., Maths 'A'	Quiz	07.03.2017		II

PLACEMENT DETAILS

We feel proud to convey that our students have been placed in the following reputed Institutions.

S.No.	Name of the Student	Class	Company Name
1	D. Sarika	III B.Sc.,Maths	Infosys IT
2	P. Shanmugasundari	III B.Sc.,Maths	Infosys IT
3	N. Ambika	III B.Sc.,Maths(CA)	Infosys IT
4	S. Santhiya	III B.Sc.,Maths(CA)	Infosys IT
5	S.Priyanka	III B.Sc.,Maths(CA)	IDBI Federal
6	G. Bharani	III B.Sc.,Maths(CA)	IDBI Federal
7	L. Monika	III B.Sc.,Maths(CA)	IDBI Federal
8	P Govarthani	III B.Sc.,Maths(CA)	IDBI Federal
9	A. Sobinapriya	III B.Sc.,Maths	IDBI Federal
10	S. Nivetha	III B.Sc.,Maths	IDBI Federal
11	D. Nivetha	III B.Sc.,Maths	IDBI Federal
12	L. Monika	III B.Sc.,Maths(CA)	AB Academy
13	G. Bharani	III B.Sc.,Maths(CA)	AB Academy

SNAPSHOTS

BRIDGE COURSE

Enhancing **"Fundamentals of Mathematics"** for the first year students.

WORKSHOP

Workshop on **"Analysis"** by Dr. G. P. Youvaraj.

SPECIAL MEETING

An energetic talk by Ms. A. Saranyadevi on **"Career behind Mathematics".**

WORKSHOP

A tremendous one day workshop on **"Personality Development"** by Dr. S. Kathiravan.

SEMINAR

Exploration on **"Differential equations"** by Dr. K. Karuppiah.

SEMINAR

A seminar on "**Algebra"** by Dr. T. Tamizh Chelvam.

EXHIBITION

Applications of Mathematics in real life has been exhibited through models at **"Math Expo 2016".**

A glimpse on the models in real life at the **"Math Expo 2016"**.

NATIONAL CONFERENCE

Informative speech by Dr.K.S. Subrahamanian Moosath in "**Current Scenario in the Applications of Mathematical Sciences – 2017"**

Effective speech by Dr. Ramesh Venkadachalam Palani in "**Current Scenario in the Applications of Mathematical Sciences – 2017"**

EXTENSION ACTIVITY

Our students making maths at ease at a Govt.School.

ASSOCIATION VALEDICTORY

Dr.S.Ponnusamy rewarded the whizz-kids of **Association competition winners.**