



Seth G B Podar College, Nawalgarh  
Jhunjhunu (Rajasthan) India  
Department of Mathematics

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## Group Discussion Report

**Date** : 28th Feb. 2023

**Time** : 1: 00 pm

**Place** : Department of mathematics

**Organized by** : Department of mathematics

**Present** : HOD(Dr. Vidyadhar Sharma), Ms. Nidhi Joshi, Ms. Suchita jangid, Ms. Sangeeta Kumawat .

**Participants** : Students of M.SC , B.SC , BCA, B.A.& B.COM (Total 92 students )

**Distribution** : IQAC & Principal Office

## Group Discussion Topic

**The Role of Zero in Vedic and Modern mathematics**

**Zero in ancient time :-**

In the third century Indian manuscript has been identified by oxford university as the first recorded use of mathematical symbol for "0" , five hundred earliear than previously thought , according to a Agence France presse article.

The origin of the modern decimal based place value notation can be found to the Aryabhata. The concept of zero as a digit in the decimal place value notation was developed in INDIA, presumably as early as during the C. fifth century Brahmagupta's period, with the oldest evidence dating to the 7th century.

In the 7th century, The rules governing the use of "0" appeared for the first time in Brahmagupta's Brahmasputha Siddhanta.

It is clear that, the invention of "0" has its roots backs in the ancient time . People have kept developing since then and hence zero has a strong place in the civilization process.

**Zero in maths :-** The number zero completes a central role in mathematics as the additive identity of the integers, real numbers and many other algebraic structure.

As a digit, zero is used as a placeholder in place value systems.

Names for the number zero in English include "zero", "nought" in UK, "naught" in US, "nil" or –in the context where atleast one adjacent digit distinguishes it from the letter "0" - or 0.

With zero ,the entire number system came into play. From there we obtain the origin of the entire branch said to be "Mathematics" .

Hence, without the number zero, mathematics would never stand as strong as it is today. As well as we know mathematics includes the invention of all the engineered tools and modern devices till date.

**Zero in science :-**

In biology, an organism is said to have zero order intentionality if it shows "no intention of anything at all".this would include a situation where the organism's genetically predetermined phenotype results in a fitness benefits to itself, because it didn't "intened" to express its genes.

The 0th law of thermodynamics was formulated after the 1st ,2nd and 3rd laws, but considered more fundamental ,thus its name.

In genomics,both zero based and first based systems are used for genome coordinates .

Hence, the zero is equally important in the field of science as it is in other fields. Science is the key towards advancement and zero plays a major part in that .

**Zero in computer:-** A computer are made to understand 2 digits- 1 and 0. For computers, one represents „True“ & zero represent „False“. Computer programming allows us to work on the computers and carry out our day to day jobs efficiently .this programming uses a „zero based numbering“ system. zero based numbering is a way of numbering in which the initial element of a sequence assigned the index zero, rather than the index one as is typical in day to day non mathematical or non programming circumstances. With the use of zero in such minimal places, developments and advancement has taken a wider step from simple program codes to artificial intelligence, zero has constantly play a vital role.

**Zero in other aspects :-** Year zero is a used in some calendar system like astronomical year numbering where it coincides with the Georgian year 1, B.C. Bhudhist and Hindu calendars also have the year 0 concepts. Some universities, including Oxford and Cambridge have “Week 0” or “noughth-Week”. This referes to the before the week of lectures in a term.

The US Airfoce Starts basic training each Wednesday. The first week as considered to begin with the following Sunday. The four days before that Sunday are often referred to as “zero- week”.

Zero is also used in 24 hours clocks and the international states ISO 8601. This denotes the beginning of the day.

Zero is sometimes used in street addresses, especially in schems where even number are one side of the street and odd numbers on the other. For example, Nansa gate , o garden street.

Zero is also interpreted as void negligible, point of origin on a scale and zero point.

**Conclusion:-** Everyone know about the zero and students will be understand the concept of zero and the application of zeros goes to community after discussion about it. Zero lies at the heart of science, Engineering and mathematics. Life without zero Thus seems to be incomplete. Group Discussion on „Zero”

## Glimpses of Group Discussion



