



# JAM 2027

# Information Brochure

**Organizing Institute: IIT Kharagpur**



# Information Brochure

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# HIGHLIGHTS OF JAM 2027

- IIT Kharagpur is the Organizing Institute for JAM 2027.
- JAM 2027 is a Computer Based Test (CBT) conducted for seven Test Papers at the undergraduate level.
- JAM 2027 will be held on 14<sup>th</sup> February, 2027 in two sessions.
- JAM 2027 is open to all nationals (Indian/Foreign) and there is no age restriction.
- Test Papers will comprise (i) Multiple Choice Questions (MCQ), (ii) Multiple Select Questions (MSQ) and (iii) Numerical Answer Type (NAT) Questions.
- Candidates may appear in ONE or TWO Test Paper(s).
- JAM 2027 scores will be used for admission in IITs and other prestigious institutes for the academic year 2027-28.
- JAM Scores are used for admission to programs such as M.Sc., M.Sc. (Tech), MS (Research), M.Sc.-M.Tech. Dual Degree, Joint M.Sc.- Ph.D., M.Sc. - Ph.D. Dual Degree and Integrated Ph.D. in various institutes.
- JAM 2027 Examination will be conducted in around 114 Cities across India.

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# ACRONYMS

|                |                                                                  |
|----------------|------------------------------------------------------------------|
| <b>AIR</b>     | All India Rank. (p. 5)                                           |
| <b>CBT</b>     | Computer Based Test. (p. 5, 10)                                  |
| <b>CCMN</b>    | Centralized Counselling for M.Sc./M.Sc. (Tech) Admission. (p. 3) |
| <b>CFTI</b>    | Centrally Funded Technical Institutes. (p. 3)                    |
| <b>DoB</b>     | Date of Birth. (p. 7, 15, 16)                                    |
| <b>ERs</b>     | Eligibility Requirements. (p. 3, 5)                              |
| <b>EWS</b>     | Economically Weaker Sections. (p. 15)                            |
| <b>IISc</b>    | Indian Institute of Science. (p. 3)                              |
| <b>IISER</b>   | Indian Institute of Science Education and Research. (p. 3)       |
| <b>IIT</b>     | Indian Institutes of Technology. (p. 1)                          |
| <b>JAM</b>     | Joint Admission test for Masters. (p. 2)                         |
| <b>JOAPS</b>   | JAM Online Application Processing System. (p. 14)                |
| <b>MEQs</b>    | Minimum Educational Qualifications. (p. 3, 5)                    |
| <b>NIT</b>     | National Institute of Technology. (p. 3)                         |
| <b>OBC-NCL</b> | Other Backward Classes (Non-Creamy Layer). (p. 15)               |
| <b>PwD</b>     | Person with benchmark Disability. (p. i, 6, 10–12, 15, 23)       |
| <b>SC</b>      | Scheduled Castes. (p. 15)                                        |
| <b>ST</b>      | Scheduled Tribes. (p. 15)                                        |
| <b>UDID</b>    | Unique Disability Identification. (p. 16, 30)                    |



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## 1

## INTRODUCTION

The Indian Institutes of Technology (IITs) are institutions of national importance established through an Act of Parliament in 1956 for fostering excellence in higher education. IITs are internationally acclaimed institutes renowned for their high-quality education in engineering, science, humanities, social science, management, and research in frontier areas. The aim of these institutes is to build a strong foundation of knowledge, pursue excellence and enhance creativity in an intellectually stimulating environment. The current pace of advancement of technology needs a coherent back-up of basic science education and research. The vibrant academic ambience and research infrastructure at IITs motivate students to pursue Research and Development careers in frontier areas of basic sciences, social sciences, as well as interdisciplinary areas of science and technology. Further, IITs are well-equipped with modern laboratories, efficient computer networks and state-of-the-art libraries. The teaching process is structured to promote close and continuous interface between the faculty and the students.

Joint Admission test for Masters (JAM) has been established as a benchmark entrance examination for the science education in the country for last two decades.

**The objective of JAM is to provide:**

- Admissions to various postgraduate programs
- Science as a career option for the students across the country
- High quality education in the respective disciplines, comparable to the best in the world via an engaging curriculum
- Opportunities to develop academic talent leading to a challenging and rewarding professional life
- Interdisciplinary curricula enabling the students with the ability to utilize scientific knowledge for practical applications

## 1.1 Academic Programs

IITs offer admission to different postgraduate programs through JAM examination leading to Master's degree or Master - Ph.D. dual degree in various disciplines of Science. JAM Score is used for admission to various postgraduate programs such as (i) M.Sc., (ii) M.Sc. (Tech.), (iii) M.S. (Research), (iv) M.Sc. - M.Tech. Dual Degree, (v) Joint M.Sc. - Ph.D., (vi) M.Sc. - Ph.D. Dual Degree, and (vii) Integrated Ph.D. in multiple disciplines by premier institutes across the country.

### Note

**Open to all eligible students irrespective of their nationality. The medium of instruction is English for all the programs.**

Admissions to various institutes using JAM 2027 score is divided into two categories:

### 1.1.1 Admitting Institutes

There are around 3000 seats in postgraduate programs at 23 IITs for the academic year 2027-28. JAM Scores will be used to admit the candidates subject to meeting the Eligibility Requirements (ERs), Minimum Educational Qualifications (MEQs) and any other necessary requirements, without any additional interview or written test. The details of Seat matrix and MEQs of various programs of the participating IITs are provided in Annexure II.

#### Note

**Seat Matrix and MEQs in Annexure II are tentative and are subject to change based on the requirements of the admitting institutes. The final Seat Matrix and MEQs will be made available in the Admission Brochure.**

### 1.1.2 Result Sharing Institutes

JAM score will be used for admission to over 2000 seats for postgraduate programs at IISc, CFTIs, NITs, DIAT, IEST Shibpur, IISER Pune, IISER Bhopal, IPE, JNCASR, SLIET etc. No additional written tests or interviews for admission are required for candidates who have qualified JAM and have met the eligibility requirements through Centralized Counselling for M.Sc./M.Sc. (Tech) Admission (CCMN).

Please visit <https://ccmn.admissions.nic.in> for more details.

**Note**

**JAM 2027 Organizing Institute will coordinate the admission process of the Admitting Institutes ONLY. The JAM 2027 qualified candidates can apply for admission through <https://jam.iitkgp.ac.in>**

**For admissions to Result Sharing Institutes, candidates have to directly approach/contact the respective institute.**

# JAM 2027

## 2.1 JAM 2027 Examination

JAM 2027 Examination will be conducted as a Computer Based Test (CBT) in seven Test Papers namely, **Biotechnology (BT)**, **Chemistry (CY)**, **Economics (EN)**, **Geology (GG)**, **Mathematics (MA)**, **Mathematical Statistics (MS)** and **Physics (PH)**. The syllabi are given in **Annexure I**.

The salient features of JAM 2027 examination are:

- It is open to all nationals (Indian/Foreign) seeking admission to various postgraduate programs for the academic year 2027-28.
- It will be conducted on **14<sup>th</sup> February, 2027** in two sessions.
- There is no age restriction.
- In order to apply for admission into a desired program, a candidate is required to qualify in the relevant Test Paper, satisfy the ERs and MEQs of the respective academic program.
- Admission shall be given as per All India Rank (AIR) in each Test Paper of JAM 2027, reservation policy of Government of India, and the availability of seats.
- Foreign nationals are required to satisfy the rules and regulations of the admitting institute pertaining to foreign students. For further details, they are advised to contact the concerned admitting institute.

## 2.2 Schedule of JAM 2027

JAM 2027 examination will be held on **February 14, 2027 (Sunday)** in two sessions. The duration of the examination is **3** hours. The examination schedule is given in Table 2.1.

**Table 2.1: Schedule of JAM 2027**

| Date                     | Session        | Time                | Test Paper Code   |
|--------------------------|----------------|---------------------|-------------------|
| Feb 14, 2027<br>(Sunday) | Forenoon (FN)  | 9:30 am to 12:30 pm | CY, GG and MA     |
|                          | Afternoon (AN) | 2:30 pm to 5:30 pm  | BT, EN, MS and PH |

A candidate can appear in either one or two Test Paper(s). A candidate can appear in two Test Papers only if they are not scheduled in the same session.

The PwD candidates are eligible for one-hour compensatory time for each paper (i.e. for these candidates the end time will be 13:30 IST for forenoon session and 18:30 IST for afternoon session). They must, however, fill in the requisite forms (refer **Appendix I/II**) during registration for availing the compensatory time and/or availing the services of a scribe (amanuensis).

## 2.3 Application Fees

The details of the application fee are given in Table 2.2. The application fees are non-refundable under any circumstances.

**Table 2.2: Application Fee Structure of JAM 2027**

| CATEGORY         | ONE TEST PAPER | TWO TEST PAPERS |
|------------------|----------------|-----------------|
| Female/SC/ST/PwD | ₹ 1000         | ₹ 1350          |
| All Others       | ₹ 2000         | ₹ 2700          |

Candidates who have entered the **CATEGORY** or **GENDER** or **EXAMINATION CITY** or **DoB** incorrectly will be allowed to change with an additional fee of ₹300. Candidates can add an **ADDITIONAL TEST PAPER** or can **CHANGE THE TEST PAPER(S)** in the previously submitted application form available at <https://jam.iitkgp.ac.in> with an additional fee of ₹300 before **November 10, 2026**.

## 2.4 Eligibility Criteria

Candidates who have either completed their undergraduate degree or will be appearing in the final examination of their qualifying degree in 2027 are eligible to appear in JAM 2027. By qualifying in JAM 2027, candidates can apply for admission subject to the following conditions:

- The undergraduate program should have been **COMPLETED** before the date of admission of the respective Admitting Institute.
- Proof of having passed the qualifying degree with required eligibility, as specified by the Admitting Institute, should be submitted within the timeline provided by the respective Admitting Institute.



## 2.5 Pattern of Questions

The examination will be conducted as a Computer Based Test (CBT) where the questions appear in a random sequence on a computer screen. There will be 60 questions carrying a total of 100 marks. The entire question paper will be divided into three sections namely, A, B and C. All sections are compulsory.

Questions in each section will be of the following types:

### Section A: Multiple Choice Question (MCQ)

- Only one option is correct out of the four given choices.
- Section – A has **negative marking**.
- In case of wrong answer, one-third of a mark will be deducted for 1-mark Question and two-third of a mark will be deducted for 2 marks Question.

### Section B: Multiple Select Question (MSQ)

- There may be one or more than one correct choice(s), but not all four choices.
- No negative or partial marking.

### Section C: Numerical Answer Type (NAT)

- The answer is a real number which needs to be entered by the candidate using the virtual keyboard available on the computer screen.
- No choices are shown for this type of questions.
- There is no negative marking.

## 2.6 Structure of Question Paper

The structure of the question paper is given in Table 2.3.

**Table 2.3: Structure of Question Paper**

| <b>Section – A: 30 MCQs</b>                                                                                                                                                        |         |        |             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|-------------|
| Question No.                                                                                                                                                                       | Mark(s) | Number | Total Marks |
| Q.1 - Q.10                                                                                                                                                                         | 1       | 10     | 10          |
| Q.11 - Q.30                                                                                                                                                                        | 2       | 20     | 40          |
| <b>Section – A has negative marking for wrong answer.</b><br>$\frac{1}{3}$ of a mark is deducted for 1 mark question.<br>$\frac{2}{3}$ of a mark is deducted for 2 marks question. |         |        |             |
| <b>Section – B: 10 MSQs</b>                                                                                                                                                        |         |        |             |
| Question No.                                                                                                                                                                       | Marks   | Number | Total Marks |
| Q.31 - Q.40                                                                                                                                                                        | 2       | 10     | 20          |
| <b>Section – B has no negative or partial marking.</b>                                                                                                                             |         |        |             |
| <b>Section – C: 20 NAT Questions</b>                                                                                                                                               |         |        |             |
| Question No.                                                                                                                                                                       | Mark(s) | Number | Total Marks |
| Q.41 - Q.50                                                                                                                                                                        | 1       | 10     | 10          |
| Q.51 - Q.60                                                                                                                                                                        | 2       | 10     | 20          |
| <b>Section – C has no negative marking.</b>                                                                                                                                        |         |        |             |

- In all sections, un-attempted questions will yield zero mark.
- The candidates are required to select the answer(s) for MCQ and MSQ type questions using the mouse.
- The answer for NAT questions must be entered using a mouse on a virtual numeric keypad. The keyboard of the computer will be disabled.
- There is a provision for using a virtual calculator provided on the computer screen. Candidates are not allowed to bring their own calculators.
- A scribble pad will be provided for rough work. Candidates have to write their name and registration number before using it. The scribble pad has to be returned at the end of the examination.
- The examination will end automatically after the stipulated time.
- Candidates are required to adhere to the code of conduct specified in **Annexure III**.
- Candidates will also be able to take a mock examination through a **Mock Test** link that will be made available on the JAM 2027 website.
- Previous years question papers are available on JAM 2027 website.

## 2.7 Services of Scribe for eligible PwD Candidates

In accordance with the office memorandum issued by the Ministry of Social Justice and Empowerment, PwD candidates who are visually impaired OR Cerebral Palsy OR have disability in the upper limbs OR have lost fingers/hands thereby preventing them from properly taking the CBT may avail the services of a scribe (amanuensis). The option to utilize the services of a Scribe has to be exercised by the candidates during the application stage. If they choose to utilize the services of a Scribe, the scribe will be provided by the Examination Body. If, and only if, the examination body is unable to provide the scribe (in exceptional/rare cases) at any given center, the candidate will be notified by email/SMS/phone to bring their own scribe.

### Note

The assistance that the Scribe can render to the candidate is limited to ONLY reading the instructions and test paper displayed on the computer screen verbatim and in assisting with the mouse clicks, if the candidate is not able to do so. **The Scribe shall NOT translate /interpret /emphasize the Test Paper contents to the candidate.**

## 2.6.1 Scribes arranged by Examination Body

- Scribes will be arranged for those PwD candidates who have requested to be provided with a scribe at the time of application.
- The qualification of the scribe should be a minimum of **“two academic years below”** and a maximum of **“three academic years below”** the minimum qualification of the candidate appearing for JAM 2027 (as per **F.No. P-13013/75/ 2023-Policy-DD-III dated August 01, 2025**).
- The minimum qualification of the scribe should be of 12<sup>th</sup> standard.
- The scribe must not be a candidate for any test paper in JAM 2027.
- If there are Y candidates who require scribe, it will be ensured that a panel of (Y+1) scribes is available at the exam center so that every candidate can have an alternative scribe to choose for the services.
- Each eligible PwD candidate will be presented with TWO scribes on the day before examination. The candidate has to choose one from those two scribes.
- Candidates shall NOT be permitted to bring their own scribe.
- PwD Candidates are permitted to visit the examination center a day before the examination to get familiar with the arrangements.

## 2.8 Compensatory Time

PwD candidates are eligible for one-hour compensatory time for each paper (i.e. for these candidates the end time will be 13:30 IST for Forenoon Session and 18:30 IST for Afternoon Session).

Persons with less than 40% disability and having difficulty in writing, covered under the definition of Section 2 (s) of the RPwD Act, 2016 but not covered under the definition of Section 2(r) of the said Act are also eligible for one-hour compensatory time for each paper. Candidates who are eligible to avail the facility of scribe can opt for compensatory time of one hour, for the three-hours examination even if they do not utilize the services of a scribe.

### Note

All PwD candidates must fill in the requisite form (refer Appendix I/II) during registration for availing the compensatory time and/or availing the services of a scribe (amanuensis).

- The compensatory time of 60 minutes will be provided automatically, which needs to be checked in the candidate's console.
- PwD candidates who are not eligible for the facility of scribe may be given the compensatory time provided that they submit a certificate during the application to the effect that the candidate concerned has physical limitation to write from the Chief Medical Officer/ Civil Surgeon/ Medical Superintendent of a Government Health Care institution in the prescribed Pro Forma (Appendix I of the office order **F.No. P-13013/75/2023-Policy-DD-III dated August 01, 2025**).
- PwD candidates having disability in terms of vision will be given an option to view the Test Paper on the computer screen in a magnified font.

**Warning**

If it is found at any stage that a candidate has availed compensatory time and/or the services of a scribe, but does not possess the extent of disability that warrants the same, the candidate will be excluded from the process of evaluation, ranking and admission. In case such a candidate has already been admitted to any IIT, the admission of the candidate will be cancelled.

**Note**

- Appearance in JAM 2027 or being in the merit list of any Test Paper neither guarantees nor provides any automatic entitlement to admission.
- Qualified candidates will have to apply for admission as per the prescribed procedure.
- On interpretation of the provisions on any matter not covered in this
- Information Brochure, the decision of the Organizing Institute shall be final and binding on all the parties concerned.

# ONLINE APPLICATION PROCEDURE

## 3.1 JOAPS Registration

Candidates can apply for JAM 2027 through <https://jam.iitkgp.ac.in> from September 5, 2026 to October 12, 2026. Candidates have to first register on JAM Online Application Processing System (JOAPS), by providing their name, a valid e-mail address, an active mobile number, and setting a password. After successful registration, the candidate's Enrollment ID and OTP will be sent to the e-mail address and mobile number provided by the candidate. The candidate needs to use this Enrollment ID along with the password for submitting the application.

### Tip

Candidates are advised to keep the Enrollment ID and the password safe and confidential.

JOAPS provides an online interface to the candidate for interacting with the JAM 2027 administration. With this interface, a candidate can:

- Apply for the examination online, upload a photograph, a signature, 10th marksheet with DoB, and other documents like certificates (for OBC- NCL/EWS/SC/ST/PwD) if applicable.
- Pay the application fee through any of the electronic payment modes only
- Check the varied status of the application form, viz., Submitted, Under Scrutiny, Accepted, Defect Status, Status after rectification, rejected with valid reasons, etc.

## 3.2 Choice of Examination Cities

JAM 2027 Examination will be conducted in eight zones. The names of these eight zones along with respective cities are enlisted in Annexure IV. Candidates must specify their first, second, and third choices of cities at the time of applying for JAM 2027. When the choice of the first city is made, then the zone gets determined, and the candidates will be able to choose the second and third choice cities only from the same zone. In case any city in the choices is not allotted due to operational reasons, an alternative city will be allotted.

### Tip

Candidates are requested to regularly check the JAM 2027 website for updates regarding examination cities, if any.



### 3.3 Filling the Online Application Form

JOAPS allows the candidate to enter the data, save a partially filled form, log out and resume application form filling by logging in again. The JOAPS portal is self-explanatory and user-friendly. The following information will be required while filling the application form at JOAPS portal:

1. Personal information (name, e-mail id, date of birth, mobile number, parent's / guardian's name, parent's/ guardian's mobile number, etc.)

#### Note

Name of the candidate in the application form must be exactly the same as per qualifying degree. JAM 2027 Scorecard will be issued as per the name entered in the application form. Prefix/title such as Mr / Shri / Dr / Ms / Mrs / Smt, etc. should **NOT** be used.

2. Address for communication including PIN code.
3. Details of Eligibility degree.
4. Name and address with PIN code of the College/Institute/University.
5. Choice of JAM paper(s).
6. Choice of JAM Examination Cities.
7. Scanned copy of 10<sup>th</sup> standard (SSC) Mark sheet with DoB.
8. High-quality image of the candidate's photograph and signature conforming to the specifications given in Section 3.4 (Photograph Requirements) and Section 3.5 (Signature Requirements), respectively.
9. Scanned copy of the Category (OBC-NCL/EWS/SC/ST) Certificate (if applicable) as per guidelines given in Section 3.6.
10. Scanned copy of Physical Disability Certificate (if applicable) AND Unique Disability Identification (UDID) number.

11. Details of the Photo Identity Document (ID). Any one of the following Photo ID documents is required/acceptable: Aadhaar ID, Driving License, PAN Card, Passport, or Voter ID.

**Note**

The specified Photo ID, in original, should be carried by the candidate to the examination center.

12. Mode of Payment – **Net banking / Debit card / Credit card / UPI/ Wallet.**

**Note**

The application fee will be automatically determined based on the category, gender, and number of Test Papers that have been opted by the candidate.

### 3.4 Photograph Requirements

1. Upload only a good quality (not blurred), **RECENT and COLOURED** photograph.
2. The background of the photograph must be white or a very light colour.
3. A passport size (3.5 cm Width × 4.5 cm Height) JPEG/JPG format photograph of the face of the candidate is required for the application form.
4. Maximum pixel size of the JPEG/JPG image can be 480 × 640. The minimum pixel size of the JPEG/JPG image should be 240 × 320. The file size of the image should be in the range of 20 KB to 200 KB. Aspect ratio (width: height) has to be between 0.66 and 0.89.
5. The face should occupy at least 50% of the area of the photograph with a full-face view looking into the camera directly.
6. Forehead, eyes, nose, ears, and chin should be clearly visible. These must not be covered by hair, any cloth/face-mask, or any shadow.
7. If glare cannot be avoided, the photograph should be clicked without the spectacles.
8. Do not wear spectacles with dark or tinted glasses while taking the photograph; only clear glasses are permitted.

#### Warning

**Photographs of poor quality/resolution will result in the rejection of the application, without any refund of the application fee.**

#### Note

JAM 2027 Admit Card and Scorecard will be printed with the photograph submitted during the online application process.

## Sample Photographs

### A: Sample Photographs: Acceptable



### B: Sample Photographs: Not Acceptable



Smaller in size



Wearing coloured glasses or sunglasses



Shadow on face/photo



Glare on Spectacles



Improper background



Not facing the camera



Facial features are partially visible



Wearing a hat or a cap



Blurred Image

AI Image



Face covered with a Mask



Black and white Photo



50% area is not covered by the face

### 3.5 Signature Requirements

- Upload only a good quality (not blurred) image of your signature using a **black** or **dark blue** ink pen ONLY.
- Size of the signature should be within 2 cm × 7 cm (Height × Width).
- Name written in CAPITAL LETTERS, Initials or signature in any other colour (other than black or dark blue) will NOT be accepted.
- Use a scanner to get the digital image of the signature.
- Only JPEG/JPG image format will be accepted.
- The maximum pixel size of the JPEG/JPG image of the signature can be 160 × 560 while the minimum pixel size of the JPEG/JPG image should be 80 × 280.
- The file size of the image should be in the range of 10 KB to 150 KB. Aspect ratio (width: height) has to be between 3.15 and 4.04.

#### Tip

Candidates are advised to be careful while putting their signature.

## Sample Signatures

| A: Acceptable signatures                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                        |  <small>AI Image</small>                                                                                                                                                                          |
| B: Not Accepted Signatures                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                     |
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| <div style="display: flex; align-items: center;"> <span style="color: red; font-size: 2em; margin-right: 10px;">✗</span> <div> <p>Signature in CAPITAL</p> <div style="border: 1px solid black; padding: 5px; text-align: center;">YUNK EEEEN</div> </div> </div>                       | <div style="display: flex; align-items: center;"> <span style="color: red; font-size: 2em; margin-right: 10px;">✗</span> <div> <p>Signature in initial</p> <div style="border: 1px solid black; padding: 5px; text-align: center;">Y.E.</div> </div> </div> <small>AI Image</small> |

### 3.6 Certificate for OBC-NCL/EWS/SC/ST/PwD

- Candidates who belong to OBC-NCL, EWS, SC, ST and/or PwD category have to upload a valid certificate issued ONLY by authorized officials (Please refer **Annexure V**).
- The PwD should meet the requirements specified in **Annexure V**.
- The OBC-NCL and EWS certificate should be submitted in the format shown in **Annexure VI** and **Annexure VII**, respectively.
- The OBC-NCL and EWS certificate should have been issued on or after April 1, 2026.

#### Note

If no valid OBC-NCL/ EWS certificate is submitted, the candidate will be treated under the General category.

- Candidates should upload scanned copy of the relevant certificate in pdf format of file size in the range 10 KB to 300 KB. Candidates shall be required to submit the same certificate during admissions to the respective Admitting Institutes.
- After filling in the required fields in the application form and uploading the required documents, the candidate must review the application form before final submission and payment.
- Any application that is incomplete in any respect and does not have the required valid documents is liable to be rejected.

#### Tip

Please visit the **FAQs** section on the website: <https://jam.iitkgp.ac.in> for additional queries.



### 3.7 Application Fee Payment Procedure

The application fee has to be paid ONLINE only. Candidates will be able to make the payment using net-banking, debit/credit card, UPI or Wallet until October 12, 2026. Please follow the outlined steps before proceeding for making any payment.

- View the application by clicking the **Save and View** button.
- Check the application and ensure that there are no errors in the application form.
- Ensure that all the relevant and valid documents are uploaded.
- If there is any mistake, edit the relevant fields before proceeding for the payment.
- Click on **Proceed for Payment** button.

#### Note

Once a candidate clicks **Proceed for Payment** button, NO FURTHER CHANGES in the application form can be made and the candidate will be directed to the payment portal.

- On the fee payment portal, the fee amount and bank charges will be shown. Confirm that the payment is for JAM 2027.
- Once confirmed and payment is successful, the candidate will be redirected back to the JOAPS Website, where it shows confirmation of the fee payment.
- If the candidate had selected only ONE Test Paper, there will be an option to choose a second Test Paper. If candidate desires to do so, he/she can proceed by paying the additional amount for second Test Paper as indicated in Table 2.2.
- If candidates have difficulty in making the fee payment (due to poor internet connection or power failure) or are not sure whether payment has been processed or not, then they should login to JOAPS after about an hour and check the status of the payment.
- A new online payment should be initiated if the payment of fee is not reflected in the JOAPS portal.



- If the payment is not made, the application will be rejected. In case, the fee amount has been debited from the account of candidate, but JOAPS does not acknowledge any fee payment, then the money will be credited back to the account within ten working days.

### Tip

Please perform the entire application filling and fee payment procedure yourself. Do not entrust this responsibility to others.

## 3.8 Scrutiny of Applications

Applications shall be scrutinized to verify the data entered by the candidate, with the submitted supporting documents, clarity of the photograph and signature. If everything is found to be in order, the application will be accepted, else, defects in the application shall be marked and intimated to the candidate for rectification within a stipulated time.

- The status of the application and defects marked in the application will be intimated to the candidates through e-mail and/or SMS.
- The latest status of an application will be updated after the receipt and re-scrutiny of the application.
- The status of an application can be checked at any point of time by logging in JOAPS.
- Candidates should rectify the marked defects in the application before the stipulated time.

### Warning

**Failing to rectify the defects within the stipulated time can lead to the rejection of the application.**

### 3.9 Admit Card

An Admit Card bearing the Candidate's Name, Registration Number, Photograph, Signature and Name(s) and Code(s) of the Test Paper(s) applied, along with the Name and Address of the Test Centre allotted, will be available for download from JOAPS from January 05, 2027 until the day of the examination.

- Admit Cards will not be sent by post/e-mail.
- The candidate should carefully examine the Admit Card for all the entries made therein. In case of any discrepancy, the candidate should inform through email to: [jam@iitkgp.ac.in](mailto:jam@iitkgp.ac.in)
- A printout of the downloaded Admit Card (preferably colored) must be brought to the Test Center along with the original and valid Photo ID submitted during registration.
- No candidate will be permitted to appear in JAM 2027 examination without a valid Admit Card, and a valid and original Photo ID.
- The Admit Card should be presented for verification.
- A copy of the Admit Card of JAM 2027 must be carefully preserved by the Candidate and produced at the time of admission, if required by the Admitting Institute.

#### Note

The Organizing Institute may withdraw the permission granted to a candidate to appear in JAM 2027, if it is found later that the candidate is not eligible to appear in the exam, even though an Admit Card has been issued.

#### Tip

Please examine the ADMIT CARD for any discrepancy. Take a colored printout, bring it to the examination center on the day of examination and preserve it till the date of admission.

## 4

# ADMISSION PROCEDURE

## 4.1 Admission Procedure

A brief summary of the admission procedure is provided in this section. The detailed information including timelines will be given in the **JAM 2027 Admission Brochure** to be published in the second week of March 2027.

### 4.1.1 Academic Programs

The list of academic programs available at the 23 admitting IITs as part of JAM 2027 is given in **Annexure II**. A qualified candidate can apply to take admissions for all eligible programs with a single application. Candidates who have qualified in two Test Papers also need to apply with a single application.

### **4.1.2 Eligibility Requirements (ERs) and Minimum Educational Qualifications (MEQs)**

Candidates who have successfully completed an undergraduate degree or currently studying in the final year of undergraduate are eligible for admission through JAM 2027. Proof of having passed the Qualifying Degree with the Minimum Educational Qualifications (MEQs) as specified by the Admit- ting Institute in **Annexure II** should be submitted within the timeline provided by the respective Admitting Institute. At the time of admission, all admitted candidates may have to submit a Physical Fitness certificate from a registered medical practitioner in the prescribed form to the Admitting Institute. At the time of admission, the admitted candidates may also have to undergo a Physical Fitness test by a medical board constituted by the Admit- ting Institute. In case candidates are not found physically fit to pursue their chosen program of study, their admission is liable to be cancelled.

### **4.1.3 Application for Admission**

A qualified candidate satisfying the ERs and MEQs seeking admission has to apply online through the JAM 2027 website to the preferred programs in 23 IITs where admission is sought. The candidate needs to provide the required information, such as choice of programs in order of preference, educational qualifications, percentage of marks/CGPA, category, PwD status, etc. A payment of ₹750 (Rupees Seven hundred and fifty only) is to be made online as non-refundable processing fee. Foreign nationals with Indian degree are eligible to apply, subject to the policy of the Admitting Institute.

#### 4.1.4 Reservations

In each program, a certain number of seats are reserved/allocated for candidates belonging to various categories.

- Candidates who seek admission under **SC or ST** category must submit the requisite certificate issued by a competent authority as specified in **Annexure V**.
- Candidates who seek admission under the **OBC-NCL or EWS** Category must submit a valid certificate issued by the competent authority as specified in **Annexure V**, in the format shown in **Annexure VI for OBC- NCL** and **Annexure VII for EWS**.
- The certificates must have been issued on or after April 01, 2026.
- Candidates who seek admission under PwD category must submit a disability certificate (refer **Annexure V** if applicable) and **UDID** number.

#### 4.1.5 Provisional Admission

A maximum of four rounds of admission will be made to fill the available seats. An additional round of admission (if any) may be conducted depending on the number of vacant seats and will be notified to the candidates well in advance. Candidates who are offered a seat can either (i) accept the offered seat as final with no changes in the subsequent round, or (ii) accept the offered seat in this round with an option to be considered for being upgraded to other programs, only for which they have given better preferences, in subsequent round(s), if any, or (iii) reject the offer and quit the admission process.

#### Note

The maximum number of rounds of admission mentioned is tentative. The JAM 2027 Organizing Institute reserves the right to change this number with prior information.

#### 4.1.6 Admission Fee

After the declaration of the Admission List in each round, an intimation will be sent by the Organizing Institute to the candidates concerned. Along with the submission of acceptance form, these candidates will also have to pay an advance seat booking fee (₹15,000 for General/OBC-NCL/EWS category candidates and ₹7,500 for SC/ST/PwD category candidates) online through JOAPS, within the deadline mentioned in the offer letter. This amount will be transferred to the Admitting Institute and it will be adjusted against the Institute Fee at the time of registration.

#### Warning

Admission to any program may be denied if a candidate fails to upload the requested documents OR/AND does not pay the fee within the stipulated time.

#### Note

- Verification of Minimum Educational Qualifications (MEQs) and
- the Eligibility Requirements (ERs) for admission is the prerogative of the Admitting Institute(s) only and the Organizing Institute will not respond to any queries in this regard.
- The offer of admission to a candidate will be provisional, subject to the fulfillment of all the requirements by the dates specified.
- Candidates should note that being in the Merit List of any Test Paper neither guarantees nor provides any automatic entitlement for admission. Admissions shall be done in the order of merit subject
- to the availability of seats at the Admitting Institute.

# LEGAL AND PRIVACY POLICY

## 5.1 Legal Policy

In all matters concerning JAM 2027, the decision of the Organizing Institute, JAM 2027 will be final and binding on all the applicants. The Organizing Institute, has the overall responsibility of conducting JAM 2027. In case of any claims or disputes related to JAM 2027, the Calcutta High Court, Kolkata shall have the exclusive jurisdiction to entertain and settle any such disputes and claims. Information contained in this brochure is correct as on August 22, 2026. There may be changes in future due to unavoidable reasons. As and when any changes are made, they will be notified on the following website. JAM 2027 website: <https://jam.iitkgp.ac.in>

## 5.2 Privacy Policy

The Privacy Policy governs the use of the JAM 2027 website. JAM Online Application Processing System (JOAPS) is committed to protecting your privacy and works towards offering an efficient and safe online experience. JAM treats your personal information or your use of the service as private and confidential and does not check, edit or reveal it to any third parties except where it believes in good faith, such action is necessary to comply with the applicable legal and regulatory processes or to protect and defend the rights of other users or to enforce the terms of service which are binding on all the users of the site. Except where specifically agreed upon or necessary for operational or regulatory reasons, JAM will not send you any unsolicited information via e-mail. JAM authority reserves the right, in its discretion, to change or modify all or any part of this information at any time, effective immediately upon notice published on the website. Your continued use of the website constitutes your binding acceptance of these terms and conditions, including any changes or modifications made by JAM as permitted above.

**Note**

Applicants are requested to periodically check the website (<https://jam.iitkgp.ac.in>) for the status of the application or/ and any information. They should also check the messages sent to their registered email id and mobile number.



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# Annexures



# **ANNEXURE I**

## **JAM 2027 SYLLABUS**

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## JAM 2027 Biotechnology (BT)



**The Biotechnology (BT) Test Paper comprises Biology / Biotechnology, Chemistry, Mathematics and Physics.**

### Section 1: General Biology

**Cell Biology:** Structure of prokaryotic and eukaryotic cells; Membrane structure and function; Organelles and internal organization of the eukaryotic cell; Cell communication – signalling pathways: endocrine and paracrine signalling; Extracellular matrix and apoptosis; Cell cycle – stages of mitosis and meiosis.

**Biochemistry:** Structure and function of biological macromolecules; Enzymes – basic mechanisms of enzyme catalysis and regulation, Hill coefficient, Michaelis-Menten kinetics, enzyme inhibition, vitamins as coenzymes; Bioenergetics – free-energy change, high-energy compounds, biological oxidation-reduction reactions and reduction potential; Metabolism – glycolysis, TCA cycle and their regulation, oxidative phosphorylation, photosynthesis, nitrogen fixation, urea cycle.

**Genetics:** Mendelian inheritance; Exception to Mendelian law of independent assortment; Genetic interactions, linkage, recombination and chromosome mapping, Chromosomal mutations; Genetic disorders; Population Genetics

**Molecular Biology:** Landmark experiments that established DNA is the genetic material; DNA replication; Proof-reading and repair of DNA; DNA recombination; Transcription; RNA processing; Translation; Regulation of gene expression including operons and differential gene expression in multicellular eukaryotes.

**Evolution and Ecology:** Darwinian view – natural selection, fossil record and descent with modification; Different types of speciation; Phylogenetic classification; Origin of life – abiotic synthesis of biological macromolecules, protocell, dating fossils and origin of multicellularity; Climate patterns; Terrestrial and aquatic biomes; Environmental constraints on species distribution; Factors affecting population density; Interactions among communities; Ecosystems; Ecological remediation.

### Section 2. Microbial, Plant and Animal Biotechnology

**Microbiology:** Microbial genetics - transformation, conjugation and transduction; Structural features of viruses, bacteria, fungi and protozoa; Pathogenic microorganisms; Nutrition-based classification of microbes; Microbial metabolism; Isolation and Cultivation of microorganisms; Growth kinetics; Microbial control and sterilization; Microbial fermentation – batch, fed-batch and continuous; Bioreactor and its components; Introduction to downstream processing - product recovery and purification; Effluent treatment.

**Plant Biology:** Types of tissues and organs; Primary and secondary growth; Morphogenesis; Transport in vascular plants; Plant nutrition; Development of flowering plants – gametophytic and sporophytic generations; Plant growth regulators; Photobiology; Plant Tissue Culture – Cellular totipotency and microporopagation; Transgenic plants; Plant response to biotic and abiotic stresses.

**Animal Biology:** Digestive, circulatory, respiratory, excretory, nervous, reproductive and endocrine systems; Basics of immunology – Innate and adaptive immunity, Immune cells, immunoglobulins and major histocompatibility complexes; Animal development – Fertilization, embryonic pattern formation, cleavage, gastrulation, cellular differentiation and morphogenesis; Mammalian cell culture, animal cloning; Transgenic animals.

### Section 3: Biotechniques

**Biochemical and Microscopy Techniques:** Chromatography; Centrifugation; Electrophoresis; ELISA, Western blotting and immunostaining; Principles of light, fluorescence and electron microscopy.

**Molecular Biology Techniques:** DNA cloning – plasmid vectors, and restriction enzymes; Polymerase Chain Reaction; Expression of cloned eukaryotic genes in bacteria; Hybridization techniques; DNA sequencing; Recombinant DNA technology in medicine, agriculture and forensic sciences.

**Computational Biology:** Bioinformatics; Sequence and structure databases; DNA, RNA and protein sequence analysis; Secondary structure and 3D structure prediction; Biochemical databases.

**Instrumental Techniques – Spectroscopy:** fundamentals of molecular spectroscopy, emission and absorption spectroscopy, UV-Vis, circular dichroism, FTIR and 1-D proton NMR spectroscopy, basics of mass spectrometry; Basics of calorimetry; Basic concepts of crystallography; Flowcytometry.

## Section 4: Chemistry (10+2+3 level)

**Structure and properties of Atoms:** Bohr's theory; Periodicity in properties.

**Bonding in molecules:** Chemical bonding; Complex formation; Physical and chemical basis of molecular interactions.

**Chemical kinetics, thermodynamics, and equilibrium:** Chemical equilibrium; Chemical thermodynamics (first and second law); and Chemical kinetics (zero and first order reactions).

**Physical and chemical properties of compounds:** Chemical catalysis; Acid-base concepts; Concepts of pH and buffer; Conjugative effects and resonance; Inductive effects; Electromeric effects; Photochemistry; and Electrochemistry.

**Chemistry of organic compounds:** Hydrocarbons; Alkyl halides; Alcohols; Aldehydes; Ketones; Carboxylic acids; Amines and their derivatives; Aromatic hydrocarbons, halides, nitro and amino compounds, phenols, diazonium salts, carboxylic and sulphonic acids; Soaps and detergents; Stereochemistry of carbon compounds.

## Section 5: Mathematics (10+2 level)

**General mathematics:** Sets; Relations and Functions; Logarithms; Complex numbers; Linear and Quadratic equations; Sequences and Series; Trigonometry; Cartesian System of Rectangular Coordinates; Straight lines and Family; Three Dimensional Geometry; Permutations and Combinations; Binomial Theorem; Vectors; Matrices and Determinants; Functions; Limits and Continuity; Differentiation; Ordinary Differential Equations; Application of Derivatives; Integration as inverse process of differentiation; Definite and indefinite integrals; Methods of Integration; Integration by parts.

**Probability & Statistics:** Mean, median, mode and standard deviation; Random variables; Poisson, normal and binomial distributions; Correlation and regression analysis.

## Section 6: Physics (10+2 level)

**General physics:** Units and measurements; Motion in one and two dimensions; Laws of motion; Work and kinetic energy; Conservation of energy; System of particles and rotational motion; Mechanical properties of solids and fluids; Thermal properties of matter; Heat and laws of thermodynamics; Kinetic theory of gases; Electric charge and field; Electric potential and capacitance; Current, resistance and simple circuits; Moving charges and magnetic field; Magnetism and matter; Electromagnetic induction; Electromagnetic waves; Alternating currents; Optics: Geometrical Optics – Reflection by spherical mirrors, Refraction at spherical surfaces and lenses, Total internal reflection and Optical instruments; Wave optics – Reflection and refraction of plane waves, Interference, Diffraction, Polarization, and Young's experiment: Dual nature of radiation and matter; Atoms, nuclei and nuclear physics; Semiconductor materials, devices and simple circuits.



## JAM 2027 Chemistry (CY)



### Section 1: Basic Mathematical Concepts (10+2 Level):

Functions; maxima and minima; integrals; ordinary differential equations; vectors and matrices; determinants; elementary statistics.

### Section 2: Physical Chemistry:

**2.1: Atomic and Molecular Structure:** Planck's black body radiation, Photoelectric effect, Bohr's theory, de Broglie postulate, Heisenberg's Uncertainty Principle; Schrödinger's wave equation (including mathematical treatment), postulates of quantum mechanics, normalized and orthogonal wave functions, its complex conjugate (idea of complex numbers) and significance of  $\Psi^2$ ; Operators; Particle in one- dimension box, radial and angular wave functions for hydrogen atom, radial probability distribution; Finding maxima of distribution functions (idea of maxima and minima), energy spectrum of hydrogen atom; Shapes of s, p, d and f orbitals; Pauli's Exclusion Principle; Hund's rule of maximum multiplicity.

**2.2: Gaseous State:** Kinetic molecular model of a gas: collision frequency; collision diameter; mean free path and viscosity of gases; Maxwell-Boltzmann distribution: molecular velocities, law of equipartition of energy, molecular basis of heat capacities; Ideal gases, and deviations from ideal gas behaviour, van der Waals equation of state; critical state, law of corresponding states.

**2.3: Liquid State:** Physical properties of Liquid, vapour pressure, surface tension and co-efficient of viscosity and their applications; effect of concentration of solutes on surface tension and viscosity; effect of temperature on viscosity of liquids.

**2.4: Solid State:** Unit Cells, Miller indices, crystal systems and Bravais Lattices, elementary applications of vectors to crystal systems; X-ray diffraction, Bragg's Law, Structure of NaCl, CsCl, and KCl, diamond, and graphite; Close packing in metals and metal compounds, semiconductors, insulators; Defects in crystals, lattice energy; isomorphism; heat capacity of solids.

**2.5: Chemical Thermodynamics:** Mathematical treatment: Exact and in-exact differentials, partial derivatives, Euler's reciprocity, cyclic rule; Reversible and irreversible processes; Laws of thermodynamics, thermochemistry, thermodynamic functions, such as enthalpy, entropy, and Gibbs free energy, their properties and applications; Partial molar quantities, dependence of thermodynamic parameters on composition, Gibbs Duhem equation, chemical potential and its applications.

**2.6: Chemical and Phase Equilibria:** Law of mass action;  $K_p$ ,  $K_c$ ,  $K_x$  and  $K_n$ ; Effect of temperature on  $K$ ; Le-Chatelier principle; Ionic equilibria in solutions; pH and buffer solutions; Salt hydrolysis; Solubility and solubility product; Acid– base titration curves; Indicators; Dilute solutions; Raoult's and Henry's Laws and their applications; Colligative properties; Gibbs phase rule; Phase equilibria; single and two-component phase diagrams.

**2.7: Electrochemistry:** Conductivity, equivalent and molar conductivity and their properties; Kohlrausch law; DebyeHückel-Onsager equation; Ionic velocities, mobilities, transfer numbers; Applications of conductance measurement; Quantitative aspects of Faraday's laws of electrolysis, applications of electrolysis in metallurgy and industry; Electromotive force of a cell, Nernst equation; Standard electrode potential, Electrochemical series; Concentration cells with and without transference; Applications of EMF measurements including potentiometric titrations.



**2.8: Chemical Kinetics:** Order and molecularity of a reaction, differential and integrated form of rate expressions; Kinetics of opposing, parallel, and consecutive reactions; Steady state approximation in reaction mechanisms; Chain reactions; Uni-molecular reaction (Lindemann mechanism); Temperature dependence of reaction rates, Arrhenius equation; activation energy; Collision theory of reaction rates; Types of catalysts, specificity and selectivity, mechanisms of catalyzed reactions at solid surfaces; Enzyme catalysis (Michaelis-Menten mechanism, Double reciprocal plot), Acid-base catalysis.

**2.9: Adsorption:** Gibbs adsorption equation; adsorption isotherm; types of adsorption; surface area of adsorbents; surface films on liquids.

**2.10: Spectroscopy:** Beer-Lambert's law; fundamental concepts of rotational, vibrational, electronic and magnetic resonance spectroscopy.

## Section 3: Organic Chemistry

**3.1: Basic Concepts in Organic Chemistry and Stereochemistry:** Electronic effects (resonance, inductive, hyperconjugation) and steric effects and its applications (acid/base property); optical isomerism in compounds with and without any stereocenters (allenes, biphenyls); conformation of acyclic systems (substituted ethane/n-propane/n-butane) and cyclic systems, substituted cyclohexanes, and polycyclic (*cis* and *trans* decalins) systems.

**3.2: Organic Reaction Mechanism and Synthetic Applications:** Chemistry of reactive intermediates (carbocations, carbanions, free radicals, carbenes, nitrenes, benzyne); nucleophilic substitution, elimination reactions and mechanisms; Hofmann-Curtius- Lossen rearrangement, Wolff rearrangement, Simmons-Smith reaction, Reimer-Tiemann reaction, Michael reaction, Darzens reaction, Wittig reaction and McMurry reaction; Pinacolpinacolone, Favorskii, benzilic acid rearrangement, Baeyer-Villiger reaction; oxidation and reduction reactions in organic chemistry; Organometallic reagents in organic synthesis (Grignard, organolithium, organocopper and organozinc (Reformatsky only)); Diels-Alder, electrocyclic and sigmatropic reactions; functional group inter-conversions and structural problems using chemical reactions.

**3.3: Qualitative Organic Analysis:** Identification of functional groups by chemical tests; elementary UV, IR and  $^1\text{H}$  NMR spectroscopic techniques as tools for structural elucidation of simple organic molecules.

**3.4: Natural Products Chemistry:** Chemistry of alkaloids, steroids, terpenes, carbohydrates, amino acids, peptides and nucleic acids.

**3.5: Aromatic and Heterocyclic Chemistry:** Monocyclic, bicyclic and tricyclic aromatic hydrocarbons, and monocyclic compounds with one hetero atom: synthesis, reactivity and properties, aromaticity; Electrophilic and nucleophilic aromatic substitution reactions.

## Section 4: Inorganic Chemistry

**4.1: Periodic Table:** Periodic classification of elements, Aufbau's principle, periodicity; Variations of orbital energy, effective nuclear charge, atomic, covalent, and ionic radii, ionization enthalpy, electron gain enthalpy, and electronegativity with atomic number, electronic configuration of diatomic molecules (first and second row elements).

**4.2: Extractions of Metals:** General methods of isolation and purification of elements; Principles and applications of Ellingham diagram.

- A. **4.3: Chemical Bonding and shapes of molecules:** Ionic bond: Packing of ions in crystals, radius ratio rule, Born-Landé equation, Kapustinskii expression, Madelung constant, Born-Haber cycle, solvation energy, polarizing power and polarizability; Fajan's rules; Covalent bond: Lewis

structure, valence bond theory. Hybridization, molecular orbital theory, molecular orbital diagrams of



diatomic and simple polyatomic molecules and ions; Multiple bonding ( $\sigma$  and  $\pi$  bond approach) and bond lengths; van der Waals forces, ion-dipole forces, dipole-dipole interactions, induced dipole interactions, instantaneous dipole- induced dipole interactions, hydrogen bonding; Effect of intermolecular forces on melting and boiling points, solubility energetics of dissolution process; Bond dipole, dipole moment, and molecular polarizabilities; VSEPR theory and shapes of molecules; ionic solids.

**4.4: Main Group Elements (s and p blocks):** Reactions of alkali and alkaline earth metals with oxygen, hydrogen and water; Alkali and alkaline earth metals in liquid ammonia; Gradation in properties of main group element in a group; Inert pair effect; Synthesis, structure and properties of diborane, ammonia, silane, phosphine and hydrogen sulphide; Allotropes of carbon; Oxides of nitrogen, phosphorus and sulphur; Oxoacids of phosphorus, sulphur and chlorine; Halides of silicon and phosphorus; Synthesis and properties of borazine, silicone and phosphazene; Synthesis and reactions of xenon fluorides.

**4.5: Transition Metals (d block):** Characteristics of d-block elements; oxide, hydroxide and salts of first row metals; coordination complexes: structure, isomerism, reaction mechanism and electronic spectra; VB, MO and crystal field theoretical approaches for structure, color and magnetic properties of metal complexes; Organometallic compounds with metal-ligand single and multiple bonds (such as metal carbonyls, metal nitrosyls and metallocenes); Homogenous catalysis involving Wilkinson's catalyst.

**4.6: Bioinorganic Chemistry:** Essentials and trace elements of life; basic reactions in the biological systems and the role of metal ions, especially  $\text{Fe}^{2+}$ , and  $\text{Zn}^{2+}$ ; structure and function of myoglobin, hemoglobin and carbonic anhydrase.

**4.7: Instrumental Methods of Analysis:** Basic principles; instrumentations and simple applications of conductometry, potentiometry and UV-vis spectrophotometry; analyses of water, air and soil samples.

**4.8: Analytical Chemistry:** Principles of qualitative and quantitative analysis; Acidbase, oxidation-reduction and complexometric titrations using EDTA; Precipitation reactions; Use and types of indicators; Use of organic reagents in inorganic analysis; Radioactivity, nuclear reactions, applications of isotopes; Mathematical treatment in error analysis, elementary statistics and probability theory.





## JAM 2027 Economics (EN)



### 1. Mathematics for Economics

**Preliminaries and functions:** Set theory and number systems; monotonicity and inverse functions; elementary functions: quadratic, polynomial, power, exponential, logarithmic; logarithms and elasticities (log-derivative interpretation); functions of several variables; graphs and level curves; convex set; concavity and quasi-concavity of function; convexity and quasi-convexity of functions; sequences and series: convergence, algebraic properties and applications (including geometric series and basic limits of sequences).

**Differential calculus:** Limits, continuity and differentiability; mean value theorems; Taylor's theorem; partial differentiation; gradient; chain rule; second and higher order derivatives: properties and applications; Hessian; implicit function theorem and application to comparative statics problems; homogeneous and homothetic functions: characterisations and applications.

**Integral calculus:** Definite integrals, fundamental theorems, indefinite integrals and applications.

**Differential equations, and difference equations:** First order ordinary equations with applications; steady state/equilibrium and basic stability (including simple phase-diagram intuition where relevant).

**Linear algebra:** Matrix representations and elementary operations; systems of linear equations: properties of their solution; linear independence and dependence; rank; determinants; matrix inverse and conditions for invertibility; eigenvectors and eigenvalues of square matrices (primarily  $2 \times 2$ ); basic diagonalization idea (simple cases); symmetric matrices and quadratic forms; definiteness and semidefiniteness of quadratic forms and interpretation stability.

**Optimization:** Local and global optima: geometric and calculus-based characterisations and applications; multivariate optimization; use of quadratic forms, Hessians in optimization; constrained optimization (equality constraints) and method of Lagrange multiplier; constrained optimization with inequality constraints: Karush-Kuhn–Tucker (KKT) conditions and complementary slackness (basic form and applications); second order conditions of optima; definiteness and optimality; properties of value function: envelope theorem and applications; linear programming: graphical solution, matrix formulation, duality, economic interpretation.

### 2. Statistics for Economics

**Descriptive Statistics:** Different types of Charts and diagrams; Frequency Distribution; Measures of Central Tendency; Measures of Dispersion; Moments, Skewness, Kurtosis; Index Numbers.

**Probability Theory:** Random experiment, events, and sample space; Classical and axiomatic definitions of probability; Theorems of probability; Repeated trials and drawing with and without replacement; Conditional probability, independent events, and Bayes' theorem; Random variable and its probability distribution; Markov's inequality; Chebyshev's inequality; Expectation, variance, and other higher order moments of a random variable; Moment Generating Function; Bernoulli trials; Binomial, Poisson, Hypergeometric, Uniform, and Normal distributions with concepts of probability mass and probability density functions; Chi-square, Student's t-, and F-distributions, with their relation with Normal distribution; Joint distribution of random variables, conditional distributions, and their properties.

**Mathematical Statistics:** Random sampling and its different types; Concept of sampling distribution; Method of Estimation with the concepts of estimator and estimate; Confidence intervals vs. point and interval estimations; Properties of Estimators: Unbiasedness, Efficiency, and Consistency; Law of Large Numbers and Central Limit Theorem.

**Hypothesis Testing:** Concepts of Parameter vs. statistic; Null and Alternative Hypotheses; Concepts of test statistic and its distribution; Concept of p-value; Type I and Type II errors and computation of their probabilities; Size and Power of a test; Comparing two population characteristics on the basis of randomly drawn samples from them.

**Correlation and Regression:** Correlation and types of correlation; Nature of regression analysis; Method of Ordinary Least Squares (OLS) vis-à-vis Method of Moments vis-à-vis Maximum Likelihood estimations; CLRM assumptions, statistical properties of OLS estimators and hypothesis testing; Gauss-Markov Theorem and concept of Best Linear Unbiased Estimator (BLUE); Goodness of fit.

### 3. Microeconomics

**Consumer theory:** Preferences, utility and representation theorem; budget constraint; choice; demand (ordinary and compensated); demand elasticities; Slutsky equation; revealed preference axioms.

**Theory of production and cost:** Production technology; short run and long run; production functions with one and more inputs; isoquants; returns to scale; short run and long run costs; cost curves in the short run and long run.

**Perfect competition and partial equilibrium:** Profit maximization; individual and market supply; market equilibrium; consumer and producer surplus; government intervention in perfectly competitive markets: commodity taxes, subsidies, MSP, price ceilings and floors.

**General equilibrium and welfare:** Equilibrium and efficiency under pure exchange and production; the two theorems of welfare economics.

**Introductory Game theory:** Strategic-form games; dominant and dominated strategies; iterated elimination of dominated strategies; best response; pure and mixed strategy Nash equilibrium; sequential-move games (finite horizon); backward induction; subgame perfect equilibrium.

**Imperfect competition and market structure:** Monopoly; pricing with market power; price discrimination (first, second and third degrees); monopolistic competition; oligopoly models—Cournot, Bertrand and Stackelberg.

**Market failure and government policy:** Externalities (Pigouvian taxes and subsidies); public goods (Samuelson condition, Lindahl pricing); asymmetric information: adverse selection and moral hazard (basic notions).

### 4. Macroeconomics

**National income accounting:** Key concepts and measurement; circular flow of income (closed and open economy); nominal vs real GDP; GDP deflator; GDP and welfare.

**Consumption and saving:** Keynesian consumption (short run and long run); absolute income, permanent income and life-cycle hypotheses; two-period model of consumption.

**Production Function:** Cobb-Douglas Production Function, Total Factor Productivity, Technological Progress, Return to Scale, Cost Functions.

**Labour Demand, Labour Supply, Investment:** Profit Maximization under Perfect Competition, Labour Demand, Capital Demand and Investment, Labour Supply through Consumption-Leisure Framework, Structural, Frictional and Search Unemployment, Unemployment Rate, Aggregate Supply/Lucas Supply Curve.

**Unemployment and Inflation:** CPI/Cost of Living Index, Inflation Rate, Causes and Costs of Inflation, Aggregate Supply/Lucas Supply Curve and Phillips Curve.

**Money Supply and Money Demand:** Definition and roles of money; monetary Base; fiat vs. commodity money, fractional reserve banking, balance Sheet of Central Bank and commercial banks, money supply, deposit creation, money multiplier, monetary policy Tools (open market operations, reserve requirements, discount rate); quantity theory of money, Keynesian liquidity preference theory, Baumol-Tobin Model, Tobin's speculative demand for money; seigniorage; optimal monetary policy (rules vs. discretion).

**Asset Pricing:** Bonds, and Stock Pricing, Gordon Growth Model of Stocks Price, Tobin's  $q$  and Investment, Risk Structure and Term Structure of Interest Rate, Yield Curve.

**Fiscal policy (based on two-period models):** Government budget constraint; revenues, expenditures and deficits; distortionary vs non-distortionary taxes; Laffer curve; Ricardian equivalence.

**Income determination and policy in the short run:** Goods and money market equilibrium; IS–LM; classical vs Keynesian models; aggregate demand; fiscal and monetary multipliers; liquidity trap/zero lower bound; Fisher equation and real interest rate; Taylor rule and principle; simple dynamic AD–AS and stability.

**Long-run growth:** Stylized facts, Kaldor facts; Harrod–Domar model; Solow model with population and technology growth; convergence (conditional/absolute); golden rule; dynamic inefficiency of Solow model; growth accounting and Solow residual; endogenous growth (AK model); poverty trap.

**Open economy macroeconomics:** GNP; Balance of payments (trade balance, current account, financial account); current account in an intertemporal (two-period) framework; nominal and real exchange rates; fixed, flexible and dirty floating exchange rates; interest parity and capital market integration; impossible trinity; purchasing power parity, Big Mac index, PPP-adjusted exchange rate; Mundell–Fleming model.

## 5. Indian Economy

**Introduction and features:** Changing structure of the Indian economy. Changing paradigms of Development Strategies and Economic Reforms.

**Poverty, Inequality, Inflation and Unemployment:** Various concepts and estimates of poverty; Income inequality; Problem of unemployment; Interface between growth, poverty and employment; Inclusive growth and Human Development; Sustainable Development Goals—Targets for Decent Employment, reduction in Poverty, and Inequality. Inflation targeting and use of monetary and fiscal policy.

**Demographic Issues:** Demographic trends, size and structure of population; Health and Education; Skill challenges and demographic dividends; Sustainable Development Goals—Targets for Greater Wellbeing and Better Human Capital.

**Perspectives in Agriculture, Industry and Services:** Agricultural growth performance and food security, Industrial investment and growth, Service sector in India's growth process.

**External Sector and Issues in Indian Public Finance:** Foreign trade and trade policy; Foreign Exchange Reserves and exchange rate, Indian Union Budget and fiscal policy.

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## JAM 2027 Geology (GG)



**The Planet Earth:** Origin of the Solar System and the Earth; Internal structure, composition, and age of the Earth; Pressure-temperature-density variations within the Earth; Principles of radiometric dating (Rb-Sr, Sm-Nd,  $^{14}\text{C}$ ); Volcanism and volcanic landforms; Earthquakes; Earth's magnetism and gravity, Isostasy; Concepts of Plate Tectonics and orogeny.

**Geomorphology:** Weathering, erosion, deposition; Endogenous and exogenous processes of landform development; Soil formation; River and drainage basin/drainage pattern, network characteristics; Fluvial, aeolian, marine, glacial and karst landforms.

**Structural Geology:** Concept of dip, strike, rake and plunge; Contour lines; Rule of 'V's and outcrop patterns; Interpretation of geological maps; Cross-section construction; Classification and origin of folds, faults, joints, unconformities, foliations and lineations; Stereographic and equal-area projections of planes and lines; Quantitative interpretation of structures, outcrops, and bore-hole data.

**Palaeontology:** Major stages in the evolution of life forms; Fossils and their mode of preservation; Application of macrofossils in age determination and pale environmental interpretations; Morphology, major evolutionary trends and ages of important groups of invertebrates – Brachiopoda, Mollusca, Trilobita, Echinodermata; Gondwana plant fossils; Vertebrate fossils (Equidae, Proboscidea) in India.

**Stratigraphy:** Principles of stratigraphy; Litho-, chrono - and bio-stratigraphic classification; Stratigraphic correlation techniques; Archaean cratons of Peninsular India (Dharwar, Singhbhum and Aravalli); Proterozoic mobile belts; Stratigraphy of Cuddapah and Vindhyan basins; Stratigraphy of Paleozoic – Mesozoic of Spiti and Kashmir, Gondwana Supergroup, Jurassic of Kutch, Cretaceous of Trichinopoly, Cenozoic sequences of Assam, Bengal and Siwaliks.

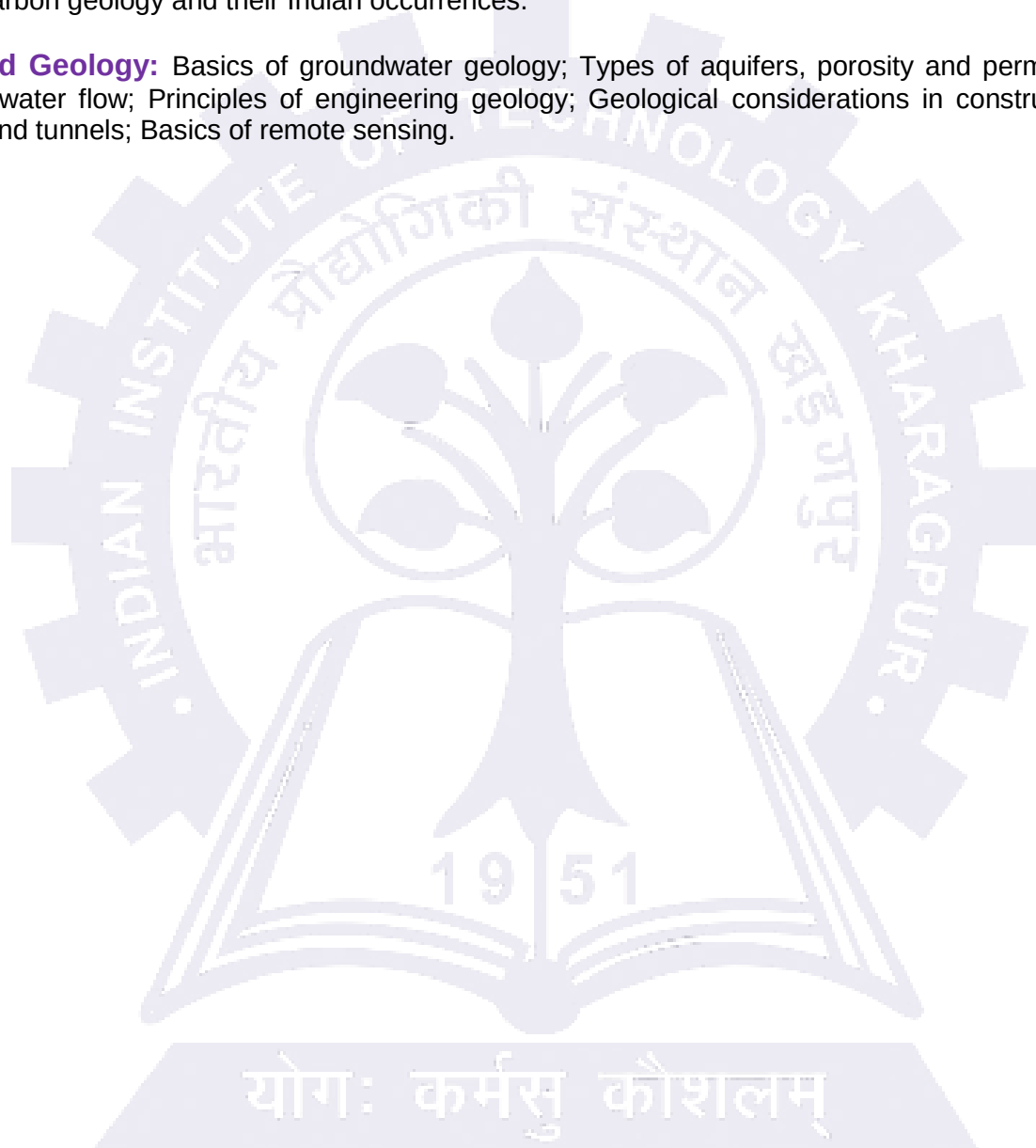
**Mineralogy:** Symmetry and forms in common crystal classes; Miller indices; Twinning and twinning laws; Isomorphism, polymorphism, solid solution and exsolution; Elements of Optical Mineralogy; Classification, structure, chemistry, physical, and optical properties of common rock-forming minerals.

**Petrology:** Igneous rocks – classification and texture; Forms of igneous bodies; Evolution and diversification of magma; Use of binary systems to understand melting and crystallization behaviour of rocks and magmas; Genesis of common igneous rocks and associations.

Sedimentary rocks – classification, texture, and structure; Petrology of sandstone and limestone; Basics of sedimentary environments and facies. Metamorphic rocks – classification and texture; Types of metamorphism; Controls on metamorphism – pressure, temperature and fluids; Concept of projections – ACF, AKF and AFM diagrams; Phase Rule and its applications; Concepts of zones and facies, Characteristic mineral assemblages of pelites in the Barrovian zones and mafic rocks in common facies.

**Economic Geology:** Physical properties of common economic minerals; Processes of formations of ore mineral deposits - magmatic concentration, hydrothermal processes, oxidation and supergene sulphide enrichment, residual and mechanical concentration; Mode of occurrence and distribution of metallic and non-metallic mineral deposits in India; Ore grade and reserve estimation; Coal and hydrocarbon geology and their Indian occurrences.

**Applied Geology:** Basics of groundwater geology; Types of aquifers, porosity and permeability; Groundwater flow; Principles of engineering geology; Geological considerations in construction of dams and tunnels; Basics of remote sensing.





## JAM 2027

### Mathematics (MA)



#### Section 1: Real Analysis

**Sequences and Series of Real Numbers:** Convergence of sequences, bounded and monotone sequences, Cauchy sequences, Bolzano-Weierstrass theorem, absolute convergence, tests of convergence for series— comparison test, ratio test, root test; Power series (of one real variable), radius and interval of convergence, term-wise differentiation and integration of power series.

**Functions of One Real Variable:** Limit, continuity, intermediate value property, differentiation, Rolle's Theorem, mean value theorem, L'Hospital rule, Taylor's theorem, Taylor's series, maxima and minima, Riemann integration (definite integrals and their properties), fundamental theorem of calculus.

#### Section 2: Multivariable Calculus and Differential Equations

**Functions of Two or Three Real Variables:** Limit, continuity, partial derivatives, total derivative, maxima and minima.

**Integral Calculus:** Double and triple integrals, change of order of integration, calculating surface areas and volumes using double integrals, calculating volumes using triple integrals.

**Differential Equations:** Bernoulli's equation, exact differential equations, integrating factors, orthogonal trajectories, homogeneous differential equations, method of separation of variables, linear differential equations of second order with constant coefficients, method of variation of parameters, Cauchy-Euler equation.

#### Section 3: Linear Algebra and Algebra

**Basic algebra:** Permutations and Combinations, Binomial Theorem

**Matrices:** Systems of linear equations, rank, nullity, rank-nullity theorem, inverse, determinant, eigenvalues, eigenvectors.

**Finite Dimensional Vector Spaces:** Linear independence of vectors, basis, dimension, linear transformations, matrix representation, range space, null space, rank-nullity theorem.

**Groups:** cyclic groups, abelian groups, non-abelian groups, permutation groups, normal subgroups, quotient groups, Lagrange's theorem for finite groups, group homomorphisms.



## JAM 2027

### Mathematical Statistics (MS)



The Mathematical Statistics (MS) Test Paper comprises the following topics of Mathematics (Sections 1-3, about 25% weight) and Statistics (Sections 4-12, about 75% weight).

### Mathematics (Sections 1-3)

**Section 1; Sequences and Series of real numbers:** Sequences of real numbers, their convergence, and limits. Cauchy sequences and their convergence. Monotonic sequences and their limits. Limits of standard sequences. Limit superior and limit inferior of sequences. Infinite series and its convergence, and divergence. Convergence of series with non-negative terms. Tests for convergence and divergence of a series. Comparison test, limit comparison test, D'Alembert's ratio test, Cauchy's  $n^{\text{th}}$  root test, Cauchy's condensation test, and integral test. Absolute convergence of series. Leibnitz's test for the convergence of alternating series. Conditional convergence. Convergence of power series and radius of convergence.

### Section 2; Differential Calculus of one and two real variables, and Integral Calculus

**Differential Calculus of one variable:** Limits of functions of one real variable. Continuity and differentiability of functions of one real variable. Properties of continuous and differentiable functions of one real variable. Rolle's theorem and Lagrange's mean value theorems. Higher order derivatives, Leibnitz's rule and its applications. Taylor's theorem with Lagrange's and Cauchy's form of remainders. Taylor's and Maclaurin's series of standard functions. Indeterminate forms and L' Hospital's rule. Maxima and minima of functions of one real variable, critical points, local maxima and minima, global maxima and minima, and point of inflection.

**Differential calculus of two variables:** Limits of functions of two real variables. Continuity and differentiability of functions of two real variables. Properties of continuous and differentiable functions of two real variables. Partial differentiation and total differentiation. Leibnitz's rule for successive differentiation. Maxima and minima of functions of two real variables. critical points, Hessian matrix, and saddle points. Constrained optimization techniques (with Lagrange multiplier).

**Integral Calculus:** Fundamental theorems of integral calculus (single integral). Leibnitz's rule and its applications. Differentiation under integral sign. Improper integrals. Beta and Gamma integrals: properties and relationship between them. Double integrals. Change of order of integration. Transformation of variables. Applications of definite integrals. Arc lengths, areas and volumes.

**Section 3; Matrices and Determinants:**  $\mathbb{R}^n$  and  $\mathbb{C}^n$  as vector spaces over real field. Span of a set. Linear dependence and independence. Dimension and basis. Null space. Algebra of matrices. Standard matrices (Symmetric and Skew Symmetric matrices, Hermitian and Skew Hermitian matrices, Orthogonal and Unitary matrices, Idempotent and Nilpotent matrices). Definition, properties and applications of determinants. Evaluation of determinants using transformations. Determinant of product of matrices. Singular and non-singular matrices, and their properties. Trace of a matrix. Adjoint and inverse of a matrix, and related properties. Rank and nullity of a matrix, row-rank, column-rank, standard theorems on ranks, rank of the sum and the product of two matrices. Row reduction and echelon forms. Consistent and inconsistent systems of linear equations. Properties of solutions of system of linear equations. Use of determinants in solving the system of linear equations. Cramer's rule. Characteristic roots and Characteristic vectors. Properties of characteristic roots and vectors. Cayley- Hamilton theorem. Quadratic forms, positive definite, positive semi-definite, negative definite, and negative semi-definite matrices, and their simple properties.



## Statistics (Sections 4 - 12)

### Section 4; Descriptive Statistics and Probability:

**Descriptive Statistics:** Concepts of sample and population. Different types of data. Tabular and graphical representation of data. Measures of central tendency (arithmetic mean, geometric mean, harmonic mean, median, mode). Measures of dispersion (range, inter quartile range, mean deviation about a point, standard deviation, variance, coefficient of variation). Moments, central moments, skewness and kurtosis. Bivariate data: Scatter diagram, covariance, simple, partial and multiple correlations (3 variables only), Spearman's rank correlation.

**Probability:** Random Experiments. Sample Space and Algebra of Events (Event space). Relative frequency and Axiomatic definitions of probability. Properties of probability function. Addition theorem of probability function (inclusion-exclusion principle). Geometric probability. Boole's and Bonferroni's inequalities. Conditional probability and Multiplication rule. Theorem of total probability and Bayes' theorem. Pairwise and mutual independence of events.

**Section 5; Univariate Distributions:** Definition of random variables. Cumulative distribution function (c.d.f.) of a random variable. Discrete and Continuous random variables. Probability mass function (p.m.f.) and Probability density function (p.d.f.) of a random variable. Distribution (c.d.f., p.m.f., p.d.f.) of a function of a random variable using transformation of variable and Jacobian method. Mathematical expectation and moments. Mean, Median, Mode, Variance, Standard deviation, Coefficient of variation, Quantiles, Quartiles, and measures of Skewness and Kurtosis of a probability distribution. Moment generating function (m.g.f.), its properties and uniqueness. Markov and Chebyshev inequalities, and their applications.

Degenerate, Bernoulli, Binomial, Negative binomial, Geometric, Poisson, Hypergeometric, Uniform, Exponential, Double exponential, Gamma, Beta (of first and second type), Normal and Cauchy distributions, their properties, interrelations, and limiting (approximation) cases.

**Section 6; Multivariate Distributions:** Definition of random vectors. Joint and marginal c.d.f.s of a random vector. Discrete and continuous type random vectors. Joint and marginal p.m.f., joint and marginal p.d.f.. Conditional c.d.f., conditional p.m.f. and conditional p.d.f. Independence of random variables. Distribution of functions of random vectors using transformation of variables and Jacobian method. Mathematical expectation of functions of random vectors. Joint moments, Covariance and Correlation. Joint moment generating function and its properties. Uniqueness of joint m.g.f. and its applications. Conditional moments, conditional expectations and conditional variance. Additive properties of Binomial, Poisson, Negative Binomial, Gamma and Normal Distributions using their m.g.f. Multinomial distribution as a generalization of binomial distribution and its properties (moments, correlation, marginal distributions, additive property). Bivariate normal distribution, its marginal and conditional distributions and related properties.

**Section 7; Limit Theorems:** Convergence in probability, convergence in mean square, almost sure convergence, convergence in distribution, and their inter-relations. Weak law of large numbers, Strong law of large numbers, and Central Limit Theorem (i.i.d. and finite variance case).

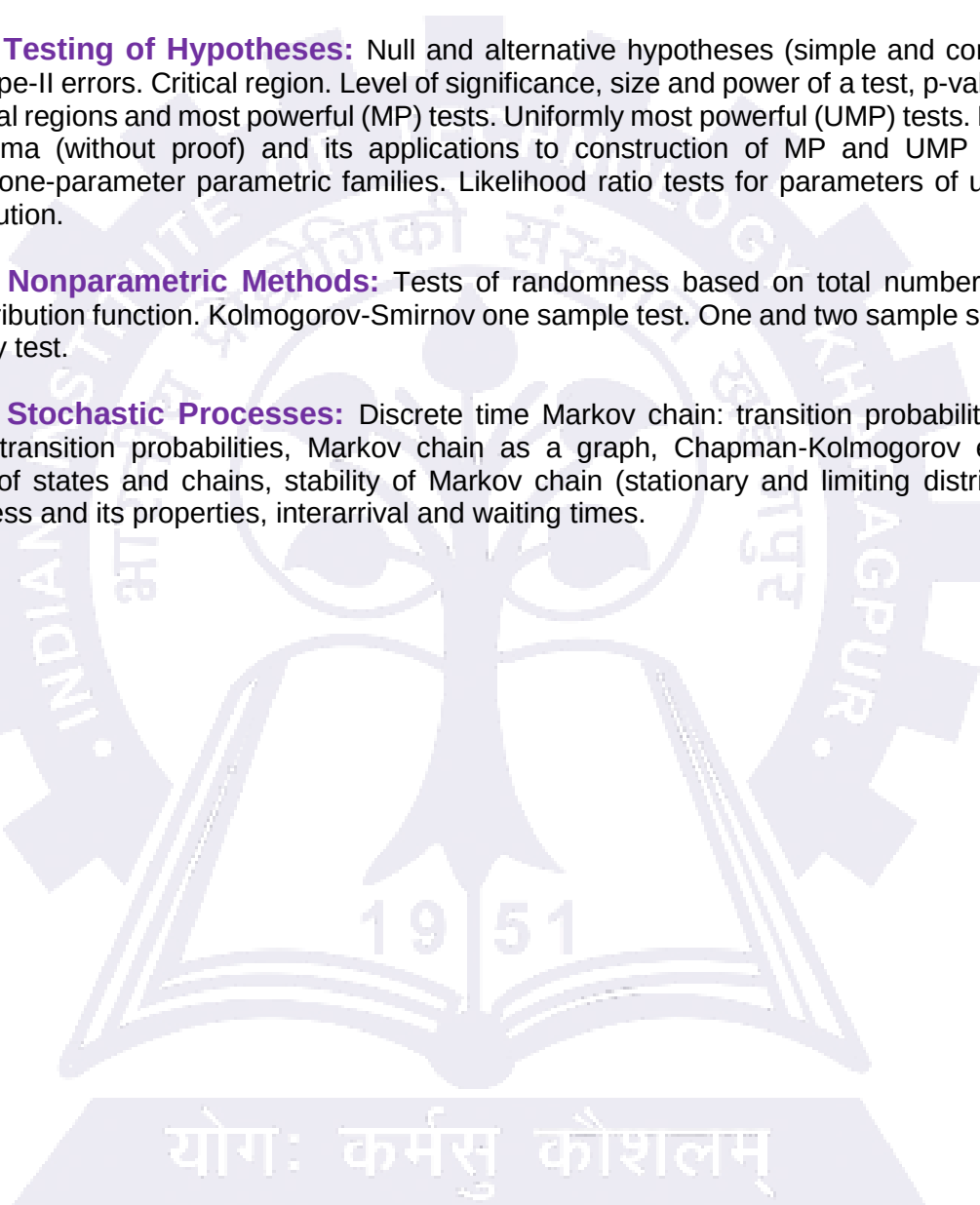
**Section 8; Sampling Distributions:** Definitions of random sample, parameter and statistic. Sampling distribution of a statistic. Order Statistics: Definition and distribution of the  $r^{th}$  order statistic (d.f. and p.d.f. for i.i.d. case for continuous distributions). Distribution (c.d.f., p.m.f., p.d.f.) of smallest and largest order statistics (i.i.d. case for discrete as well as continuous distributions). Central Chi-square distribution ( $\chi^2$ ): Definition and derivation of p.d.f. of central  $\chi^2$  distribution with  $n$  degrees of freedom (d.f.) using m.g.f. Properties of central  $\chi^2$  distribution, additive property and limiting form of central  $\chi^2$  distribution. Central  $t$  - distribution: Definition and derivation of p.d.f. of Central  $t$  -distribution with  $n$  d.f., Properties and limiting form of central  $t$  -distribution. Central  $F$  -distribution: Definition and derivation of p.d.f. of Central  $F$  - distribution with  $(m, n)$  d.f. Properties of Central  $F$  -distribution, distribution of the reciprocal of  $F$  - distribution. Relationship between  $t$ ,  $F$  and  $\chi^2$  distributions.

**Section 9; Estimation:** Unbiasedness. Sufficiency of a statistic. Factorization theorem. Complete statistic. Consistency and relative efficiency of estimators. Uniformly Minimum variance unbiased estimator (UMVUE). Rao-Blackwell and Lehmann-Scheffe theorems and their applications. Cramer-Rao inequality and UMVUEs. **Methods of Estimation:** Method of moments, method of maximum likelihood, invariance of maximum likelihood estimators. Least squares estimation and its applications in simple linear regression models. Confidence intervals and confidence coefficient. Confidence intervals for the parameters of univariate normal, two independent normal, and exponential distributions.

**Section 10; Testing of Hypotheses:** Null and alternative hypotheses (simple and composite), Type-I and Type-II errors. Critical region. Level of significance, size and power of a test, p-value. Most powerful critical regions and most powerful (MP) tests. Uniformly most powerful (UMP) tests. Neyman-Pearson Lemma (without proof) and its applications to construction of MP and UMP tests for parameter of one-parameter parametric families. Likelihood ratio tests for parameters of univariate normal distribution.

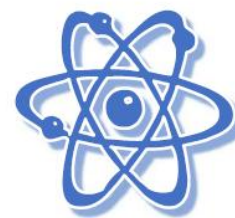
**Section 11; Nonparametric Methods:** Tests of randomness based on total number of runs. Empirical distribution function. Kolmogorov-Smirnov one sample test. One and two sample sign tests. Mann-Whitney test.

**Section 12; Stochastic Processes:** Discrete time Markov chain: transition probability matrix, higher order transition probabilities, Markov chain as a graph, Chapman-Kolmogorov equation, classification of states and chains, stability of Markov chain (stationary and limiting distributions). Poisson process and its properties, interarrival and waiting times.





## JAM 2027 Physics (PH)



### Section 1: Mathematical Methods

Calculus of single and multiple variables, Partial derivatives, Jacobian, imperfect and perfect differentials, Taylor expansion, Fourier series, Vector algebra, Vector Calculus, Multiple integrals, Divergence theorem, Green's theorem, Stokes' theorem. First order equations and linear second-order differential equations with constant coefficients. Matrices and determinants, Complex numbers, Error analysis of Experimental Data: Significant digits and rounding of numbers, Types of errors, mean, median, standard deviation

### Section 2: Mechanics and General Properties of Matter

Newton's laws of motion and applications, Velocity and acceleration in Cartesian, polar and cylindrical coordinate systems, uniformly rotating frame, centrifugal and Coriolis forces, Motion under a central force, Kepler's laws, Gravitational Law and field, Conservative and nonconservative forces. System of particles, Center of mass, equation of motion of the CM, conservation of linear and angular momentum, conservation of energy, variable mass systems. Elastic and inelastic collisions. Rigid body motion, fixed axis rotations, rotation and translation, moments of Inertia and products of Inertia, parallel and perpendicular axes theorem, Principal moments and axes. Kinematics of moving fluids, equation of continuity, Euler's equation, Bernoulli's theorem.

### Section 3: Oscillations, Waves and Optics

Differential equation for simple harmonic oscillator and its general solution. Superposition of two or more simple harmonic oscillators. Lissajous figures. Damped and forced oscillations, resonance. Wave equation, traveling and standing waves in one dimension. Energy density and energy transmission in waves. Group velocity and phase velocity. Sound waves in media. Doppler Effect. Fermat's Principle. General theory of image formation. Interference of light, optical path retardation. Fraunhofer diffraction. Rayleigh criterion and resolving power. Diffraction gratings. Polarization: linear, circular and elliptic polarization. Double refraction and optical rotation.

### Section 4: Electricity and Magnetism

Coulomb's law, Electric field and potential, Gauss's law, Electrostatic boundary conditions, Solution of Laplace's equation for simple cases – upto two dimensions

Conductors, capacitors, Linear dielectrics, dielectric polarization, volume and surface bound charges, electrostatic energy. Biot-Savart law, Ampere's law, Faraday's law of electromagnetic induction, Self and mutual inductance. Alternating currents. Simple DC and AC circuits with R, L and C components. Displacement current, Maxwell's equations and plane electromagnetic waves, Poynting vector, Poynting's theorem, Energy of Electromagnetic fields. Reflection and refraction at a dielectric interface, transmission and reflection coefficients (normal incidence only). Lorentz Force and motion of charged particles in electric and magnetic fields.

## Section 5: Kinetic Theory, Thermodynamics

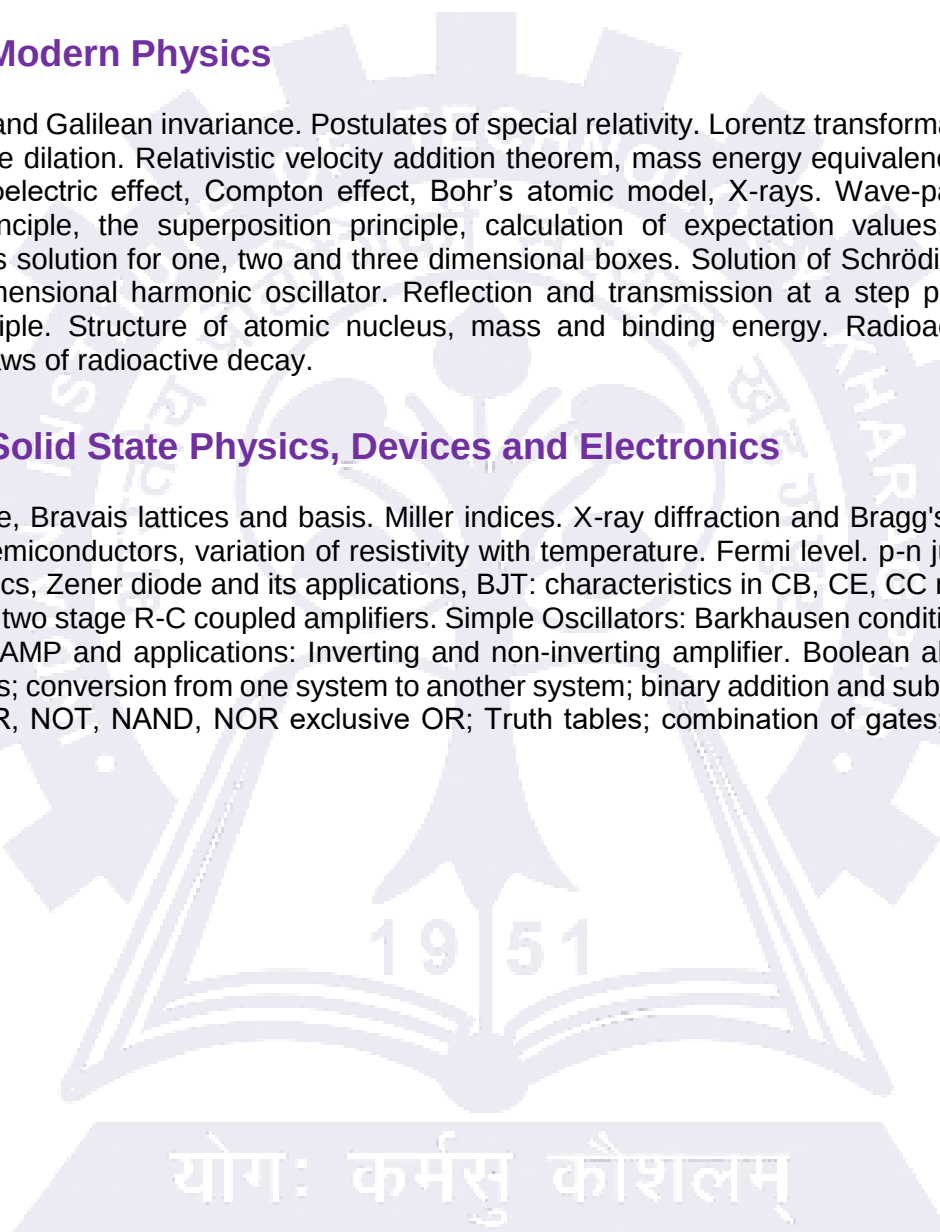
Elements of Kinetic theory of gases. Velocity distribution and Equipartition of energy. Specific heat of Mono-, di- and tri-atomic gases. Ideal gas, van-der-Waals gas and equation of state. Mean free path. Laws of thermodynamics. Zeroth law and concept of thermal equilibrium. First law and its consequences. Isothermal and adiabatic processes. Reversible, irreversible and quasi-static processes. Second law and entropy. Carnot cycle. Maxwell's thermodynamic relations and simple applications. Thermodynamic potentials and their applications. Phase transitions and Clausius-Clapeyron equation. Ideas of ensembles, Maxwell-Boltzmann, Fermi-Dirac and Bose-Einstein distributions.

## Section 6: Modern Physics

Inertial frames and Galilean invariance. Postulates of special relativity. Lorentz transformations. Length contraction, time dilation. Relativistic velocity addition theorem, mass energy equivalence. Blackbody radiation, photoelectric effect, Compton effect, Bohr's atomic model, X-rays. Wave-particle duality, Uncertainty principle, the superposition principle, calculation of expectation values, Schrödinger equation and its solution for one, two and three dimensional boxes. Solution of Schrödinger equation for the one dimensional harmonic oscillator. Reflection and transmission at a step potential, Pauli exclusion principle. Structure of atomic nucleus, mass and binding energy. Radioactivity and its applications. Laws of radioactive decay.

## Section 7: Solid State Physics, Devices and Electronics

Crystal structure, Bravais lattices and basis. Miller indices. X-ray diffraction and Bragg's law; Intrinsic and extrinsic semiconductors, variation of resistivity with temperature. Fermi level. p-n junction diode, I-V characteristics, Zener diode and its applications, BJT: characteristics in CB, CE, CC modes. Single stage amplifier, two stage R-C coupled amplifiers. Simple Oscillators: Barkhausen condition, sinusoidal oscillators. OP-AMP and applications: Inverting and non-inverting amplifier. Boolean algebra: Binary number systems; conversion from one system to another system; binary addition and subtraction. Logic Gates AND, OR, NOT, NAND, NOR exclusive OR; Truth tables; combination of gates; de Morgan's theorem.



B

## **ANNEXURE II**

### **MEQS AND SEAT MATRIX\***

\* MEQs and Seat Matrix are subject to change as per decision of Admitting Institutes.

**B. Annexure II**  
**MEQs and Seat Matrix\***

## BIOTECHNOLOGY (BT)

| Institute   | Program (Code)                                                          | Essential subjects in Bachelor's Degree along with minimum duration                                                                                                                                                         | Seats |      |         |      |    | Total |
|-------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------|---------|------|----|-------|
|             |                                                                         |                                                                                                                                                                                                                             | GEN   | EWS  | OBC-NCL | SC   | ST |       |
| IIT Bombay  | M.Sc. in Biotechnology (1204) @                                         | Any Branch/Subject.                                                                                                                                                                                                         | 13+1* | 4    | 9       | 4+1* | 3  | 35    |
| IIT Bombay  | M.Sc. - PhD Dual Degree in Environmental Science and Engineering (1213) | Any one of Biology, Biotechnology, Chemistry, Mathematics and Physics for two years/- four semesters, and any one of the other four subjects for at least one year/two semesters and Mathematics for at least one semester. | 1     | 1    | 1       | 1    | 0  | 4     |
| IIT Delhi   | M.Sc. in Biological Sciences (1305)                                     | A Three or Four year Bachelor's degree in any branch of STEM.                                                                                                                                                               | 4+1*  | 1    | 2       | 2    | 1  | 11    |
| IIT Dharwad | M.Sc. in Molecular Medicine (3304)                                      | A 3 or 4 years Bachelor's degree in any branch of STEM.                                                                                                                                                                     | 6     | 2    | 4       | 2    | 1  | 15**  |
| IIT Indore  | M.Sc. in Biotechnology (2204)                                           | Any Branch/Subject.                                                                                                                                                                                                         | 5+1*  | 1    | 4       | 2    | 2  | 15    |
| IIT Roorkee | M.Sc. in Bioscience and Bioengineering (1806)                           | Bachelor's Degree in any Branch/Subject.                                                                                                                                                                                    | 14    | 3+1* | 9       | 4+1* | 3  | 35    |

\* Indicates seats reserved for PwD Candidates (Person with Benchmark Disability).

@ The department may revise (a) the curriculum, (b) modes of assessment, and (c) duration of the academic program by taking into consideration the nature and extent of disability of each PwD student. The Department will seek approval of each such revision by the Senate of the Institute. The Department, and thereby the Institute, reserves the right to implement such duly approved revisions, along with Reasonable Adjustments, specific to each PwD student. PwD - Person with Benchmark Disability.



**B. Annexure II**  
**MEQs and Seat Matrix\***

## CHEMISTRY (CY)

| Institute         | Program (Code)                                                          | Essential subjects in Bachelor's Degree along with minimum duration                                                                                                                                                       | Seats |      |         |      |      | Total |
|-------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------|---------|------|------|-------|
|                   |                                                                         |                                                                                                                                                                                                                           | GEN   | EWS  | OBC-NCL | SC   | ST   |       |
| IIT Bhilai        | M.Sc. in Chemistry (2801)                                               | Chemistry for three years/six semesters.                                                                                                                                                                                  | 9+1*  | 3    | 6       | 3+1* | 2    | 25    |
| IIT Bhubaneswar   | Joint M.Sc.- Ph.D. in Chemistry (1901)                                  | Chemistry for three years/six semesters and at least two Mathematics subjects.                                                                                                                                            | 10    | 2    | 6+1*    | 4    | 2    | 25    |
| IIT Bombay        | M.Sc. in Chemistry (1205)                                               | Chemistry for three years/six semesters and Mathematics for one year/two semesters.                                                                                                                                       | 21+2* | 6    | 15      | 8+1* | 4    | 57    |
| IIT Bombay        | M.Sc.-Ph.D. Dual Degree in Energy Science and Engineering (1212)        | B.Sc. or equivalent of minimum three years duration, with any one of Chemistry, Mathematics and Physics for two years/four semesters and any one of the remaining two subjects for at least one year/two semesters.       | 4     | 1    | 2       | 1    | 1    | 9     |
| IIT Bombay        | M.Sc.-Ph.D. Dual Degree in Environmental Science and Engineering (1213) | Any one of Biology, Biotechnology, Chemistry, Mathematics and Physics for two years/four semesters, and any one of the other four subjects for at least one year/two semesters and Mathematics for at least one semester. | 2     | 0    | 1       | 1    | 1    | 5     |
| IIT Delhi         | M.Sc. in Chemistry (1301)                                               | Chemistry for three years/six semesters.                                                                                                                                                                                  | 27+1* | 7    | 17+1*   | 9    | 5+1* | 68    |
| IIT Delhi         | M.Sc. in Biological Sciences (1305)                                     | A Three or Four year Bachelor's degree in any branch of STEM.                                                                                                                                                             | 3     | 1    | 3       | 1    | 1    | 9     |
| IIT (ISM) Dhanbad | M.Sc. in Chemistry (2601)                                               | Chemistry for three years/six semesters.                                                                                                                                                                                  | 26+1* | 6    | 17+1*   | 10   | 5    | 66    |
| IIT Dharwad       | M.Sc. in Chemistry (3301)                                               | Bachelor's Degree in any of Science or Engineering                                                                                                                                                                        | 6     | 2    | 4       | 2    | 1    | 15    |
| IIT Gandhinagar   | M.Sc. in Chemistry (2001)                                               | No Restrictions.                                                                                                                                                                                                          | 17+1* | 5    | 11+1*   | 6+1* | 3    | 45    |
| IIT Guwahati      | M.Sc. in Chemistry (1401)                                               | Chemistry for three years/six semesters. Mathematics as an essential subject till the (10+2) level                                                                                                                        | 24+1* | 5+1* | 16      | 8+1* | 4    | 60    |
| IIT Hyderabad     | M.Sc. in Chemistry (2101)                                               | Bachelor's degree with Chemistry for three years/six semesters and Mathematics for at least one year/two semesters.                                                                                                       | 12    | 2+1* | 7+1*    | 5    | 2    | 30    |
| IIT Indore        | M.Sc. in Chemistry (2201)                                               | Chemistry for three years/six semesters.                                                                                                                                                                                  | 12    | 3    | 8       | 4+1* | 2+1* | 30    |

| Institute          | Program (Code)                                                            | Essential subjects in Bachelor's Degree along with minimum duration                                                                                                                                                                                                                                                                                                  | Seats |      |         |      |      | Total |
|--------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------|---------|------|------|-------|
|                    |                                                                           |                                                                                                                                                                                                                                                                                                                                                                      | GEN   | EWS  | OBC-NCL | SC   | ST   |       |
| IIT Jammu          | M.Sc. in Chemistry (3201)                                                 | Chemistry for three years/six semesters.                                                                                                                                                                                                                                                                                                                             | 8     | 2    | 6       | 2+1* | 1    | 20    |
| IIT Jodhpur        | M.Sc. in Chemistry (2401)                                                 | Chemistry for three years/six semesters. Mathematics in at least one semester of B.Sc.                                                                                                                                                                                                                                                                               | 16    | 3+1* | 10+1*   | 6    | 3    | 40    |
| IIT Kanpur         | M.Sc. in Chemistry (1501)                                                 | Bachelors' degree (B.Sc./ B.S./ B.Sc. (Hons.)) with Chemistry for three years/six semesters.                                                                                                                                                                                                                                                                         | 19+1* | 5    | 12+1*   | 6+1* | 4    | 49    |
| IIT Kanpur         | M.Sc.- PhD Dual Degree in Chemistry (1507)                                | Bachelor's Degree (B.Sc./ B.S./B.Sc. (Hons.)) with Chemistry for three years/six semesters.                                                                                                                                                                                                                                                                          | 7+1*  | 2    | 5       | 3    | 2    | 20    |
| IIT Kanpur         | Integrated Ph.D. in Sustainable Energy Engineering (1508)                 | B.Sc./B.S. or equivalent degree with minimum of 60% marks and of minimum three years duration with Physics or Chemistry for at least two years/four semesters and Mathematics for at least one year/ two semesters.                                                                                                                                                  | 2     | 1    | 1       | 1    | 0    | 5     |
| IIT Kharagpur      | Joint M.Sc.- Ph.D. in Chemistry (1601)                                    | B.Sc./B.S. degree with at least six Chemistry subjects for six semesters / three years.                                                                                                                                                                                                                                                                              | 22+1* | 6    | 14+1*   | 8+1* | 4    | 57    |
| IIT Kharagpur      | Joint M.Sc.- Ph.D. in Nuclear Medicine (1607)                             | Bachelor of Science in Physics or Bachelor of Science in Chemistry (with Physics as elective/additional subjects), Bachelor of Science in Nuclear Medicine Technology from recognized university with minimum of 60% marks in Bachelor degree. B.Sc./BS degree with Chemistry as one of the subjects along with Mathematics/Physics/ Biology as additional subjects. | 4     | 1    | 3       | 1    | 1    | 10    |
| IIT Madras         | M.Sc. in Chemistry (1701)                                                 | B.Sc./B.S. degree with Chemistry for at least six semesters/three years, along with mathematics for two semesters/one year.                                                                                                                                                                                                                                          | 25+2* | 6+1* | 17+1*   | 9+1* | 5    | 67    |
| IIT Mandi          | M.Sc. in Chemistry (3101)                                                 | Chemistry for three years/six semesters.                                                                                                                                                                                                                                                                                                                             | 11+1* | 3    | 8       | 4    | 2+1* | 30    |
| IIT Palakkad       | M.Sc. in Chemistry (2901)                                                 | Bachelor's degree in Chemistry.                                                                                                                                                                                                                                                                                                                                      | 8     | 2    | 6       | 2+1* | 2    | 21    |
| IIT Patna          | M.Sc. in Chemistry (2501)                                                 | Chemistry for three years/six semesters.                                                                                                                                                                                                                                                                                                                             | 10+1* | 3    | 5+1*    | 3    | 2    | 25    |
| IIT Patna          | Integrated M.Sc.- PhD Dual Degree in Chemistry (2504) (10-12 semesters) # | Chemistry for three years /six semesters.                                                                                                                                                                                                                                                                                                                            | 2     | 0    | 2       | 1    | 0    | 5     |
| IIT Roorkee        | M.Sc. in Chemistry (1802)                                                 | Chemistry for three years/six semesters. No restrictions for engineering degrees.                                                                                                                                                                                                                                                                                    | 18    | 3+1* | 12      | 6+1* | 3    | 44    |
| IIT Roorkee        | M.Sc. in Polymer Science (1807)                                           | Bachelor's degree (Science) in a relevant field (e.g., Chemistry, Polymer Science, Chemical Engineering, or Material Science)                                                                                                                                                                                                                                        | 6     | 1+1* | 4       | 2    | 1    | 15    |
| IIT Ropar          | M.Sc. in Chemistry (2302)                                                 | Chemistry for three years/six semesters.                                                                                                                                                                                                                                                                                                                             | 10    | 3    | 7       | 3    | 1+1* | 25    |
| IIT Tirupati       | M.Sc. in Chemistry (3002)                                                 | Chemistry for three years/six semesters.                                                                                                                                                                                                                                                                                                                             | 10+1* | 2    | 6       | 4    | 2    | 25    |
| IIT (BHU) Varanasi | M.Sc. in Chemistry (2701)                                                 | B.Sc./B.E. or an equivalent degree in Chemistry for three years/six semesters and mathematics in Class-12                                                                                                                                                                                                                                                            | 9+1*  | 2    | 6+1*    | 4    | 2    | 25    |

\* Indicates seats reserved for PwD Candidates (Person with Benchmark Disability).

\*\* 5% reservation for PwD will be made as per rules across various categories.



**B. Annexure II**  
**MEQs and Seat Matrix\***

## ECONOMICS (EN)

| Institute   | Program (Code)            | Essential subjects in Bachelor's Degree along with minimum duration                                                                                                      | Seats |     |         |    |    | Total |
|-------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|---------|----|----|-------|
|             |                           |                                                                                                                                                                          | GEN   | EWS | OBC-NCL | SC | ST |       |
| IIT Delhi   | M.Sc. in Economics (1304) | B.A./B.Sc./B.Com./B.Stat. / B.Math./B.Tech/B.E. or equivalent with minimum of three years of education after completing higher secondary schooling (10+2) or equivalent. | 5+1*  | 2   | 4       | 2  | 1  | 15    |
| IIT Kanpur  | M.Sc. in Economics (1506) | A Bachelors' Degree with a minimum of three years of education after completing higher secondary schooling (10+2) or equivalent.                                         | 9+1*  | 2   | 7       | 3  | 2  | 24    |
| IIT Roorkee | M.Sc. in Economics (1803) | B.Sc. (Economics)/B.A. (Economics)/B.Sc. (Statistics)/BCA and B.Sc./B.A./B.Com. with Mathematics as one of the subjects. No restrictions for engineering degrees.        | 5     | 2   | 4       | 1  | 1  | 13    |

**B. Annexure II**  
**MEQs and Seat Matrix\***

## GEOLOGY (GG)

| Institute         | Program (Code)                                             | Essential subjects in Bachelor's Degree along with minimum duration                                                                                                                                                                                                                                                                                                                                                                                                                            | Seats |     |         |    |      | Total |
|-------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|---------|----|------|-------|
|                   |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | GEN   | EWS | OBC-NCL | SC | ST   |       |
| IIT Bhubaneswar   | Joint M.Sc.- Ph.D. in Atmosphere and Ocean Sciences (1905) | Bachelor of Sciences degree in any discipline.                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5     | 1   | 3       | 2  | 1    | 12    |
| IIT Bhubaneswar   | Joint M.Sc.- Ph.D. in Geology (1904)                       | Bachelor's degree from a recognized university with Geology/Earth Sciences as a Major/honours/Core discipline (or equivalent)                                                                                                                                                                                                                                                                                                                                                                  | 9+1*  | 2   | 7       | 4  | 1+1* | 25    |
| IIT Bombay        | M.Sc. in Applied Geology (1201)                            | Geology for three years/six semesters and any two subjects among Mathematics, Physics, Chemistry and Biological Science for one year/two semesters.                                                                                                                                                                                                                                                                                                                                            | 15    | 4   | 9+1*    | 6  | 3    | 38    |
| IIT (ISM) Dhanbad | M.Sc.(Tech.) in Applied Geology (2604)                     | BS (4 years)/B.Sc. degree (03 years) with Geology as a subject for four years/eight semesters or three years/six semesters and any two subject among Mathematics, Physics, Chemistry, Computer Science, Environment Science/Environmental Study, Biology, Statistics.<br>a) PH Candidates with color blindness and/or Uni-ocularity are not eligible.<br>b) PwD candidates should be able to walk in the field without assistance/escort (on-road and/or off-road conditions) to do fieldwork. | 26+1* | 6   | 17+1*   | 10 | 5    | 66    |
| IIT Kharagpur     | Joint M.Sc.- Ph.D. in Geology (1602)                       | B.Sc./B.S. degree including Geology subjects for 6 semesters / 3 years, and any one of the following combinations.<br>2 Physics subjects + 2 Mathematics subjects.<br>2 Physics subjects + 2 Chemistry subjects.<br>2 Chemistry subjects + 2 Mathematics subjects.                                                                                                                                                                                                                             | 14+1* | 4   | 9+1*    | 6  | 3    | 38    |

|               |                                         |                                                                                                                                                                                                                                                                                         |   |      |   |   |      |    |
|---------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|------|---|---|------|----|
| IIT Kharagpur | Joint M.Sc.- Ph.D. in Geophysics (1605) | B.Sc. degree together with either of the following, with minimum number of subjects in respective domains.<br>Geology subjects for 6 semesters or 3 years, and 2 Physics subjects + 2 Mathematics subjects.<br>Physics subjects for 6 semesters or 3 years, and 2 Mathematics subjects. | 6 | 2    | 4 | 2 | 0+1* | 15 |
| IIT Roorkee   | M.Sc. in Applied Geology (1801)         | Geology for three years/six semesters and any two subjects among Mathematics, Physics, Chemistry and Biological Science. No restrictions for engineering degrees.                                                                                                                       | 8 | 1+1* | 5 | 3 | 1    | 19 |

**B. Annexure II**  
**MEQs and Seat Matrix\***

## MATHEMATICS(MA)

| Institute       | Program (Code)                                                         | Essential subjects in Bachelor's Degree along with minimum duration                                                                                                                                                       | Seats |     |         |       |    | Total |
|-----------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|---------|-------|----|-------|
|                 |                                                                        |                                                                                                                                                                                                                           | GEN   | EWS | OBC-NCL | SC    | ST |       |
| IIT Bhilai      | M.Sc. in Mathematics & Computing (2802)                                | Mathematics for at least two years/four semesters.                                                                                                                                                                        | 10    | 2   | 6+1*    | 4     | 2  | 25    |
| IIT Bhubaneswar | Joint M.Sc.- Ph.D. in Mathematics (1902)                               | Mathematics/ Statistics as a subject for at least two years/- four semesters.                                                                                                                                             | 9+1*  | 3   | 6       | 3     | 2  | 24    |
| IIT Bhubaneswar | Joint M.Sc.- Ph.D. in Atmosphere and Ocean Sciences (1905)             | Bachelor's degree in any discipline                                                                                                                                                                                       | 2     | 0   | 1       | 1     | 0  | 4     |
| IIT Bombay      | M.Sc. in Mathematics (1206)                                            | No Restrictions.                                                                                                                                                                                                          | 14+1* | 4   | 9+1*    | 6     | 3  | 38    |
| IIT Bombay      | M.Sc.-Ph.D Dual Degree in Energy Science and Engineering (1212)        | B.Sc. or equivalent of minimum three years duration, with any one of Chemistry, Mathematics and Physics for two years/four semesters and any one of the remaining two subjects for at least one year/two semesters.       | 1     | 0   | 2       | 1     | 0  | 4     |
| IIT Bombay      | M.Sc.-Ph.D.Dual Degree in Environmental Science and Engineering (1213) | Any one of Biology, Biotechnology, Chemistry, Mathematics and Physics for two years/four semesters, and any one of the other four subjects for at least one year/two semesters and Mathematics for at least one semester. | 1*    | 0   | 0       | 0     | 0  | 1     |
| IIT Bombay      | M.Sc. in Operations Research (1214)                                    | No Restrictions.                                                                                                                                                                                                          | 3     | 1   | 2       | 1     | 0  | 7     |
| IIT Delhi       | M.Sc. in Mathematics (1302)                                            | B.Sc./B.S. degrees, Mathematics for at least two years/four semesters. No restrictions for engineering degrees.                                                                                                           | 27+1* | 7   | 17+1*   | 10+1* | 4  | 68    |

## B. Annexure II

### MEQs and Seat Matrix\*

| Institute         | Program (Code)                                        | Essential subjects in Bachelor's Degree along with minimum duration                                                                      | Seats |      |         |      |      | Total |
|-------------------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------|------|---------|------|------|-------|
|                   |                                                       |                                                                                                                                          | GEN   | EWS  | OBC-NCL | SC   | ST   |       |
| IIT (ISM) Dhanbad | M.Sc. in Mathematics & Computing (2602)               | Mathematics for at least two years/four semesters.                                                                                       | 21+1* | 6    | 15      | 7+1* | 4    | 55    |
| IIT Dharwad       | M.Sc. in Mathematics (3302)                           | Mathematics for at least two years/four semesters in B.Sc./BS degree. B.Tech./BE degree in any branch of engineering will be considered. | 6     | 2    | 4       | 2    | 1    | 15**  |
| IIT Gandhinagar   | M.Sc. in Mathematics (2002)                           | No Restrictions.                                                                                                                         | 17+1* | 5    | 12      | 6    | 3+1* | 45    |
| IIT Goa           | M.Sc. in Mathematics (3401)                           | Mathematics for at least two years/four semesters.                                                                                       | 5     | 0    | 1       | 0    | 0    | 6     |
| IIT Guwahati      | M.Sc. in Mathematics & Computing (1402)               | Mathematics for at least two years/four semesters.                                                                                       | 12    | 2+1* | 8       | 4+1* | 2    | 30    |
| IIT Guwahati      | M.Sc. in Mathematics (1404)                           | Mathematics for at least two years/four semesters.                                                                                       | 11+1* | 3    | 7+1*    | 5    | 2    | 30    |
| IIT Hyderabad     | M.Sc. in Mathematics / Mathematics & Computing (2102) | Mathematics for at least two years/four semesters. No restrictions for engineering degrees.                                              | 8     | 2    | 5       | 2+1* | 2    | 20    |
| IIT Indore        | M.Sc. in Mathematics (2203)                           | Mathematics for at least two years/four semesters.                                                                                       | 9     | 2    | 5+1*    | 2    | 1    | 20    |
| IIT Jodhpur       | M.Sc. in Mathematics (2402)                           | Mathematics for at least two years/four semesters.                                                                                       | 15+1* | 5    | 9+1*    | 6    | 3    | 40    |
| IIT Kanpur        | M.Sc. in Mathematics (1502)                           | No Restrictions.                                                                                                                         | 19+1* | 5    | 12+1*   | 6+1* | 4    | 49    |
| IIT Kharagpur     | Joint M.Sc.- Ph.D. in Mathematics (1603)              | Mathematics/Statistics subjects for six semesters / three years.                                                                         | 15    | 4    | 9+1*    | 5+1* | 3    | 38    |
| IIT Madras        | M.Sc. in Mathematics (1702)                           | Mathematics for at least two years/four semesters.                                                                                       | 19+1* | 5    | 13      | 7    | 3+1* | 49    |
| IIT Mandi         | M.Sc. in Applied Mathematics (3102)                   | Mathematics for at least two years/four semesters.                                                                                       | 11+1* | 3    | 8       | 4+1* | 2    | 30    |

**B. Annexure II**  
**MEQs and Seat Matrix\***

| Institute    | Program (Code)                                                             | Essential subjects in Bachelor's Degree along with minimum duration                                                                                               | Seats |     |         |      |      | Total |
|--------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|---------|------|------|-------|
|              |                                                                            |                                                                                                                                                                   | GEN   | EWS | OBC-NCL | SC   | ST   |       |
| IIT Palakkad | M.Sc. in Mathematics (2902)                                                | Bachelor's degree (with at least 3 Mathematics courses as a part of the Bachelor's degree program)                                                                | 9     | 2   | 5       | 3    | 1+1* | 21    |
| IIT Patna    | M.Sc. in Mathematics (2502)                                                | Mathematics for at least two years/four semesters.                                                                                                                | 10+1* | 2   | 7       | 4    | 1    | 25    |
| IIT Patna    | Integrated M.Sc.-PhD Dual Degree in Mathematics (2505) (10-12 semesters) # | Mathematics for at least two years / four semesters.                                                                                                              | 2     | 1   | 1       | 0    | 1    | 5     |
| IIT Roorkee  | M.Sc. in Economics (1803)                                                  | B.Sc. (Economics)/B.A. (Economics)/B.Sc. (Statistics)/BCA and B.Sc./B.A./B.Com. with Mathematics as one of the subjects. No restrictions for engineering degrees. | 4     | 1   | 2+1*    | 2    | 1    | 11    |
| IIT Roorkee  | M.Sc. in Mathematics (1804)                                                | Mathematics for at least two years/four semesters. No restrictions for engineering degrees.                                                                       | 15+1* | 4   | 10+1*   | 6    | 3    | 40    |
| IIT Ropar    | M.Sc. in Mathematics (2301)                                                | Mathematics for at least two years/four semesters.                                                                                                                | 10    | 3   | 6       | 3+1* | 2    | 25    |
| IIT Tirupati | M.Sc. in Mathematics & Statistics (3001)                                   | No Restrictions.                                                                                                                                                  | 5     | 2   | 4       | 3    | 1    | 15    |
| IIT Tirupati | M.Sc. in Mathematics (3004)                                                | Bachelor's degree with at least three (3) mathematics courses.                                                                                                    | 4     | 1   | 4       | 1    | 0    | 10    |

# For migration to PhD with fellowship after 4 semesters of M.Sc., CPI  $\geq 8.0$  is to be fulfilled. PhD regulation will become applicable on change of status.

## B. Annexure II

## MEQs and Seat Matrix\*

## MATHEMATICAL STATISTICS (MS)

| Institute    | Program (Code)                           | Essential subjects in Bachelor's Degree along with minimum duration                                                                                               | Seats |     |         |      |    | Total |
|--------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|---------|------|----|-------|
|              |                                          |                                                                                                                                                                   | GEN   | EWS | OBC-NCL | SC   | ST |       |
| IIT Bombay   | M.Sc. in Statistics (1203)               | No Restrictions.                                                                                                                                                  | 18+1* | 5   | 12+1*   | 7    | 4  | 48    |
| IIT Bombay   | M.Sc. in Operations Research (1214)      | No Restrictions.                                                                                                                                                  | 3     | 1   | 2       | 1*   | 1  | 8     |
| IIT Kanpur   | M.Sc. in Statistics (1504)               | No Restrictions.                                                                                                                                                  | 24+1* | 6   | 16+1*   | 8+1* | 5  | 62    |
| IIT Kanpur   | M.Sc. in Economics (1506)                | A Bachelors' Degree with a minimum of three years of education after completing higher secondary schooling (10+2) or equivalent.                                  | 6     | 2   | 3+1*    | 3    | 1  | 16    |
| IIT Roorkee  | M.Sc. in Economics (1803)                | B.Sc. (Economics)/B.A. (Economics)/B.Sc. (Statistics)/BCA and B.Sc./B.A./B.Com. with Mathematics as one of the subjects. No restrictions for engineering degrees. | 2     | 0   | 1       | 1    | 0  | 4     |
| IIT Tirupati | M.Sc. in Mathematics & Statistics (3001) | No Restrictions.                                                                                                                                                  | 2     | 0   | 2       | 1    | 0  | 5     |
| IIT Bhilai   | M.Sc. in Physics (2803)                  | B.Sc./B.S. degree with Physics for at least two years/four semesters and Mathematics for at least one year/two                                                    | 10+1* | 2   | 7       | 3    | 2  | 25    |

## B. Annexure II

## MEQs and Seat Matrix\*

## PHYSICS (PH)

| Institute       | Program (Code)                                                  | Essential subjects in Bachelor's Degree along with minimum duration                                                                                                                                                 | Seats |     |         |    |      | Total |
|-----------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|---------|----|------|-------|
|                 |                                                                 |                                                                                                                                                                                                                     | GEN   | EWS | OBC-NCL | SC | ST   |       |
| IIT Bhubaneswar | Joint M.Sc. - PhD in Physics (1903)                             | B.Sc./B.S. degree with Physics for at least two years/four semesters and at least two Mathematics subjects. No restrictions for Engineering degrees.                                                                | 9+1*  | 3   | 8       | 4  | 2    | 27    |
| IIT Bhubaneswar | Joint M.Sc.- PhD in Atmosphere and Ocean Sciences (1905)        | Bachelor's degree in any discipline.                                                                                                                                                                                | 3     | 1*  | 2       | 1  | 1    | 8     |
| IIT Bombay      | M.Sc. in Applied Geophysics (1202)                              | Any two of Physics, Mathematics and Mathematical Physics for Two years/four semesters                                                                                                                               | 8     | 2   | 4+1*    | 3  | 2    | 20    |
| IIT Bombay      | M.Sc. in Physics (1207)                                         | B.Sc./B.S. degree with Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.                                                  | 23+1* | 6   | 15+1*   | 9  | 4+1* | 60    |
| IIT Bombay      | M.Sc.-Ph.D Dual Degree in Energy Science and Engineering (1212) | B.Sc. or equivalent of minimum three years duration, with any one of Chemistry, Mathematics and Physics for two years/four semesters and any one of the remaining two subjects for at least one year/two semesters. | 4     | 1   | 2       | 1  | 1*   | 9     |



## B. Annexure II

## MEQs and Seat Matrix\*

| Institute         | Program (Code)                                                        | Essential subjects in Bachelor's Degree along with minimum duration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Seats |     |         |       |      | Total |
|-------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|---------|-------|------|-------|
|                   |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | GEN   | EWS | OBC-NCL | SC    | ST   |       |
| IIT Bombay        | M.Sc.-PhD Dual Degree in Environmental Science and Engineering (1213) | Any one of Biology, Biotechnology, Chemistry, Mathematics and Physics for two years/four semesters, and any one of the other four subjects for at least one year/two semesters and Mathematics for at least one semester.                                                                                                                                                                                                                                                                                                                                                                 | 1     | 0   | 1       | 0     | 0    | 2     |
| IIT Delhi         | M.Sc. in Physics (1303)                                               | B.Sc./B.S. degree, Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.                                                                                                                                                                                                                                                                                                                                                                                                                            | 27+1* | 7   | 17+1*   | 10+1* | 4    | 68    |
| IIT (ISM) Dhanbad | M.Sc. in Physics (2603)                                               | Physics and Mathematics for at least one semester.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 26+1* | 6   | 17+1*   | 10    | 5    | 66    |
| IIT (ISM) Dhanbad | M.Sc (Tech.) in Applied Geophysics (2605)                             | B.Sc. Degree with physics for three years/six semesters/ B.Sc. Or B.S. degree with Physics for four years/eight semesters, with Mathematics for two semesters/one year and any one subject among Chemistry, Electronics, Statistics, Geology, Environmental Science/ Environmental Study, Computer Science, relevant "Skill Enhancement" subjects as per NEP.<br>(a) PH Candidates with color blindness and/or Uni-ocularity are not eligible.<br>(b) PwD candidates should be able to walk in the field without assistance/ escort (on-road and/or off-road conditions) to do fieldwork. | 22    | 6   | 15      | 7+1*  | 4    | 55    |
| IIT Dharwad       | M.Sc. in Physics (3303)                                               | Bachelor's degree in Science with at least 2 years (4 semesters) of study in Physics, and 1 year (2 semesters) of study in Mathematics. B.Tech./BE degree in any branch of engineering will be considered.                                                                                                                                                                                                                                                                                                                                                                                | 6     | 2   | 4       | 2     | 1    | 15**  |
| IIT Gandhinagar   | M.Sc. in Physics (2003)                                               | No Restrictions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 17+1* | 5   | 12      | 7     | 2+1* | 45    |

**B. Annexure II**  
**MEQs and Seat Matrix\***

| Institute     | Program (Code)            | Essential subjects in Bachelor's Degree along with minimum duration                                                                                                                                                                                        | Seats |      |         |      |      | Total |
|---------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------|---------|------|------|-------|
|               |                           |                                                                                                                                                                                                                                                            | GEN   | EWS  | OBC-NCL | SC   | ST   |       |
| IIT Goa       | M.Sc. in Physics (3402)   | B.Sc/BS degree with Physics or Physics Major. Minimum Three years or six semesters Physics. Minimum two years or four semesters Maths courses.                                                                                                             | 5     | 0    | 1       | 0    | 0    | 6     |
| IIT Guwahati  | M.Sc. in Physics (1403)   | B.Sc./B.S. degree with Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.                                                                                         | 23+1* | 6    | 16      | 8+1* | 4+1* | 60    |
| IIT Hyderabad | M.Sc. in Physics (2103)   | B.Sc./B.S. degree, physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.                                                                                             | 12    | 3    | 8       | 5    | 1+1* | 30    |
| IIT Indore    | M.Sc. in Physics (2202)   | B.Sc./B.S. degree with Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.                                                                                         | 12    | 2+1* | 8       | 5    | 2    | 30    |
| IIT Indore    | M.Sc. in Astronomy (2205) | B. Sc in Physics / Mathematics / Statistics / Electronics / Computer Science, Or Bachelor's of Engineering/ Technology in any branch AND Courses in Physics for at least 6 credits or 2 semesters and Mathematics for at least 6 credits or two semesters. | 6     | 2    | 4       | 2    | 1    | 15    |
| IIT Jammu     | M.Sc. in Physics (3202)   | B.Sc./B.S. degree with Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.                                                                                         | 8     | 2    | 6       | 2+1* | 1    | 20    |
| IIT Jodhpur   | M.Sc. in Physics (2403)   | B.Sc./B.S. degree with Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.                                                                                         | 16    | 3+1* | 10+1*   | 6    | 3    | 40    |

## B. Annexure II

### MEQs and Seat Matrix\*

| Institute     | Program (Code)                                            | Essential subjects in Bachelor's Degree along with minimum duration                                                                                                                                                                                                                                                                                                                                                                                  | Seats |     |         |      |      | Total |
|---------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|---------|------|------|-------|
|               |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                      | GEN   | EWS | OBC-NCL | SC   | ST   |       |
| IIT Kanpur    | M.Sc. in Physics (1503)                                   | B.Sc./B.S. degree, Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.                                                                                                                                                                                                                                                                                       | 14+1* | 4   | 9+1*    | 6    | 3    | 38    |
| IIT Kanpur    | M.Sc.-Ph.D.Dual Degree in Physics (1505)                  | B.Sc./B.S. degree, Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.                                                                                                                                                                                                                                                                                       | 7+1*  | 2   | 5       | 3    | 2    | 20    |
| IIT Kanpur    | Integrated Ph.D. in Sustainable Energy Engineering (1508) | B.Sc./B.S. or equivalent degree with minimum of 60% marks and of minimum three years duration with Physics or Chemistry for at least two years/four semesters and Mathematics for at least one year/ two semesters.                                                                                                                                                                                                                                  | 6+1*  | 1   | 4       | 2    | 1    | 15    |
| IIT Kharagpur | Joint M.Sc.- Ph.D. in Physics (1604)                      | B.S. / B.Sc. / B.Tech / B.E. degree with at least 4 Physics subjects and 2 Mathematics subjects.                                                                                                                                                                                                                                                                                                                                                     | 23+1* | 6   | 15+1*   | 9    | 3+1* | 59    |
| IIT Kharagpur | Joint M.Sc.- Ph.D. in Geophysics (1605)                   | B.Sc. degree together with either of the following, with minimum number of subjects in respective domains.<br>(i) Geology subjects for 6 semesters or 3 years, and 2 Physics subjects + 2 Mathematics subjects.<br>(ii) Physics subjects for 6 semesters or 3 years, and 2 Mathematics subjects.                                                                                                                                                     | 6     | 2   | 4       | 1+1* | 1    | 15    |
| IIT Kharagpur | Joint M.Sc.- Ph.D. in Medical Physics (1606)              | Candidates must possess a First Class in B.Sc. Physics with Mathematics as Ancillary subject (OR) the Candidate must possess a B.Sc. (Science) in First Class with Physics as a Major ( $\geq 60\%$ or $\geq 6.5$ CGPA) and Mathematics as an ancillary and must have completed at least five of the following Physics courses: Mechanics, Electricity and Magnetism, Thermodynamics, Optics, Electronics, Solid State Physics, and Nuclear Physics. | 4     | 1   | 3       | 1    | 1    | 10    |

|                    |                                                                         |                                                                                                                                                                       |       |      |       |      |      |    |
|--------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------|-------|------|------|----|
| IIT Madras         | M.Sc. in Physics (1703)                                                 | B.Sc./B.S. degree, Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.        | 21+1* | 5    | 14+1* | 8    | 4    | 54 |
| IIT Mandi          | M.Sc. in Physics (3103)                                                 | B.Sc./B.S. degree, Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.        | 12    | 2+1* | 8+1*  | 4    | 2    | 30 |
| IIT Mandi          | Integrated- Ph.D (I-PhD) in Physics (3104) (6 years)                    | B.Sc./B.S. degree, Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.        | 5     | 1    | 2+1*  | 2    | 1    | 12 |
| IIT Palakkad       | M.Sc. in Physics (2903)                                                 | Bachelor's degree                                                                                                                                                     | 9     | 2    | 6     | 2+1* | 1    | 21 |
| IIT Patna          | M.Sc. in Physics (2503)                                                 | No restrictions for engineering degrees. For B.Sc./B.S. degree, Physics for at least two years/-four semesters and Mathematics for at least one year / two semesters. | 9+1*  | 2    | 7     | 4    | 2    | 25 |
| IIT Patna          | Integrated M.Sc.- PhD Dual Degree in Physics (2506) (10-12 semesters) # | No restrictions for Engineering Degree. For B.Sc./B.S. degree, Physics for at least two years/four semesters and Mathematics for at least one year/two semesters.     | 2     | 1    | 1     | 1    | 0    | 5  |
| IIT Roorkee        | M.Sc. in Physics (1805)                                                 | B.Sc./B.S. degree with Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.    | 12    | 2+1* | 9     | 4    | 2    | 30 |
| IIT Ropar          | M.Sc. in Physics (2303)                                                 | B.Sc./B.S. degree with Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.    | 9+1*  | 2    | 6+1*  | 4    | 2    | 25 |
| IIT Tirupati       | M.Sc. in Physics (3003)                                                 | B.Sc./B.S. degree with Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.    | 7+1*  | 2    | 5     | 3    | 2    | 20 |
| IIT (BHU) Varanasi | M.Sc. in Physics (2702)                                                 | B.Sc./B.S. degree with Physics for at least two years/four semesters and Mathematics for at least one year/two semesters. No restrictions for engineering degrees.    | 10    | 3    | 7     | 3    | 1+1* | 25 |



## **ANNEXURE III**

### **CODE OF CONDUCT**



# Code of Conduct

All candidates appearing for the JAM 2027 must strictly comply with the following rules and regulations:

1. Candidates appearing for the examination must carry their Admit Card and Original valid Photo - Identity Proof (as indicated in the application form) to the examination hall.
2. The candidate's fingerprint and/or photograph may be captured before the examination. This captured data will be used for verification during admission. Hence, candidates should avoid any coating (e.g., ink, mehndi, henna, or tattoo) on their fingertips and have clean fingers on the examination day.
3. Carrying mobile phones, smart watches, calculators, and other electronic gadgets inside the examination hall is strictly prohibited.
4. Carrying any other electronic devices that can be used for communication or for any other purpose, and printed, scanned or hand-written materials, inside the examination hall is strictly prohibited.
5. All means of communication (verbal or otherwise) among the candidates inside the examination hall are strictly prohibited.
6. Candidates should not tamper the computer and the related hardware provided in the examination hall. Candidates found to indulge in such activities will have their candidature cancelled.
7. Use of unfair means by a candidate in JAM 2027, whether detected at the time of examination, or at any other stage, will lead to the cancellation of candidature as well as disqualification of the candidate from appearing in JAM in future. In addition, appropriate legal action will be initiated against such candidates.

D

## **ANNEXURE IV**

### **LIST OF EXAMINATION CITIES**



## Examination Cities

### Zone 1: IISc

Anantapur [AP], Angamaly [KL], Bagalkot [KA], Ballari [KA], Belagavi [KA], Bengaluru North [KA], Bengaluru South [KA], Bidar [KA], Chikkamagaluru [KA], Davangere [KA], Hassan [KA], Hubballi / Dharwad [KA], Hyderabad [TS], Kalaburagi [KA], Kannur [KL], Kasaragod [KL], Kolar [KA], Kozhikode [KL], Kurnool [AP], Malappuram [KL], Mandya [KA], Mangaluru [KA], Manipal-Udupi [KA], Mysuru [KA], Nalgonda [TS], Palakkad [KL], Pathanamthitta [KL], Port Blair [AN], Shivamogga [KA], Thrissur [KL], Tumkur [KA], Wayanad [KL]

### Zone 2: IIT Bombay

Ahmedabad [GJ], Ahilyanagar (Ahmednagar) [MH], Akola [MH], Amravati [MH], Chhatrapati Sambhaji Nagar (Aurangabad) [MH], Goa [GA], Jalgaon [MH], Kolhapur [MH], Mumbai [MH], Nagpur [MH], Nanded [MH], Nashik [MH], Pune [MH], Rajkot [GJ], Sangli [MH], Satara [MH], Solapur [MH], Surat [GJ], Vadodara [GJ]

### Zone 3: IIT Delhi

Faridabad [HR], Greater NOIDA [UP], Gurugram [HR], Hanumangarh [RJ], Indore [MP], Jaipur [RJ], Jammu-Samba [JK], Jodhpur [RJ], Mathura [UP], New Delhi [DL], Srinagar [JK]

### Zone 4: IIT Guwahati

Agartala [TR], Dhanbad [JH], Dibrugarh [AS], Dimapur-Kohima [NL], Asansol [WB], Durgapur [WB], Guwahati [AS], Imphal [MN], Jorhat [AS], Kalyani [WB], Patna [BR], Shillong [ML], Siliguri [WB]

### Zone 5: IIT Kanpur

Agra [UP], Aligarh [UP], Bareilly [UP], Bhopal [MP], Gorakhpur [UP], Jabalpur [MP], Kanpur [UP], Lucknow [UP], Prayagraj [UP], Varanasi [UP]

### Zone 6: IIT Kharagpur

Bhubaneswar [OR], Bilaspur [CH], Brahmapur [OR], Kolaghat [WB], Kolkata [WB], Kharagpur-Midnapore [WB], Raipur [CH], Ranchi [JH], Vijayawada [AP], Visakhapatnam [AP]

### Zone 7: IIT Madras

Alappuzha [KL], Aluva-Ernakulam [KL], Chennai-North [TN], Chennai-South [TN], Coimbatore [TN], Guntur [AP], Karimnagar [TS], Karaikudi [TN], Khammam [TS], Kollam [KL], Kottayam [KL], Madurai [TN], Ongole [AP], Puducherry [PY], Salem [TN], Thiruvananthapuram [KL], Tiruchirappalli [TN], Tirunelveli [TN], Tirupati [AP], Warangal [TS]

### Zone 8: IIT Roorkee

Ambala [HR], Dehradun [UK], Ghaziabad [UP], Haldwani [UK], Jalandhar-Phagwara [PB], Kangra [HP], Meerut [UP], Mohali-Chandigarh [PB], Moradabad [UP], NOIDA [UP], Patiala [PB], Roorkee [UK], Shimla-Solan [HP]

E

# **ANNEXURE V**

## **INFORMATION FOR CERTIFICATES**

## **Annexure V – Information relevant to Certificates**

### **Authorities Empowered to issue SC / ST / OBC – NCL / EWS Certificates**

- District Magistrate / Additional District Magistrate / Collector / Deputy Collector / Deputy Commissioner / Additional Deputy Commissioner / First class Stipendiary Magistrate / City Magistrate / Sub-Divisional Magistrate / Taluka Magistrate / Executive Magistrate / Extra Assistant Commissioner.
- Chief Presidency Magistrate/Additional Chief Presidency Magistrate/Presidency Magistrate.
- Revenue Officer not below the rank of Tehsildar.
- Sub-Divisional Officer of the area where the candidate and/or her/his family normally resides.
- Administrator / Secretary to Administrator / Development Officer (Lakshadweep Islands). Certificate issued by any other official will NOT be accepted.

### **Person with Disability (PwD) Category**

Benefits of concessionary fee and reservations would be given **only** to those who have benchmark disability i.e. not less than 40% impairment irrespective of the type of disability. Candidates should submit a certificate issued by Chief Medical Officer / Civil Surgeon/ Medical Superintendent of a Government Health Care Institution. The certificate should be preferably in the format given in the Form V or Form VI or Form VII in the Rights of Persons with Disabilities Rules, 2017 available at

[https://upload.indiacode.nic.in/showfile?actid=AC\\_CEN\\_25\\_54\\_00002\\_201649\\_1517807328299&type=rule&filename=Rules\\_notified\\_15.06.pdf](https://upload.indiacode.nic.in/showfile?actid=AC_CEN_25_54_00002_201649_1517807328299&type=rule&filename=Rules_notified_15.06.pdf)

### **Authorities Empowered to issue Certificate of Dyslexia**

A copy of the certificate of Dyslexic condition should be uploaded at the time of online registration. Such certificate of Dyslexia will be obtained from any Dyslexia Association. Some of them are listed below:

- Dyslexia Trust of Kolkata, Divya Jalan, Aruna Bhaskar 3, Dover Park, Kolkata - 700019.
- Dyslexia Association of Andhra Pradesh (DAAP), 3-4-494/1, 1st Floor, Macherla Gastrology Hospital, Reddy College Road, Barkatpura, Hyderabad, Telangana, 500027.
- Madras Dyslexia Association, 94 Park View, 1st Floor, G.N. Chetty Road, T. Nagar, Chennai - 600017.
- Maharashtra Dyslexia Association, 003, Amit Park Bldg, L J Road, Deonar, Mumbai 400088.
- The Dyslexia Association of India, MZ-47, The Center Stage Mall, Plot No 01, Block L, Sector 18, Noida, 201303.



## **ANNEXURE VI**

### **PRO-FORMA: OBC-NCL CERTIFICATE**

## **Annexure VI - Proforma for OBC-NCL (Non-Creamy Layer) Certificate**

**(FORM OF CERTIFICATE TO BE PRODUCED BY OTHER BACKWARD CLASSES APPLYING FOR  
ADMISSIONS TO CENTRAL EDUCATIONAL INSTITUTIONS (CEIs) UNDER THE  
GOVERNMENT OF INDIA)**

This is to certify that Shri/Smt/Kumari \_\_\_\_\_ Son/Daughter  
of Shri/Smt. \_\_\_\_\_ of \_\_\_\_\_ Village/Town  
\_\_\_\_\_ in District/Division \_\_\_\_\_ in \_\_\_\_\_ the  
State/Union Territory \_\_\_\_\_ belongs to the \_\_\_\_\_ Community which is  
recognized as backward class under the Government of India, Ministry of Social Justice and  
Empowerment's Resolution No. \_\_\_\_\_ dated \_\_\_\_\_ \*

Shri/Smt/Kumari \_\_\_\_\_ and/or his/her family ordinarily reside(s) in  
the \_\_\_\_\_ District/Division of the \_\_\_\_\_  
State/Union Territory. This is also to certify that **he/she does NOT belong to the persons/sections  
(Creamy Layer)** mentioned in Column 3 of the Schedule to the Government of India, Department of  
Personnel & Training O.M. No. 36012/22/93- Estt. (SCT) dated 08/09/93 which is modified vide OM  
No. 36033/3/2004 Estt. (Res.) dated 09/03/2004, further modified vide OM No. 36033/3/2004-  
Estt.(Res.) dated 14/10/2008, again further modified vide OM No.36036/2/2013-Estt. (Res.) dated.  
30/05/2014 and again further modified vide OM No. 36033/1/2013-Estt (Res) dated 13/09/2017.

Dated:

District Magistrate /  
Deputy Commissioner /  
Any other Competent Authority

Seal

---

\* The authority issuing the certificate may have to mention the details of Resolution (Number and Date) of Government of India, in which the caste of the candidate is mentioned as OBC.

### **NOTE:**

**(a)** The term "Ordinarily" used here will have the same meaning as in Section 20 of the Representation of the People Act, 1950.

**(b)** The authorities competent to issue Caste Certificates are indicated below:

- A. District Magistrate/ Additional Magistrate/ Collector/ Deputy Commissioner/ Additional Deputy Commissioner / Deputy Collector/ 1st Class Stipendiary Magistrate/ Sub-Divisional Magistrate/ Taluka Magistrate/Executive Magistrate/Extra Assistant Commissioner (not below the rank of 1st Class Stipendiary Magistrate)
- B. Chief Presidency Magistrate/Additional Chief Presidency Magistrate/Presidency Magistrate
- C. Revenue Officer not below the rank of Tehsildar and
- D. Sub-Divisional Officer of the area where the candidate and/or his/her family resides

|                                                                                       |
|---------------------------------------------------------------------------------------|
| <b>The date of issue of OBC (NCL) certificate should be on or after April 1, 2026</b> |
|---------------------------------------------------------------------------------------|



## **ANNEXURE VII**

### **PRO-FORMA: EWS CERTIFICATE**

## **Annexure VII - Proforma for Economically Weaker Sections (EWS) Certificate (INCOME & ASSETS CERTIFICATE TO BE PRODUCED BY ECONOMICALLY WEAKER SECTIONS)**

**Government of \_\_\_\_\_**  
**(Name & Address of the authority issuing the certificate)**

Certificate No.: \_\_\_\_\_

Date: \_\_\_\_\_

VALID FOR THE YEAR \_\_\_\_\_

This is to certify that Shri/Smt/Kumari \_\_\_\_\_  
son/daughter/wife of \_\_\_\_\_ permanent resident of \_\_\_\_\_  
Village/Street \_\_\_\_\_ Post Office \_\_\_\_\_  
\_\_\_\_\_ District \_\_\_\_\_ in the State/Union Territory \_\_\_\_\_ Pin  
Code \_\_\_\_\_ whose photograph is attested below to Economically Weaker Sections, since the gross annual  
income\* of his/her family\*\* is below Rs. 8 Lakh (Rupee Eight Lakh only) for the financial year \_\_\_\_\_. His/Her family  
does not own or possess any of the following assets\*\*\*:

- I. 5 acres of agricultural land and above;
- II. Residential flat of 1000 sq. ft. and above;
- III. Residential plot of 100 sq. yards and above in notified municipalities;
- IV. Residential plot of 200 sq. yards and above in areas other than the notified municipalities.

Shri/Smt/Kumari \_\_\_\_\_ belongs to the \_\_\_\_\_ caste which is  
not recognized as a Scheduled Caste, Scheduled Tribe and Other Backward Classes (Centre List)

Recent  
Passport size  
attested  
photograph of  
the applicant

Signature with seal of office \_\_\_\_\_

Name \_\_\_\_\_

Designation \_\_\_\_\_

**\*Note 1:** Income covered all sources i.e. salary, agriculture, business, profession, etc.

**\*\*Note 2:** The term "Family" for this purpose include the person, who seeks benefit of reservation, his/her parents and siblings below the age of 18 years as also his/her spouse and children below the age of 18 years.

**\*\*\*Note 3:** The property held by a "Family" in different locations or different places/cities have been clubbed while applying the land or property holding test to determine EWS status.

The authorities competent to issue EWS Certificates are indicated below:

- (i) District Magistrate/ Additional Magistrate/ Collector/ Deputy Commissioner/ Additional Deputy Commissioner/ Deputy Collector/ 1st Class Stipendiary Magistrate/ Sub-Divisional Magistrate/ Taluka Magistrate/Executive Magistrate/Extra Assistant Commissioner (not below the rank of 1st Class Stipendiary Magistrate)
- (ii) Chief Presidency Magistrate/Additional Chief Presidency Magistrate/Presidency Magistrate
- (iii) Revenue Officer not below the rank of Tehsildar
- (iv) Sub-Divisional Officer of the area where the candidate and/or his/her family resides.

**The date of issue of EWS certificate should be on or after April 1, 2026**

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# Appendices



# **APPENDIX I**

## **PWD: RELEVANT CERTIFICATES**

### Certificates required for various categories of PwD candidates

PwD candidates are required to login to JOAPS (<https://joaps.iitkgp.ac.in/>) and exercise their options as appropriate and upload the documents as indicated in the table below. Exercising the option on JOAPS is required. Due date: December 30, 2026 (tentative). Appendix-I is available at:

<https://cdnbbsr.s3waas.gov.in/s3e58aea67b01fa747687f038dfde066f6/uploads/2025/08/202508181436575108.pdf> They are also available in this document.

| Sl. No. | Type of Disability                                                                                                                                                                          | Compensatory Time/ Scribe                                                                                               | Certificates/Documents Needed                                                                                                                                                        |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.      | PwD-A: PwD candidates with benchmark disability greater than 40% and having one or more of the following disabilities:<br>a. Blindness Locomotor disability (Both Arms only) Cerebral Palsy | Only Compensatory Time and/or Scribe requested (Compensatory time will be automatically given when Scribe is requested) | - UDID Card / Number<br>- PwD Certificate (optional) Appendix II of Information Brochure (if opted for Scribe)                                                                       |
| 2.      | PwD-B: PwD candidates with benchmark disability greater than 40% except for the disabilities mentioned in Row 1                                                                             | Only Compensatory Time and/or Scribe requested (Compensatory time will be automatically given when Scribe is requested) | - UDID Card / Number<br>- PwD Certificate (optional)<br>- Appendix I<br>- Appendix II of Information Brochure (if opted for Scribe)                                                  |
| 3.      | PwD-C: PwD candidates with disability less than 40%                                                                                                                                         | Only Compensatory Time and/or Scribe requested (Compensatory time will be automatically given when Scribe is requested) | - UDID Card / Number<br>- PwD Certificate (optional)<br>- Appendix I (except for the disabilities mentioned in Row 1)<br>- Appendix II of Information Brochure (if opted for Scribe) |

**Certificate for recommendation of scribe and/or Compensatory Time  
for persons with disabilities as defined under Section 2(s) of  
the RPwD Act 2016 and have limitation in writing as specified in the Guidelines.**

1. This is to certify that I have examined Mr./Ms./Mrs. ....  
(name of the candidate), S/o or D/o ..... ,  
a resident of ..... (Village/District/State)  
aged .....yrs, a person with .....(nature of disability/condition), and to state that  
he/she has physical limitation which hampers his/her writing capability owing to his/her  
above disability/condition. He/ she requires support of scribe and/or Compensatory Time as  
specified in the Guidelines, for writing the examination.
2. The above candidate uses aids and assistive device such as prosthetics & orthotics, hearing  
aid (name to be specified)/ other (to be specified), which is/are essential for the candidate  
to appear at the examination with the assistance of scribe.
3. This certificate is issued only for the purpose of appearing in written examinations  
conducted by Examining Bodies and is valid up to ..... (it is valid for maximum period of  
one year or less as may be certified by the medical authority).

Signature

Chief Medical Officer/ Civil Surgeon/ Medical Superintendent of a  
Government health care institution

Name & Designation

Name of Government Hospital/ Health Care Centre with Seal

Place:

Date:

Note:

Certificate should be given by a specialist of the relevant stream/ disability (example, Visual impairment - Ophthalmologist, Locomotor disability – Orthopedic specialist/ PMR).



## **APPENDIX II**

### **PWD: SCRIBE DECLARATION**

## JAM 2027

## Joint Admission Test for Masters

(जैम) 2027

स्नातकोत्तर उपाधि हेतु संयुक्त प्रवेश परीक्षा



## Form for Scribe Assistance

|                          |                   |                       |  |
|--------------------------|-------------------|-----------------------|--|
| Enrolment ID             |                   |                       |  |
| Name of the Candidate    |                   |                       |  |
| Qualifying Degree        |                   | Qualifying Discipline |  |
| Percentage of Disability |                   | Nature of Disability  |  |
| Date of Exam             | 14 February, 2027 | Test Paper - I        |  |
|                          |                   | Test Paper - II       |  |

|                                 |                                                                                                                                                                                                                                                                           |                                                                     |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
|                                 | Declaration by the candidate                                                                                                                                                                                                                                              | Please tick and sign against the appropriate declaration (only one) |
| <input type="checkbox"/><br>(a) | I have understood the meaning of scribe and <u>I DO NOT require scribe</u> assistance for JAM 2027.<br><br>Note: If you declare this option, you have to sign against (a) in this declaration and submit it.                                                              | Signature of the candidate<br><br>Date:                             |
| <input type="checkbox"/><br>(b) | I have understood the meaning of scribe and I request <u>Organizing Institute, JAM 2027 to arrange for a scribe assistance</u><br><br>Note: If you declare this option, you have to sign against (b) in this declaration and submit along with Form - I and APPENDIX - I. | Signature of the candidate<br><br>Date:                             |



**JAM 2027**  
**Joint Admission Test for Masters**  
**(जैम) 2027**  
**स्नातकोत्तर उपाधि हेतु संयुक्त प्रवेश परीक्षा**



Declaration to be made by the PwD candidate requesting the assistance of scribe from Organizing Institute, JAM 2027

**FORM I**

|                       |                   |                 |  |
|-----------------------|-------------------|-----------------|--|
| Enrolment ID          |                   |                 |  |
| Name of the Candidate |                   |                 |  |
| Date of Exam          | 14 February, 2027 | Test Paper - I  |  |
|                       |                   | Test Paper - II |  |

Declaration to be made by the PwD candidate (for JAM 2027 scribe assistance)

I hereby declare that:

- ☐ I request Organizing Institute, JAM 2027 to arrange for scribe assistance.
- ☐ I have read and fully understood the instructions and meaning of scribe and the nature of assistance that a scribe can provide to me in the JAM 2027 Examination.
- ☐ My physical disability is such that the assistance of a scribe is essential to me in the JAM 2027 Examination. I will engage the scribe only for reading the question paper, instructions on the screen and/or in mouse-clicks, if I am not able to do so.
- ☐ I will not engage the scribe in any type of communication other than the above and shall not ask the scribe to translate, emphasize or interpret the contents of the test paper.
- ☐ In case I am found to violate any of the above guidelines, or my declaration is found to be incorrect, my JAM 2027 candidature will stand disqualified.

Date:

Signature of the candidate

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**For more details, please visit:**

**<https://jam.iitkgp.ac.in>**

## **Contact Us**

**Organizing Chairperson, JAM 2027**

**GATE-JAM Office, IIT Kharagpur**

**Kharagpur-721302**

**West Bengal, INDIA**

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