Government of India
NATIONAL BOARD FOR HIGHER MATHEMATICS
Department of Atomic Energy
Anushakti Bhavan, C.S.M. Marg, Mumbai-400 001
**The Master's Scholarship Scheme 2022–23 and the Doctoral Scholarship Scheme 2023**
Scholarships for pursuing Master's and Doctoral studies "in Mathematics"

# Introduction

The **National Board for Higher Mathematics (NBHM)** invites applications to appear for its **Scholarship Written Test**—hereafter called "**the test**"—scheduled for:

**Saturday, 29 April 2023, 10:30–13:30 hours, IST (Indian Standard Time)**

The test constitutes the first phase of the two-phase selection process for grant of the following scholarships:

- NBHM Doctoral Scholarship 2023—hereafter called the **Doctoral Scholarship**

- NBHM Master's Scholarship 2022–23—hereafter called the **Master's Scholarship**

Aspirants for either one or both the scholarships **must** appear for the test. At the time of application, they can choose to apply for the Master's Scholarship only, the Doctoral Scholarship only, or both. (There is a single test for both scholarships, not two separate tests being held at the same time.)

The second phase of selection shall be an interview. Two separate shortlists shall be drawn up based on the performance in the test, one for each of the scholarships. (The process of making these shortlists is explained in more detail below.) Candidates on these shortlists shall be invited to appear for an online interview. **The final selection for grant of either scholarship shall be based primarily on the performance in both the test and interview, although the selection committee shall be at liberty to take into consideration other aspects of the academic track record.**

The scholarships and the selection process for them are described in more detail below. The web page carries even more information, such as an official FAQ that is updated continually.

## Other Uses of NBHM Written Test Scores

The test scores are also used for screening of candidates for admissions to certain PhD and Integrated PhD programmes of the following institutions:

- Harish-Chandra Research Institute (HRI)

- Indian Institute of Science Education and Research, Berhampur (IISER Berhampur)

- Indian Institute of Science Education and Research, Mohali (IISER Mohali)

- Indian Institute of Science Education and Research, Pune (IISER Pune)

- Indian Institute of Science Education and Research, Thiruvananthapuram (IISER Thiruvananthapuram)

- Kerala School of Mathematics (KSoM)

- National Institute of Science Education and Research (NISER)

- The Institute of Mathematical Sciences (IMSc)

As for how exactly the test scores are used by these institutions, that is outside NBHM's purview. Those interested are advised to source this information directly from the institutions in question.

# The Scholarships

## Definition of "Master's programme"

For the purposes of this document, a **Master's programme** is any of these:[1]

1. a two-year Master's programme requiring a Bachelor's degree for admission;

2. the final two years of a five-year Integrated Master's programme;

3. the first two years of an Integrated PhD programme requiring a Bachelor's degree for admission.

Thus the "final year of a Master's programme" could mean the second year of a two-year Master's programme, or the fifth year of a five-year Integrated Master's programme, or the second year of an Integrated PhD programme.

## Definition of "in Mathematics"

In what follows, the phrase "in Mathematics" (always within quotes) appears frequently. For the purposes of this document, a programme is said to be **"in Mathematics"** if it satisfies both the following conditions:

1. It is a recognised full-time programme offered by an accredited university or institution in India.

2. The name of the degree that it leads to contains at least one of the following:

   - the word "Mathematics";
   - the word "Statistics";
   - the phrase "Mathematical Science" or "Mathematical Sciences".

For instance, programmes leading to a degree in "Applied Mathematics" satisfy Condition 2.

## Details of the Doctoral Scholarship

The Doctoral Scholarship is intended to support pursuit of research leading to the PhD degree "in Mathematics". It is initially granted for a term of four years, but needs to be renewed every year, the renewal being subject to satisfactory progress as judged by NBHM. It is extendable by one more year, solely at NBHM's discretion. It consists of a monthly stipend and a yearly contingency grant, the rates of which are revised from time to time. In addition, house rent allowance (HRA) is payable as per central government norms.[2]

The current rates are as follows: monthly stipend ₹31,000/- for the first two years, to be increased to ₹35,000/- for the subsequent years, based upon the recommendation of the committee appointed by the scholar's institution to monitor the scholar's progress; yearly contingency grant ₹40,000/-.

A precondition for tenability of the scholarship is that throughout its term the candidate must be enrolled in a PhD programme "in Mathematics". This means that the candidate must get enrolled in such a programme by January 2024 (if not already enrolled) and such enrolment must continue for the entire duration of the scholarship. If the enrolment should cease for any reason, the scholarship shall also cease at the same time. The scholarship shall be administered only through the scholar's institution.

The NBHM Doctoral Scholarship is not payable at the same time as another doctoral scholarship (for example, CSIR, UGC, DST-INSPIRE). It is open only to Indian nationals.

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[1]Portions of such other programmes as integrated six-year M.Ed. programmes may also qualify for consideration as "Master's Programmes". Clarification regarding this could be sought by writing to one of the Zonal Co-ordinators (see below) via email with details of the programme in question.

[2]Women scholars are entitled for maternity leave during which the benefits (the monthly stipend and HRA, the latter upon production of a rent receipt) are payable, once during the term of the scholarship for a period not exceeding 180 days. If such leave is availed, the term of the scholarship shall be extended by the extent of the availed leave.

## Grant of the Doctoral Scholarship

To be offered the Doctoral Scholarship, one **must satisfy all these three conditions**:

- be selected for the scholarship, following the test and subsequent (doctoral) interview;

- enrol by January 2024, or be currently enrolled, in a PhD programme "in Mathematics";

- must not have drawn the (NBHM) Doctoral Scholarship in the past.[3]

## Details of the Master's Scholarship

The Master's Scholarship is intended to encourage and support talented students to study mathematics at the master's level. It carries a monthly stipend of ₹6,000/-, payable during the two year period of a Master's programme "in Mathematics". It is sanctioned for one year at a time and is renewable at the end of the year, subject to satisfactory progress. Students who get selected while in the final year of their Master's programme shall receive the scholarship for only one year.

A precondition for tenability of the scholarship is that throughout its term the candidate must be enrolled in a Master's programme "in Mathematics". This means that the candidate must get enrolled in such a programme for the academic year 2023–24 (if not already enrolled) and such enrolment must continue for the entire duration of the scholarship. If the enrolment should cease for any reason, the scholarship shall also cease at the same time. The scholarship shall be administered only through the scholar's institution.

The NBHM Master's Scholarship is not payable at the same time as another master's scholarship (for example, DST-INSPIRE, KVPY, those offered by the scholar's institution). It is open only to Indian nationals.

## Grant of the Master's Scholarship

To be offered the Master's Scholarship, one **must satisfy both the following conditions**:

- be selected for the Master's scholarship, following the test and the subsequent (Master's) interview;

- either be currently enrolled in a Master's programme "in Mathematics", or enrol in such a programme for the academic year 2023–24.

Selected students who are eligible for the scholarship for the academic year 2022–23 shall receive the entire stipend due for the year as a lump sum.[4]

# The Selection Process

## Zones and Zonal Coordinators

For purposes of administration of the selection process for the scholarships, the country is divided into five geographical **zones**, each headed by a coordinator. The names, affiliations, and addresses of the zonal coordinators are listed at the end of this advertisement.

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[3]Merely having been selected for the (NBHM Doctoral) Scholarship in the past is not a disqualification for this year's selection, provided the Scholarship has never been drawn in the past.

[4]A selected student who is not currently enrolled in a Master's programme "in Mathematics", but is only aspiring to enrol in such a programme for the academic year 2023–24, is not eligible for the scholarship for the academic year 2022–23, but only for later years, subject to other conditions being met.

## The Written Test

The test is scheduled for **Saturday, 29 April 2023, 10:30 to 13:30 hours, IST (Indian Standard Time)**. It shall be a test of <u>core mathematical skills useful for studying mathematics at the Master's and Doctoral levels</u>, as judged by the committee of experts appointed by NBHM. There is no prescribed syllabus, but question papers from previous editions (2005 onward) along with keys are available at this repository.[5] The pattern and level of difficulty of the test may vary from those of previous editions. Nevertheless the papers in the repository should provide valuable guidance on what the test is all about.

## Interview Shortlists

For each test answer script, two scores, called **M-score** and **D-score** (M for Master's, D for Doctoral), shall be calculated. Two separate merit lists, called **M-list** and **D-list**, shall be prepared based on these two scores respectively. The M-score shall just be the raw score on the test net of any negative marking; the D-score shall be calculated by giving a higher weightage to the scores on certain sections (those with questions on more advanced topics), again net of any negative marking. The test booklet will have clear instructions on how these two scores are calculated.

To be on the **Doctoral Interview Shortlist (DIS)**, a candidate must have applied for the Doctoral Scholarship and must make it to the D-list. To be on the **Master's Interview Shortlist (MIS)**, a candidate must have applied for the Master's Scholarship and must make it to either the D-list or the M-list (or both).

## Test Centres

Arrangements are underway to have test centres in the cities listed below. However, some centres could later be revoked for lack of sufficient demand or other reasons beyond our control. Applicants shall be asked to fill out four choices of centres, in descending order of priority. Some centres have limited capacity. The allotment of centres shall be on a first-come-first-served basis. Thus, in order to be sure to get your preferred test centre, you must apply early. Candidates must make their own arrangements for travel and stay to take the test.

- **Zone 1 (North)**: Chandigarh, Delhi, Jodhpur, Shimla, Srinagar.
- **Zone 2 (North Central)**: Bhopal, Indore, Jabalpur, Kanpur, Patna, Prayagraj, Raipur.
- **Zone 3 (West)**: Ahmedabad, Dharwad, Goa, Mumbai, Nagpur, Nanded, Pune, Vallabh Vidyanagar.
- **Zone 4 (East)**: Agartala, Aizawl, Bardhaman, Berhampur (Odisha), Bhubaneswar, Dimapur, Guwahati, Imphal, Jamshedpur, Kharagpur, Khurda (Odisha), Kolkata, Ranchi, Rangpo (Sikkim), Sambalpur, Shillong, Siliguri, Tezpur.
- **Zone 5 (South)**: Bengaluru, Chennai, Hyderabad, Kochi, Kozhikode, Madurai, Mysuru, Pondicherry, Salem, Surathkal, Thiruvananthapuram, Tirupati, Warangal.

## The Interviews

The interviews shall be conducted online, sometime during May–June 2023. The dates and other details of the interviews shall be announced along with the Interview Shortlists (DIS and MIS), two to three weeks after the test. Candidates who are on both shortlists shall be interviewed only once (and not separately for the two scholarships). Such a candidate could end up being selected for both scholarships, for only one of the two, or neither. Shortlisted candidates shall be asked to upload details of their academic track record prior to the interview. The final selection for the scholarships shall be based primarily on the performance on the test and interview, although the selection committee shall be at liberty to take into account other aspects of the academic track record.

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[5]The Master's and Doctoral Written Tests have in the previous years always been separate. This year is the first ever that they have been merged into a single test.

# Application Procedure

## Eligibility for the Written Test

Anyone who satisfies **at least one** of the following criteria is eligible to appear for the test:

- currently enrolled in a PhD programme "in Mathematics";

- aspiring to enrol in such a PhD programme by January 2024;

- currently enrolled in a Master's programme "in Mathematics";

- aspiring to enrol in such a Master's programme for the academic year 2023–24;

- aspiring for selection in the next round of recruitment for an Integrated PhD or PhD programme in such an institution as the eight mentioned above that uses the test scores for screening for admission to that programme.

Notes:

- Applicants need only self-certify at the time of the application that they satisfy one of the above conditions. This certification shall be taken at face value.

- Nationality is no bar to write the test: the test is open to foreign nationals, although the NBHM scholarships are open only to Indian nationals.

- It is understood that any applicant agrees with all the policies of NBHM:

    https://www.imsc.res.in/~nbhm/ST_current/policy.html

## How to apply?

Applications to appear for the test shall be accepted **exclusively online** through the following portal:

    https://www.nbhmexams.in/

The portal shall open around 09th March and remain open until 05th April. (All dates in this paragraph are in the year 2023.) Applicants can choose to apply for the Doctoral Scholarship only, or the Master's Scholarship only, or both.

An application fee (along with applicable collection charges) needs to be paid online at the time of the application. For applications completed on or before 26th March (23:59 hrs, IST), the application fee is ₹500 for a single scholarship and ₹750 for both scholarships. For applications submitted after 26th March, the application fee shall be ₹750 for a single scholarship and ₹1000 for both scholarships.

The application process is quite simple. You must first open an account by registering a valid email address. The account is uniquely identified by the registered email address. Only one application can be submitted from one account. An acknowledgement with an application number shall be generated upon successful completion of the application.

## Centre Allotments and Admit Cards

Centre allotments shall be done after the portal closes for applications. Admit Cards showing the centre allotted shall be available for download around 15th April. Two original copies of the Admit Card must be prepared by each candidate. Both copies must be carried to the test. Two prints of the same recent colour passport-size photograph of the candidate will be needed for this purpose.

## Payment Issues

The portal has instructions on how to resolve payment related issues. Applying early is encouraged so as to allow enough time for resolution of stalled payments.

## Answer Key, Test Scores, and Interview Shortlists

The answer key to the written test shall be published soon after the end of the test. Candidates shall be allowed to challenge the key during a short window of time (not less than 24 hours). In about two to three weeks after the test, the test scores shall be uploaded to the portal and the interview shortlists be published on the web page. Applicants shall be able to check their own individual total test score, both M-score and D-score, by logging into the portal.

## Important Dates (all in 2023)

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|---|---|
| 09 March | Online application portal scheduled to open |
| 26 March | Last date for applications with fee of ₹500 (single scholarship) and ₹750 (both scholarships) |
| 27 March | Increase in application fee kicks in at the start of the day |
| 05 April | Application portal to close at the end of the day (23:59 hrs, IST) |
| 15 April | Admit Cards will be available for download from the portal |
| 29 April | The written test to be held during 10:30–13:30 hrs, IST |
| 20 May | Interview Shortlists to be published on the web page |
| 30 June | Final selection results for the Scholarships announced |

There may be some changes to the above schedule. For instance, there could be a delay in the opening of the portal due to technical issues, or the deadline for applications (05th April) may be extended for various reasons. All such changes shall be published exclusively on the web page.

# Names, Affiliations, and Contact details of Zonal Coordinators

The contact details of the Zonal Coordinators listed below are to be used only if it is absolutely necessary and only as a last resort. Before trying to contact the zonal coordinator, ensure that all avenues of resolving your problem through the portal are exhausted, and keep in mind that the clarification you seek may already be provided by the official FAQ at:

https://www.imsc.res.in/~nbhm/ST_current/faq.html

The FAQ is updated from time to time. Email is the preferred mode of communication (in case you absolutely need to contact a zonal coordinator).

- **Zone 1 (North)**: Professor Gurmeet Kaur Bakshi, email: `gkbakshi@pu.ac.in`, Department of Mathematics, Panjab University, Hans Raj Gupta Hall, Chandigarh 160 014.

- **Zone 2 (North Central):** Professor R. Thangadurai, email: `thanga@hri.res.in`, Harish-Chandra Research Institute, Chhatnag Road, Jhusi, Prayagraj 211 019.

- **Zone 3 (West):** Professor Vivek Mohan Mallick, email: `vmallick@iiserpune.ac.in`, Department of Mathematics, Indian Institute of Science Education and Research, Homi Bhabha Road, Pashan, Pune 411 008.

- **Zone 4 (East)**: Professor Pradipta Bandyopadhyay, email: `pradiptabandyo@gmail.com`. Stat-Math Division, Indian Statistical Institute, 203, B T Road, Kolkata 700 108.

- **Zone 5 (South)**: Professor K. N. Raghavan, email: `knr@imsc.res.in`, The Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai 600 113.