4th Bose Einstein Scholarship Test (B E S T)-2021 (ONLINE - MODE)

(For Indian Students)

For Class – (V - XII) + GRADUATION CLASS

'Mathematics is the language in which God has written the universe".

To encourage and gain excellence in Mathematics JMMC RESEARCH FOUNDATION (part of JMMC INSTITUTION) is organising a Math Talent search examination **BOSE EINSTEIN SCHOLARSHIP TEST 2021** for students, in association with international research scholars & mentors who are established persons in many globally recognized universities and research organization, viz. LEEDS UNIVERSITY, BERLIN UNIVERSITY, OKLAHOMA STATE UNIVERSITY, MICHIGAN STATE UNIVERSITY. On the basis of results in this examination we want to reward the participants and honour the teachers and their Institutes they belong to in due time.

SUBJECT: - MATHEMATICS

Stages of Selection – (1) MTA

(2) MTB

(3) MTC

Eligibility : Who can apply?

(on 30th January 2021 students must read in the following respective classes)

Pre -foundation Level (A) : Candidates of **class V**

Pre -foundation Level (B) : Candidates of **class VI**

Foundation Level (A) : Candidates of **class VII**

Foundation Level (B) : Candidates of **class VIII**

Intermediate Level (A) : Candidates of **class IX**

Intermediate Level (B) : Candidates of **class X**

Upper Intermediate Level (A) : Candidates of **class XI**

Upper Intermediate Level (B) : Candidates of **class XII**

Major Level : Students of **Graduation** classes

PRIZES : ABOUT THE SCHOLARSHIP

1. Duration of the scholarship is **12 months (JUNE 2021 to MAY 2022)**
2. Scholarship amount is **Rs. 15,000/- per month**. (ie. Total Scholarship Amount for every B. E. S. T 2021 qualified student is **Rs. 1,80,000/-**)
3. Exposure to **Seminars**, **Workshops**, **Research based project works**.

Each form for enrolment in the said examination costs Rs. **630/- .**

The Last date of submission of forms – 14th April, 2021

EXAM (MTA & MTB) DATE : 18th April, 2021 (SUNDAY)

MODE OF EXAM : ONLINE

TIME : The timing of the exam for the different classes has been staggered as follows:

CLASS 5 – MTA - 7:00 A.M to 7:36 A.M

MTB - 7:39 A.M to 8:15 A.M

CLASS 6 – MTA - 8:45 A.M to 9:21 A.M

MTB - 9:24 A.M to 10:00 A.M

CLASS 7 – MTA – 10:30 A.M to 11:06 A.M

MTB - 11:09 A.M to 11:45 A.M

CLASS 8 – MTA – 12:15 P.M to 12:51 P.M

MTB - 12:54 P.M to 1:30 P.M

CLASS 9 – MTA – 2:00 P.M to 2:36 P.M

MTB - 2:39 P.M to 3:15 P.M

CLASS 10 – MTA – 3:45 P.M to 4:21 P.M

MTB - 4:24 P.M to 5:00 P.M

CLASS 11 – MTA – 5:30 P.M to 6:06 P.M

MTB - 6:09 P.M to 6:45 P.M

CLASS 12 – MTA – 7:15 P.M to 7:51 P.M

MTB - 7:54 P.M to 8:30 P.M

GRADUATION CLASS – MTA – 9:00 P.M to 9:36 P.M

MTB - 9:39 P.M to 10:15 P.M

BEST-MTA (36 MINUTES)

QUESTION PATTERN– Multiple choice questions (containing **18 questions**-***Single*** **correct answer** type). The candidates will have to answer ALL questions.

MARKING PROCEDURE– **5** Marks will be awarded for every correct answer and there is **no negative marking** for wrong answer.

BEST-MTB (36 MINUTES)

QUESTION PATTERN : Multiple choice questions (containing **9 questions**-***One Or More*** **correct answer** type).

MARKING PROCEDURE–

(i) **10** marks will be awarded for **correct answer**.

(ii) **5** marks will be **deducted** for every wrong answer.

(iii) If all correct options are not marked and also no incorrect option is marked then also that will be considered as **wrong response**.

(iv) If any wrong option is marked or if any combination including a wrong option is marked then that will be considered as **wrong response**.

NOTE : MTB ANSWERS WILL BE VALID FOR ONLY THOSE CANDIDATES WHO WILL GET THE PARTICULAR CUT-OFF MARKS OF MTA DECIDED BY B.E.S.T COMMITTEE (INTER NATIONAL RESEARCH SCHOLARS – MENTORS' ASSOCIATION & JMMC RESEARCH FOUNDATION).

Those qualifying the examinations (MTA & MTB) will be called for an interview. The merit list of the selected candidates for viva-voce/interview will be declared on 23rd April (Saturday) 2021 at 11 pm in our official website www.mathjmmc.in at students' account.

BEST-MTC

(INTERVIEW – for selected candidates based on MTA & MTB)

DATE :- 9TH MAY,2021 (SUNDAY)

MODE OF INTERVIEW :- ONLINE

WINNERS ANNOUNCEMENT – 17TH MAY, 2021 (MONDAY) at 11 pm in our official website www.mathjmmc.in at students' account.

VERSION OF QUESTION- ENGLISH

APPLICATION DETAILS

Candidates may apply online through the designated link available in our website http://mathjmmc.in/talentsearchApply.php?id=NQ== where application fee **Rs. 630/-** (non refundable) may be paid through Net Banking/Credit Card/Debit Card .

RULES & REGULATIONS

1. The students must report **5** minutes before the scheduled time.
2. Guardians will not be allowed to intervene during the exam time.

An expression of our good will.....

Students will feel happy and proud to know that a part of the proceeds from the sale of this form will be donated some of their underprivileged meritorious friends —A TOKEN OF OUR SINCERE DESIRE IN THE SERVICE OF THE NATION.

Syllabus for Pre- foundation Level (Class -V)

1. Number System
2. Arithmetic
3. Mensuration
4. Plane Geometry
5. Quantitative Aptitude & Logical Reasoning
6. Set Theory
7. Basic Algebraic Formula

Syllabus for Pre- foundation Level (Class -VI)

1. Number System
2. Set Theory
3.Surds & Indices
4. Arithmetic
5. Mensuration
6. Plane Geometry
7. Basic Algebraic Formula
8. Quantitative Aptitude & Logical Reasoning
9. Transformation Geometry

Syllabus for Foundation Level (Class -VII)

1. Number Theory
2. Equations & Inequations
3.Surds & Indices
4. Arithmetic
5. Mensuration
6. Plane Geometry
7. Logarithm

8. Quantitative Aptitude & Logical Reasoning
9. Transformation Geometry

Syllabus for Foundation Level (Class -VIII)

1. Number Theory
2. Equations & Inequations
3.Surds & Indices
4. Arithmetic
5. Mensuration
6. Plane Geometry
7. Logarithm
8. Quantitative Aptitude & Logical Reasoning
9. Transformation Geometry
10. Set Theory

Syllabus for Intermediate Level (Class -IX))

1. Number Theory
2. Theory of Equation
3. Polynomials
4. Mathematical Induction
5. Inequaliy
6. Logarithm
7. Plane Geometry
8. Quantitative Aptitude & Logical Reasoning
9. Mensuration
10. Set Theory
11. Arithmetic
12. Trigonometry & It's applications
13. Transformation Geometry

Syllabus for Intermediate Level (Class -X)

1. Number Theory
2. Theory of Equation
3. Polynomials
4. Mathematical Induction
5. Inequaliy
6. Logarithm
7. Progressions
8. Plane Geometry
9. Quantitative Aptitude & Logical Reasoning
10. Mensuration
11. Set Theory
12. Arithmetic
13. Trigonometry & It's applications
14. Transformation Geometry

Syllabus for Upper Intermediate Level (Class -XI)

1. Number Theory
2. Polynomials
3. Theory of Equations
4. Inequality
5. Mathematical Induction
6. Complex Numbers
7. Set Theory
8. Relation
9. Mapping
10. Series & Sequence
11. Logarithm
12. Determinants
13. Trigonometry
14. Plane Geometry
15. 2 Dimensional Co-ordinate Geometry
16. Calculus in one variable

17. Probability
18. Vectors
19. Permutation & Combinations
20. Binomial Theorem
21. Statistics
22. Dynamics
23. Transformation Geometry

Syllabus for Upper Intermediate Level (Class -XII)

1. Number Theory
2. Polynomials
3. Theory of Equations
4. Inequality
5. Mathematical Induction
6. Complex Numbers
7. Set Theory
8. Relation
9. Mapping
10. Binary Operation
11. Series & Sequence
12. Logarithm
13. Matrices
14. Determinants
15. Trigonometry
16. Plane Geometry
17. 2 Dimensional Co-ordinate Geometry
18. 3 Dimensional Co-ordinate Geometry
19. Calculus in one variable and it's applications
20. Probability & it's distributions
21. Vectors
22. Permutation & Combinations
23. Binomial Theorem
24. Boolean Algebra
25. Statistics
26. Statics

27. Dynamics
28. Transformation Geometry

Syllabus for Major Level (Graduation Class)

1. Classical Algebra
2. Linear Algebra
3. Abstract Algebra
4. Boolean Algebra
5. Plane Geometry
6. 2-Dimensional Co-ordinate Geometry
7. 3-Dimensional Co-ordinate Geometry
8. Transformation Geometry
9. Riemann Geometry
10. Calculus in one variable and it's applications
11. Several variable calculus and it's applications
12. Real Analysis
13. Complex Analysis
14. Functional Analysis
15. Fourier Analysis
16. Probability-Statistics
17. Fuzzy Set
18. Set Topology
19. Statics
20. Particle & Rigid Dynamics
21. Fluid Mechanics
22. Tensor Calculus
23. Vector Analysis

24. Astronomy
25. Graph Theory
26. Metric Spaces
27. Set Topology

REFERENCE BOOKS (RECOMMENDED READING)

1. **A Collection of Problems in Mathematics (VOLUME -1) – B. BISWAS & S. BISWAS – JMMC RESEARCH FOUNDATION PUBLICATION (pdf of complete solution of this book is available at www.mathjmmc.in)**
2. Hall & Knight – Higher Algebra.
3. Hall & Stevens – Geometry
4. Number Theory – David. M. Burton
5. S. Barnard and J.M. Child–Higher Algebra.
6. W. S Burnside and A.W. Panton – The Theory of Equations
7. P.P. Korovkin – Inequalities
8. R.A. Brualdi – Introductory Combinatorics
9. A.W. Tucker – Applied Combinatorics
10. I. Niven, H.S. Zuckerman and H.L. Montgomery – An Introduction to the Theory of Numbers
11. G.H. Hardy and E.M. Wright – An Introduction to the Theory of Number
12. C.V. Durell, Modern Geometry
13. H.S.M. Coxeter and S.L. Greitzer – Geometry Revisited
14. N.D. Kazarinoff – Geometric Inequalities
15. S.L. Loney – Plane Trigonometry

16. G.N. Yakovlev – High School Mathematics
17. R. Honsberger – Mathematical Gems
18. R. Honsberger – Mathematical Gems
19. Tensor Calculars – M.C. Chaki
20. W. Sierpenski – 250 Problems in Elementary Number Theory
21. An Excursion in Mathematics, Editors: M.R. Modak, S.A. Katre and V.V. Acharya,
22. Challenge and Thrill of Pre-College Mathematics – V. Krishnamurthy, C.R. Pranesachar,
23. Arthur Engel – Problem Solving Strategies
24. Mathematical Olympiad Challenges – Titu Andreescu and Razvan Gelca
25. Functional Equations Functional EquationsB.J. Venkatachala
26. 2D-Co-ordinate Geometry — Askwith.
27. 2D-Co-ordinate Geometry — S.L. Loney Vol. (1)
28. 3D–Co-ordinate Geometry — J.T. Bell
29. Calculus — T. M. Apostol [Vol (1) & (2)]
30. Calculus — Edward
31. Calculus in one variable — I. A. Maron
32. Problems in Mathematical Analysis — G. N. Berman.
33. Mathematical Analysis — T. M. Apostol
34. Mathematical Analysis — Rudin

35. Probability — Feller
36. Fuzzy Set — M. Ganesh
37. Astronomy—Smart.
38. Paticle & Rigid Dynamics — S.L. Loney
39. Hydrostatics — Ramsey
40. Statics — S.L. Loney
41. Vector — Spigel
42. Differential Equation — D. A. Murray.
43. Probubility Theory — Caculus
44. Differential Equation — Ross
45. Graph Theory- N.S.Deo

Prepare for the BEST-

Prepare yourself for the tests by consulting the relevant Resources.
Syllabus and relevant test formats are mentioned above.

GOVERNING BODY MEMBERS OF Bose Einstein Scholarship Test (B E S T)-2021

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