SASTRA Ramanujan Prize 2022

Why in News?

The SASTRA Ramanujan Prize for 2022 will be awarded to Yunqing Tang, Assistant Professor with the University of California, Berkeley, U.S.A.

- Ms. Yunqing's works display a **remarkable combination of sophisticated techniques, in which the arithmetic and geometry of modular curves** and of Shimura varieties play a central role, and her results and methods are bound to have **major impact on future research** in this area.

What are the Key Points of the Awards?

- The award was instituted by the **Shanmugha Arts, Science, Technology & Research Academy (SASTRA) in 2005.**
- A cash prize of USD 10,000 is presented annually to individuals **aged 32 and below, who made outstanding contributions in the field of mathematics,** influenced by Srinivasa Ramanujan in a broad sense.

Who was Srinivasa Ramanujan?

- **About:**
  - Ramanujan was born on **22nd December 1887 in the village Erode** (400 km from Chennai, then known as Madras).
  - The famous **British mathematician Godfrey Harold Hardy recognised his talent** in 1913. He went to Cambridge, on Godfrey Harold Hardy's invitation.
  - Ramanujam made **substantial contributions to the analytical theory of numbers** and worked on elliptic functions.
  - He also **worked on the partition of the whole number, hypergeometric** series and Euler's constant.
  - His papers were published in English and European journals, and in 1918 he was elected to the Royal Society of London.
  - He died on April 26th, 1920, at the age of 32, just after returning to India after a long illness.
  - In India, 22nd December is celebrated as **National Mathematics Day** in the memory of Srinivasa Ramanujan.
- **Contributions:**
  - **Formulas and Equations:**
    - Ramanujan compiled around 3,900 results consisting of equations and identities. One of his most treasured findings was **his infinite series for Pi.**
    - He gave several formulas to calculate the digits of Pi in many unconventional ways.
  - **Game Theory:**
    - He discovered a long list of new ideas to solve many challenging mathematical problems, which gave a significant impetus to the development of game theory.
    - His contribution to game theory is purely based on intuition and natural talent and remains unrivalled to this day.
  - **Ramanujan's Book:**
    - One of Ramanujan's notebooks was discovered by George Andrews in 1976 in the

library at Trinity College. Later the contents of this notebook were published as a book.

- **Ramanujan number:**
  - 1729 is known as the Ramanujan number.
  - It is the smallest number which can be expressed as the sum of two different cubes in two different ways.
    - 1729 is the sum of the cubes of 10 and 9 - cube of 10 is 1000 and cube of 9 is 729 adding the two numbers results in 1729.
    - 1729 is also the sum of the cubes of 12 and 1, cube of 12 is 1728 and cube of 1 is 1 adding the two results in 1729.

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. A recent movie titled The Man Who Knew Infinity is based on the biography of (2016)

(a) S. Ramanujan
(b) S. Chandrasekhar
(c) S.N. Bose
(d) C.V. Raman

Ans: (a)

Exp:

- 'The Man Who Knew Infinity' is a movie based on the biography of S. Ramanujan (1887-1920), an Indian mathematician, known for his immense contribution in mathematical analysis. He was a fellow of the Royal Society.
- **Therefore, option (a) is the correct answer.**

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