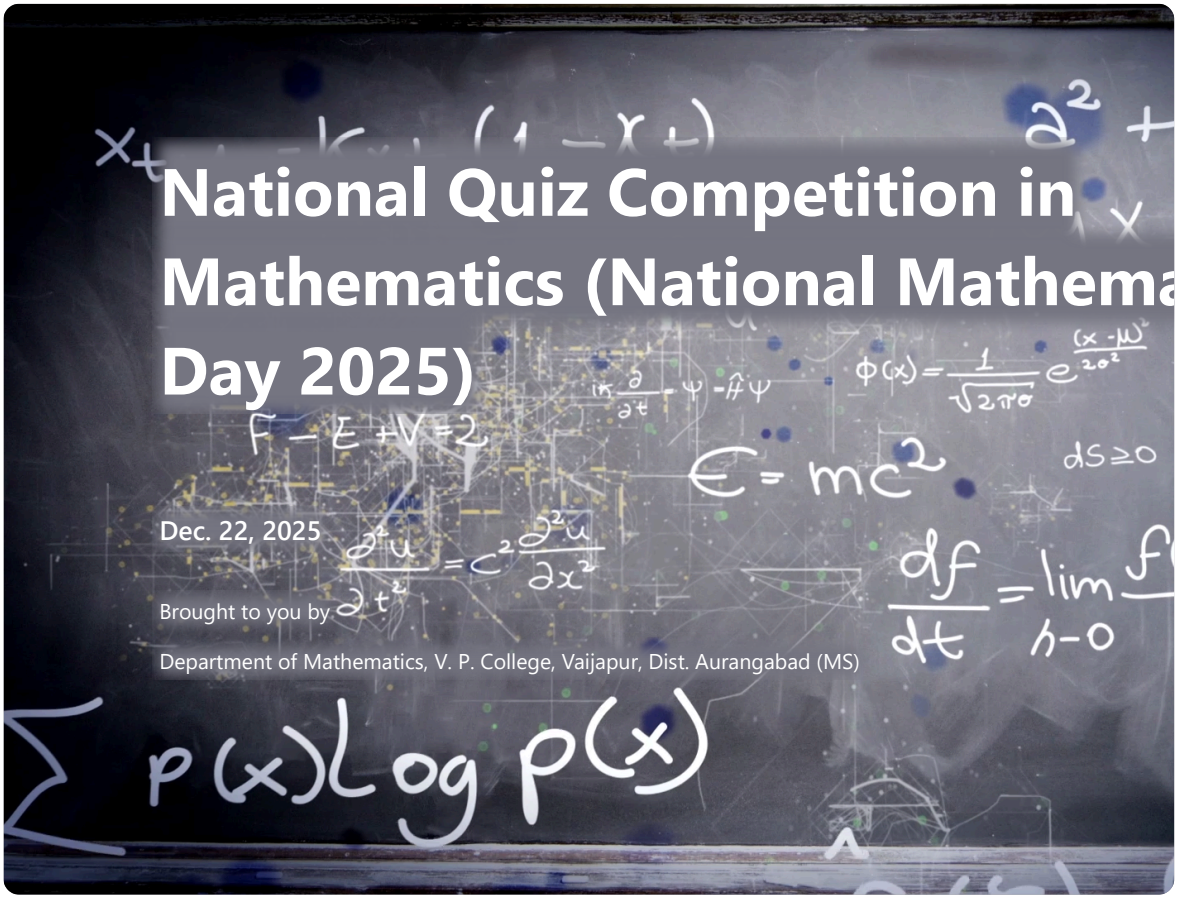

Total: 101 Points

90 minutes

* Required

Participants Information

Enter your full name in capital letters exactly as it should appear on the certificate. *

Your College/School Name *

The class you are enrolled in *

Your Email *

Your WhatsApp number *

Your birthdate *

Round I: Multiple Choice Questions (50 × 1 = 50 Marks)

National Mathematics day is celebrated in honor of which mathematician? (1 Point)

- ◯ Euclid
- ◯ Aristotle
- ◯ Pythagoras
- ◯ Srinivasa Ramanujan

Who is known as the mother of the great mathematician Srinivasa Ramanujan? (1 Point)

- ◯ Abhilasha
- ◯ Komalatammal
- ◯ Bindiya
- ◯ Chakori

Which of the following is named after Ramanujan? (1 Point)

- ◯ Ramanujan Prime
- ◯ Ramanujan Series
- ◯ Ramanujan Conjecture
- ◯ All of the above

When is National Mathematical Day Celebrated in India? (1 Point)

- ◯ 19 December
- ◯ 20 December
- ◯ 21 December
- ◯ 22 December

Ramanujan was largely known as a: (1 Point)

- ◯ University-trained mathematician
- ◯ Engineer
- ◯ Self-taught mathematician
- ◯ Statistician

The famous Hardy–Ramanujan formula is related to: (1 Point)

- ◯ Prime numbers
- ◯ Partition of integers
- ◯ Matrices
- ◯ Probability

Ramanujan was awarded which fellowship in 1918? (1 Point)

- ◯ Fellow of the Indian Academy of Sciences
- ◯ Fellow of the Royal Society
- ◯ Fellow of the Indian Statistical Institute
- ◯ Fellow of the London Mathematical Society

Which branch of mathematics is Ramanujan most associated with? (1 Point)

- ◯ Geometry
- ◯ Statistics
- ◯ Number Theory
- ◯ Linear Algebra

National Mathematics Day was first celebrated in India on (1 Point)

- ◯ 26 Feb 2012
- ◯ 26 Feb 2010
- ◯ 26 Feb 2008
- ◯ 26 Feb 2013

On which birthday of Indian math genius Srinivasa Ramanujan was National Mathematics Day first announced? (1 Point)

- ◯ 100th
- ◯ 125th
- ◯ 150th
- ◯ 200th

When was genius Srinivasa Ramanujan born in tamilnadu? (1 Point)

- ◯ 22 Dec. 1886
- ◯ 22 Dec. 1888
- ◯ 22 Dec. 1887
- ◯ 22 Dec. 1889

The famous number 1729 is known as:
(1 Point)

- ◯ Euler's Number
- ◯ Ramanujan Number
- ◯ Perfect Number
- ◯ Prime Number

1729 is the smallest number expressible as the sum of two cubes in:
(1 Point)

- ◯ One way
- ◯ Two different ways
- ◯ Three ways
- ◯ Four ways

Which university invited Ramanujan to England? (1 Point)

- ◯ Oxford University
- ◯ London University
- ◯ Cambridge University
- ◯ Edinburgh University

Where is Ramanujan Math Park Located? (1 Point)

- Andhra Pradesh
- Rajasthan
- Madhya Pradesh
- Gujrat

Ramanujan collaborated with which famous mathematician at Cambridge? (1 Point)

- Newton
- Euler
- G. H. Hardy
- Gauss

What ratio does the mathematical constant pi represent? (1 Point)

- A circle's circumference to its diameter
- A circle's area to its circumference
- A square's area to its side length
- A circle's radius to its circumference

Srinivasa Ramanujan was elected as a Fellow of the Royal Society in:
(1 Point)

- 1916
- 1917
- 1918
- 1919

National Mathematics Day was declared by the Government of India in: (1 Point)

- Parliament
- IIT Madras
- Prime Minister's address
- Indian Mathematical Society

Ramanujan made significant contributions to: (1 Point)

- ◯ Topology
- ◯ Calculus
- ◯ Infinite series
- ◯ Differential geometry

What is the name of Srinivasa Ramanujan's father? (1 Point)

- ◯ K. Srinivasa Iyengar
- ◯ K.R. Srinivasa Iyengar
- ◯ K.P. Srinivasa Iyengar
- ◯ K.K. Srinivasa Iyengar

Indicate the year in which Srinivasa Ramanujan was invited to London by British mathematician G. H. Hardy, after which he commenced significant mathematical research. (1 Point)

- ◯ In 1913
- ◯ In 1897
- ◯ In 1899
- ◯ In 1891

Who is known as the "Father of Mathematics" ? (1 Point)

- ◯ Euclid
- ◯ Aristotle
- ◯ Pythagoras
- ◯ Archimedes

Srinivasa Ramanujan is the founder of? (1 Point)

- ◯ Indian Mathematical Society
- ◯ International Mathematical Society
- ◯ Mathematical Association
- ◯ International Mathematical Union

Ramanujan's work continues to influence research in: (1 Point)

- ◯ Physics
- ◯ Computer science
- ◯ Mathematics
- ◯ All of the above

Which famous notebook contains Ramanujan's unpublished results? (1 Point)

- ◯ Hardy Papers
- ◯ Cambridge Notes
- ◯ Ramanujan Notebooks
- ◯ Mathematical Diary

Which institution in India played a key role in supporting Ramanujan early in his career? (1 Point)

- ◯ University of Calcutta
- ◯ University of Madras
- ◯ IIT Madras
- ◯ Indian Statistical Institute

National Mathematics Day was announced by Prime Minister..... (1 Point)

- ◯ Narendra Modi
- ◯ Jawaharlal Nehru
- ◯ Manmohan Singh
- ◯ Indira Gandhi

Ramanujan returned to India from England in: (1 Point)

- ◯ 1917
- ◯ 1918
- ◯ 1919
- ◯ 1920

Ramanujan's work was largely based on: (1 Point)

- ◯ Rigorous proofs only
- ◯ Intuition and patterns
- ◯ Experimental physics
- ◯ Computer simulations

Srinivasa Ramanujan passed away in the year: (1 Point)

- ◯ 1918
- ◯ 1919
- ◯ 1920
- ◯ 1921

Ramanujan's health was significantly affected during his stay in: (1 Point)

- ◯ India
- ◯ England
- ◯ USA
- ◯ Germany

Ramanujan's notebooks contained: (1 Point)

- ◯ Only solved problems
- ◯ Only published theorems
- ◯ Many unpublished results
- ◯ Only elementary mathematics

In our daily life, we use _____ to make decisions when we are unsure about the outcome. (1 Point)

- ◯ flow chart
- ◯ mode
- ◯ mean
- ◯ probability

When Pi Day is celebrated around the world? (1 Point)

- ◯ 14 Feb
- ◯ 14 March
- ◯ 14 April
- ◯ 15 March

An object is thrown into the air. After a while, it falls back to the Earth. The flight path of the object traces what shape? (1 Point)

- ◯ ellipse
- ◯ parabola
- ◯ hyperbola
- ◯ circle

Which of the following statement is correct about Pi? (1 Point)

- ◯ It is non-repeating decimal value
- ◯ It is non terminating decimal value
- ◯ It is repeating and terminating decimal value
- ◯ It is non-repeating, non-terminating decimal value

Adding the numbers between 1 to 100 consecutively (1+2+3+4+...) gives you what final answer? (1 Point)

- ◯ 5500
- ◯ 5000
- ◯ 5550
- ◯ 5050

Pi algorithm up to 5 correct decimal places was invented by which Chinese mathematician? (1 Point)

- ◯ Zu Chongzhi
- ◯ Liu Hui's
- ◯ Shen kuo
- ◯ Pan Jianwei

Many branching patterns in nature, for example, trees, ferns, snowflakes, etc can be modelled as _____ which shows patterns that are self similar. (1 Point)

- groups
- fractals
- sets
- groupoids

Who has calculated the area of a circle by taking the value of Pi equal to 3? (1 Point)

- Babylonians
- Archimedes
- Both A and B
- Neither A nor B

The most well known MP3 format of audio compression uses _____ to approximate the audio. (1 Point)

- Laplace transform
- Fourier series
- Fourier transform
- Vector spaces

Who has calculated the circumference of the earth and considered the value of Pi = 22/7? (1 Point)

- Archimedes
- John Machin's
- Aryabhatta
- None of the above

Who was the first to use the Greek letter pi (π) to denote the constant? (1 Point)

- Leonhard Euler
- William Jones
- Mayans
- Papyrus

Ramanujan's work is closely connected with: (1 Point)

- ◯ Modular forms
- ◯ Game theory
- ◯ Graph theory
- ◯ Set theory

The number of positive divisors of 1729 is: (1 Point)

- ◯ 6
- ◯ 8
- ◯ 10
- ◯ 12

If p is a prime such that p^2+2 is also prime, then p equals: (1 Point)

- ◯ 2
- ◯ 3
- ◯ 5
- ◯ 7

People tried for centuries to "square the circle". What were they trying to do? (1 Point)

- ◯ Construct a square to perfectly circumscribe a circle
- ◯ Construct a square of equal area to a given circle
- ◯ Multiply a circle by itself
- ◯ fit a round peg in square hole

A soccer is consisted of 12 pentagons and ___ hexagons. (1 Point)

- ◯ 32
- ◯ 20
- ◯ 16
- ◯ 24

What is true about pi? (1 Point)

- ◯ It's rational
- ◯ It's irrational
- ◯ It's regular
- ◯ It's basic

At what age did mathematician Ramanujan die? (1 Point)

- ◯ 33
- ◯ 23
- ◯ 34
- ◯ 32

Round II: Short Answer Questions (10 × 2 = 20 Marks)

Find the smallest positive integer divisible by all integers from 1 to 10. (2 Points)

The number of distinct prime factors of 1001 is: (2 Points)

Find the number of positive integers less than 100 that are divisible by **both 3 and 5**.
(2 Points)

The number of solutions in integers of (2 Points)

$x^2 + y^2 = 50$

If the roots of (2 Points)

$x^2 - 6x + 1 = 0 \; are \; \alpha, \; \beta, then \; \alpha^4 + \beta^4 = . .$

The number of integer solutions of (2 Points)

$|x| + |y| = 10 \;\; is$

The number of integers n such that (2 Points)

$n^4 + n^2 \;\; is \; odd \; is$:

The number of integers n for which (2 Points)

$n^2 + n + 41 \;\; is \; divisible \; by \; 41 \; is$:

The number of integer solutions of (2 Points)

$xy = x + y$

Find the HCF of 24 and 36. (2 Points)

Round III: Brain Teasers/Rapid Fire (10 × 3 = 30 Marks)

Which number is both a **square and a cube?** (3 Points)

What is the next number: **1, 1, 2, 3, 5, ?** (3 Points)

Which prime divides **every even perfect number**? (3 Points)

Which number is both **triangular and square**? (3 Points)

What is the smallest **primitive Pythagorean triple**? (3 Points)

What is the ratio of areas of similar triangles with sides in ratio 2:3? (3 Points)

What is the maximum number of regions formed by **6 lines** in a plane? (3 Points)

The even perfect numbers less than 100 are... (3 Points)

What is the locus of points whose distance from a fixed point equals distance from a fixed line? (3 Points)

What is the smallest **taxicab number**? (3 Points)