

### IX. Medals and Certificates:

Certificates to all TSTM winners and medals to first three TSTM Winners will be awarded at a function to be announced after the result. Top three rank holders will be awarded Gold, Silver and Bronze medals along with cash prize and remaining winners decided by BMS will be given a certificate of merit and consolation prize. Institution/Person actively contributed in organising the TSTM Olympiad will be awarded by BMS for their cooperation.

We solicit active co-operation and support of Education Department, Govt. of Bihar in our endeavour to promote students' aptitude and interest in Mathematics and would ensure better future of the school students of Bihar. It would also help enhance quality of education in our state.

### Insert

#### 7. Government contribution for BMS

By the order of Education Minister, Govt. Bihar, The Director Secondary Education Dept. issued a letter and directed to all District Education Officer to give wide publicity among students and ensure participation in TSTM Olympiad conducted by BMS

In the similar way Dy. Commissioner KVS Patna Region also directed to all Principal of KVS to give wide publicity among students and ensure participation in TSTM Olympiad.

Secondary Teacher Association and Primary Teacher Association of Bihar also directed to all district level Teacher Association to give wide publicity among students and ensure participation in TSTM Olympiad.

District Education Officer constituted a committee mission gunvatta siksha samiti in each district for improvement of quality of education in Mathematics among students and teachers through seminars or workshop.

#### 9. Revised syllabus 2020

Bihar Mathematical Society has decided to conduct TSTM for 2020 for Class VI to XII. The New Syllabus TSTM Olympiad are as Follows:

##### Class VI

Number systems- Natural Numbers, Whole Numbers, Integers, Rational. Factors & Multiples, Decimals and Fractions, Unitary Method, Mensuration, Algebraic equations and Expressions, Ratio And Proportion, Percentage and their applications, Symmetry, Geometry (Elementary Shapes, Line segment, parallel lines, Triangles and its properties).

##### Class VII

Integers, Rational Numbers and irrational numbers, Fractions and Decimals, Exponents and Powers, Identities, Algebraic Equations & Expressions, Profit and Loss, Lines and Angles, Comparing Quantities, The Triangle and its Properties, Symmetry, Congruence of Triangles, Perimeter and Area, Data Handling, Solid Shapes.

##### Class VIII

Real Number, Squares and Square Roots, Cubes and Cube Roots, Exponents and Powers, Comparing Quantities, Algebraic Expressions and Identities, Linear Equations in One Variable, Understanding Quadrilaterals, Constructions, Mensuration, Visualising Solid Shapes, Data Handling, Direct and Inverse Variations, Factorisation, Introduction to Graphs.

##### Class IX

Number Systems- Prime and Composite numbers, Congruence, Fermat and Wilson theorem, Pythagorean triads, Polynomials, Coordinate Geometry, Linear Equations in Two Variables, Introduction to Euclid's Geometry, Distance between two points, Area, simple linear equation Lines and Angles, Triangles, Quadrilaterals, Areas of Parallelograms and Triangles, Circles, Constructions, Heron's Formula, Surface Areas and Volumes, Statistics, Probability.

##### Class X

Real Numbers, Polynomials, Pair of Linear Equations in Two Variables, Quadratic Equations, Arithmetic Progressions, Triangles, Coordinate Geometry, Trigonometry and its applications, Circles, Constructions, Areas Related to Circles, Surface Areas and Volumes, Statistics, Probability.

##### Class XI

Sets, Relations and Functions, Principle of Mathematical Induction, Logarithms, Complex Numbers & Quadratic Equations, Linear Inequations, Sequences and Series, Trigonometry, Conditional Identities, Trigonometrical Equations, Straight Lines, Conic Sections, Combinatorics-Simple Permutations and Combinations, Induction Principle, Highest power of  $n$  in  $n$  Pigeon Hole Principle (PHP). Only elementary type questions will be asked on this topics Binomial Theorem, Statistics, Limits and Differentiation continuous application Derivatives, Probability, Introduction to 3-D Geometry. Simple Integration.

##### Class XII

Number theory, Inequalities, Relations and Functions, Inverse Trigonometric Functions, Matrices and Determinants, Continuity and Differentiability, Application of Derivatives, Integrals, Application of Integrals, Differential Equations, Vector Algebra and their Applications, Three Dimensional Geometry, Probability, Linear Programming.

Estd : 1958

Regd. 144/1983-84



## BIHAR MATHEMATICAL SOCIETY

H.Q.- Bhagalpur

Office : College of Commerce, Arts & Science, Patna

Website : [www.bmsbihar.org](http://www.bmsbihar.org)

Help Desk Line : [bmshelplinedesk@gmail.com](mailto:bmshelplinedesk@gmail.com)

**TSTM OLYMPIAD  
2020**

**TALENT SEARCH TEST IN MATHEMATICS**

**CLASSES (6 to 12)**

**Dr. Vijay Kumar**

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**Prof. (Dr.) D.N. Singh**

Gen. Secretary  
Bihar Mathematical Society

## WELCOME TO THE BIHAR MATHEMATICAL SOCIETY

The Bihar Mathematical Society (BMS) was established on 01 February 1958 with its headquarter at Bhagalpur. Now, The office Bihar Mathematical Society is working at College of Commerce, Arts and Science Patna. The association serves as apex body of Mathematics educators to promote excellence in Mathematics. It provides a common platform for teachers, scientists and research scholars from different parts of the country to exchange ideas for improvement in the field of Mathematics. About 700 National and International life members of Bihar Mathematical Society have been contributing substantially to the activities of BMS directed towards attainment of its goals. Website of BMS: [www.bmsbihar.org](http://www.bmsbihar.org) | Email Id: [bmsheplinedesk@gmail.com](mailto:bmsheplinedesk@gmail.com)

### I. Founder Member of BMS

- Bihar Mathematical Society was established on 01/02/1958 under the Presidentship of Dr. B.N. Prasad, D. Sc(Paris), Ph.D (Liverpool). He was the first Indian to achieve D.Sc. in Mathematics from Paris. He Visited in Scotland, Germany, England, U.S.A. and come in contact and work with Prof. G. Hardy, Lebesgue, Hilbert and Several eminent mathematician in the world.
- Patron: Sri B.P. Jamuar, the first V.C. of B.R.A Bihar University, Muzaffarpur (Formerly Bhagalpur University)
- President: Dr. R. Shukla(Ph.D London), Head, Dept of Mathematics, L.S. College Muzaffarpur
- Vice President: Prof. Jaynarain M.A (London) HOD mathematics T.N.B College Bhagalpur
- General Secretary: Dr. S.N. Prasad, Dept of Mathematics TMBU, Bhagalpur
- Treasurer: Prof. K.D. Khemka - Dept. of Mathematics, Marwari College, Bhagalpur.

### 2. Aims & Objectives of the Society

- To remove phobia of mathematics from the mind of young students and to create so much interest for the subject of mathematics
- To encourage and promote study and research works of mathematics from India and abroad.
- To write, compile and publish journals, books and reports in mathematical sciences.
- To invite outstanding scholars to deliver memories and special lectures on their own contributions.
- To assist, subscribe to or cooperate with any other society, having objectives similar to itself.
- To establish a forum for the research workers and teachers of mathematics for exchange of ideas through regular periodic meetings.
- To search talented students through TSTM Olympiad and also to equip the students for competitive examinations by awarding prizes.

### 3. Patron Members:

The Chancellor of the Universities of Bihar shall be Ex-officio Chief patron and the Vice-Chancellor of each University of Bihar shall be an Ex-officio Patron Bihar Mathematical Society. Head of the Department of Mathematics/Statistic of every University of Bihar shall be an Ex-officio member of the society.

### 4. Editorial Board

- Dr J.N. Singh : Professor, Dept of Mathematics and Computer Science Barry University USA.  
(Editor-in-Chief)
- Prof. K.C. Sinha : Principal Science College, Patna (Patna University, Patna).  
**Member**
- Prof. B. Choudhary : Retd. Prof. IIT New Delhi & Visiting Prof. in USA  
**Member**
- Prof. Sri Ram: Retd. Prof., IIT(BHU), Varanasi.  
**Member**
- Dr Pranesh Kumar: University of Northern British Columbia(UNBC) Prince George, Canada  
**Member**
- Dr M. Sakil: Prof, Department of Liberal Arts and Science-Mathematics ,Miami Dade College Hialeah Campus USA.  
**Member**

### 5. Conferences & Seminars:

So far 11th conference of National & International was held in Universities/ Colleges in Bihar. The first conference was held on 1970 and several seminars and workshops were held by BMS.

### Journal of Bihar Mathematical Society

The Bihar Mathematical Society has been publishing its journal named as "Journal of the Bihar Mathematical Society"(JBMS) since 1961. The first volume of Journal was release by former Vice-Chancellor Prof. B.P.Jamuar in 1961 so far BMS has published 29 volumes. The ISSN No. of the Journal is 0972-8716 .

### 6. Perspectives of TSTM Olympiad

In order to motivate young students towards Mathematical Olympiads, the Bihar Mathematical Society (BMS) started organizing Talent Search Test in Mathematics (TSTM) since 1993 for school students of standards VIII and IX all over Bihar for students of standard VI and VII from the year 2002 and standard VI to XII from 2020. The main aim of the TSTM Olympiad is to locate the talent hidden among young children to motivate them towards rational thinking and prepare them from the earliest stage for the Mathematical Olympiads and other Mathematical contests. Such test is sure to remove

phobia of Mathematics from the minds of young students and it may create so much interest for this subject in them that like Ramanujan they may treat Mathematics as a game and playmate. To search the talented students and honor and inspire the students by awarding prize. A training programme for TSTM Olympiad is conducted by subject experts may be arranged for intending candidates. The successful candidates in the merit list, called the TSTM winners. The Controller of Examination: Prof. D. N. Sharma: Retired Professor of Mathematics Patna University Patna.

### I. Contribution of Education Department:

Director Secondary, Education Dept. Govt of Bihar vide letter No 276 dated 21.05.2019 directed all DEO and Dy Commissioner KVS Patna region vide Letter No 28350 dated 25.04.2019 directed all Principal to KVS Patna region to give wide publicity among students and ensure participation in Talent Search Test in Mathematical Olympiad conducted by BMS.

### II. Objectives of Talent Search Test in Mathematics Olympiad:

- The main aim of the scheme is to locate the talent hidden among young children to motivate them towards rational thinking and prepare them from the earliest stage for the Mathematical Olympiads and other Mathematical contests. Such test is sure to remove phobia of Mathematics from the minds of young students and it may create so much interest for this subject in them that like Ramanujan they may treat Mathematics as a game and playmate.
- To equip the students for RMO, INMO, IMO and other competitive examinations.
- To make the students academically competent to appear for various competitive examinations and to inculcate in them the ambition to succeed in such examinations from an early age.
- To search the talented students and honour and inspire the students by awarding prize.

### III. Eligibility

A regular student of standard VI to XII from any recognized school of Bihar is eligible to participate in TSTM Olympiad. For TSTM Class 6 to 12 the age of participants as per school records should not exceeds 13 years for class VI, 14 Years for class VII, 15 Years for class VIII, 16 Years for IX, 17 Years for X, 18 Years for XI and 19 Years for XII.

### IV. Programme scheduled

- Date for submission of application form 20th June 2020
- Admit card available from 01st July 2020
- Date of Examination 19th July 2020 (11 A.M to 1.30 P.M)
- Date of Training of Applicants 1st June 2019 to 15th June 2020

### V. Examination Centres:

TSTM Examination will be conducted at certain specified towns of Bihar. However, it may also be conducted in other towns provided the number of participants in that town is not less than 1000, they will be required to appear at Patna centre or nearby home District. Student will have to appear at the given centre at their own cost.

### VI. How to apply:

Application forms are available and can be filled online with payment of Rs 100/ on official website of BMS ([www.bmsbihar.org](http://www.bmsbihar.org)) Offline Application form and Prospectus can be obtained from the Convener- cum- Executive Joint Secretary of BMS / Convener District "Mission Gunvatta Siksha Samiti" and submit the application form with Examination fee as bank draft/cheque of Rs. 100 (One Hundred only) in favour of "Bihar Mathematical Society" payable at Patna so as to reach him latest by 20th June 2020.

Application form duly completed and forwarded by the Principal/ Head of the institution of the applicant, must be sent to the Convener- cum- Executive Joint Secretary BMS at Patna office or MGSS so as to reach him latest by 20st June 2020.

The questions for written examination will be of subjective type .There will be no negative marking . You are advised to follow NCERT text books and reference books of standard VI to XII . Choose your reference books wisely and follow it. Two and half hours will be given to answer the questions.

### VII. Training Programme:

A training programme conducted by subject experts may be arranged for intending candidates from 01st June to 15th June 2020. The applicant may submit Rs 250/ for Examination and training fee online on the website ([www.bmsbihar.org](http://www.bmsbihar.org)) or offline to Convener cum Executive Joint Secretary BMS at College of Commerce, Arts and Science Patna or Convener to District Mission Gunvatta Siksha Samiti on submission of a bank draft/cheque of Rs. 250 (Two Hundred Fifty only) in favour of "Bihar Mathematical Society" payable at Patna so as to reach him latest by 20 June 2020.

### VIII. Examination Results and Marks:

After the evaluation of the answer scripts and preparation of the result the same will be communicated to the successful candidates in the merit list, called the TSTM winners. The desirable applicants may obtain marks with the request an application to convener cum executive joint secretary of BMS at Patna office. A copy of the result of successful candidates will be displayed in the office of BMS Patna and on its website.