JOINT ADMISSION TEST FOR M.Sc. 2016

JAM 2016

Admission to

Integrated Ph.D. Programmes

at

INDIAN INSTITUTE OF SCIENCE

&

M.Sc. (Two Years), Joint M.Sc.-Ph.D., M.Sc.-Ph.D. Dual Degree, M.Sc.-M.Tech., and other Post-Bachelor Degree Programmes

at

INDIAN INSTITUTES OF TECHNOLOGY

**BHUBANESWAR ● BOMBAY ● DELHI ● GANDHINAGAR ● GUWAHATI ● HYDERABAD
INDORE ● KANPUR ● KHARAGPUR ● MADRAS ● PATNA ● ROORKEE ● ROPAR**

INFORMATION BROCHURE

JAM 2016 Examination Date: February 07, 2016 (Sunday)

Organizing Institute

INDIAN INSTITUTE OF TECHNOLOGY MADRAS
Chennai - 600036

CONTENTS

JAM 2016: Highlights

➡ IIT Madras is the Organizing Institute for JAM 2016.

➡ JAM 2016 Examination will be conducted **ONLINE only** as a Computer Based Test (CBT) for all Test Papers.

➡ All the seven Test Papers of JAM 2016 will be of fully **objective type**, with three different patterns of questions, namely (i) multiple choice questions (MCQ), (ii) multiple select questions (MSQ), and (iii) numerical answer type (NAT) questions.

➡ Applications will be accepted **ONLINE only** through JAM 2016 website.

➡ No hardcopies of documents are to be sent to the Organizing Institute. The documents (if applicable) are to be uploaded to the online application website only.

➡ No hardcopy of JAM 2016 score card will be sent to the JAM 2016 qualified candidates by the Organizing Institute. **It can only be downloaded from JAM 2016 website within specified period.**

➡ **No** additional requirements, like **suitability test** or **interview,** are needed for the programmes for which admission process is through JAM.

1. INTRODUCTION

The Indian Institutes of Technology (IITs) are institutions of national importance established through an Act of Parliament. The Indian Institute of Science (IISc) is a premier research and teaching institute established in 1909. The IISc Bangalore & IITs are well known, the world over, for quality education in engineering, science, management and research in frontier areas. The aim of these institutes is to build a sound 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 of IISc Bangalore & IITs motivate the students to pursue Research and Development careers in frontier areas of basic sciences as well as interdisciplinary areas of science and technology. Further, IISc and IITs have well equipped modern laboratories, efficient computer networks and state-of-the-art libraries. The teaching process is structured to promote close and continuous contact between the faculty and the students. A number of financial assistantships are available to SC/ST and other deserving and meritorious students at individual institutes.

From the Academic Session 2004-05, IITs have started conducting a **Joint Admission Test for M.Sc. (JAM**). The objective of JAM is to provide admissions to M.Sc. (Two Years), Joint M.Sc.-Ph.D., M.Sc.-Ph.D. Dual Degree, M.Sc.-M.Tech., and other Post-Bachelor's Degree Programmes at the IITs and Integrated Ph.D. Degree Programmes at IISc and to consolidate Science as a career option for bright students from across the country. JAM is expected to serve as a benchmark for the undergraduate level science education in the country. The Integrated Ph.D. Programme at IISc was started in the early 90's to enable students to directly join for a Ph.D. degree after their B.Sc. Degree.

The M.Sc. (Two Years), Joint M.Sc.-Ph.D, M.Sc.-Ph.D. Dual Degree, M.Sc.-M.Tech., and other Post-Bachelor's Degree Programmes at the IITs and the Integrated Ph.D. Programmes at IISc offer high quality education in their respective disciplines, comparable to the best in the world. The curricula for these programmes are designed to provide the students with opportunities to develop academic talent leading to challenging and rewarding professional life. The curricula are regularly updated at IISc and IITs. The interdisciplinary content of the curricula equips the students with the ability to utilize scientific knowledge for practical applications. The medium of instruction is English for all the above mentioned programmes.

2. GENERAL INFORMATION

(a) JAM 2016 is open to all nationals (Indian/Foreign). Candidates seeking admission to the academic programmes covered under JAM 2016 need to appear in JAM 2016. There is no age restriction.

(b) **JAM 2016 examination will be held on February 07, 2016 (Sunday) as Computer Based ONLINE Examination.**

(c) For admission, foreign nationals are required to satisfy the rules and regulations of the admitting Institute(s) pertaining to foreign students. For further details, they are advised to contact the concerned Admitting Institute(s).

(d) To apply for admission to a desired programme, a candidate is required to qualify in the relevant Test Paper and also satisfy the Minimum Educational Qualifications (MEQs) and Eligibility Requirements (ERs) of the respective Academic Programme.

(e) The candidates who have either appeared or are due to appear in the final examination of their qualifying degree in 2016 are also eligible to appear in the test. By qualifying in JAM 2016, candidates can apply for provisional admission subject to the condition that: (a) all parts of their final examination shall be completed by the date of registration of the Admitting Institute, and (b) proof of having passed the qualifying degree with required eligibility, as specified by the Admitting Institute, will be submitted by **September 30, 2016**.

(f) Admission to most of the Academic Programmes at various institutes will be made on the basis of merit in JAM 2016.

(g) On the basis of performance in JAM 2016, for each test paper, separate merit lists will be prepared for General (GEN), OBC Non-Creamy Layer (OBC-NCL), SC, ST, and Persons with Disability (PwD) category candidates.

(h) Requests for the change of category, if any, with proper documentation, should reach the Organizing Institute latest by **May 10, 2016**. Requests received after this date will not be accepted under any circumstances.

(i) **Candidates should note that mere appearance in JAM 2016 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. Admissions shall be made in order of merit in each category and depending on the number of seats available at the Admitting Institute(s).

(j) The list of academic programmes, number of seats, eligibility requirement and minimum educational qualifications of each of the programmes mentioned in this Information Brochure are subject to change, as per the policy of Admitting Institute(s).

(k)   In this document, the phrases 'Un-Reserved' and 'General' are used interchangeably and they both mean the same.

(l)   With regard to the 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.

(m) In all matters concerning JAM 2016, the decision of the **Organizing Institute** or the **Organizing Chairman, JAM 2016** will be final and binding on all the applicants.

(n)   Although JAM 2016 is held at different centres across country, **Indian Institute of Technology Madras** is the **Organizing Institute**, and has the overall responsibility of conducting JAM 2016. In case of any claims or disputes arising in respect of JAM 2016, it is hereby made absolutely clear that the Madras High Court alone shall have the exclusive jurisdiction to entertain and settle any such disputes and claims.

3. ACADEMIC PROGRAMMES

The following are the full-time M.Sc. (Two Years), Joint M.Sc.-Ph.D., M.Sc.-Ph.D. Dual Degree, M.Sc.-M.Tech., and other Post-Bachelor's Degree Programmes at different IITs and Integrated Ph.D. Programmes at IISc to which admissions shall be made on the basis of JAM 2016.

I.   **Indian Institute of Science Bangalore (IISc):** Integrated Ph.D. Programmes in Biological Sciences

II.   **IIT Bhubaneswar (IITBBS):** Joint M.Sc.-Ph.D. Programmes in (i) Chemistry, (ii) Geology, (iii) Mathematics, (iv) Physics, and (v) Atmosphere and Ocean Sciences
The modalities for selection to the Ph. D. programme in the joint M. Sc. - Ph. D. programme are as follows.
After completing the third semester of the M. Sc. Programme:
(a) Those students securing CGPA $\geq$ 8.5 and having expressed their desire to continue in writing are eligible to opt for the Ph. D. programme. Final selection will be based on written test, interview and other shortlisting criteria set by the School. Those not selected and those who do not opt for the Ph.D. program will exit with an M.Sc. degree.
(b) Those with CGPA < 8.5 are not allowed to opt for the Ph. D. programme and shall exit with the M.Sc. degree.

III. **IIT Bombay (IITB):** Two-year Master of Science (M.Sc.) Programmes in (i) Applied Geology, (ii) Applied Geophysics, (iii) Applied Statistics and Informatics, (iv) Biotechnology, (v) Chemistry, (vi) Mathematics, and (vii) Physics

Four-year Dual Degree Programme in M.Sc.(Physics)-M.Tech.(Materials Science) with specialization in Nano-Science and Technology

M.Sc.-Ph.D. Dual Degree Programmes in (i) Environmental Science and Engineering, (ii) Operations Research, Both the degrees will be awarded together after the successful completion of the Programmes

IV.   **IIT Delhi (IITD):** Two-year Master of Science (M.Sc.) Programmes in (i) Chemistry, (ii) Mathematics, and (iii) Physics

V.   **IIT Gandhinagar (IITGN):** Two-year Master of Science (M.Sc.) Programmes in (i) Chemistry, (ii) Mathematics, and (iii) Physics

VI.   **IIT Guwahati (IITG):** Two-year Master of Science (M.Sc.) Programmes in (i) Chemistry, (ii) Mathematics and Computing, and (iii) Physics

VII. **IIT Hyderabad (IITH):** Two-year Master of Science (M.Sc.) Programmes in (i) Chemistry, (ii) Mathematics/ Mathematics and Computing, and (iii) Physics

VIII. **IIT Indore (IITI):** Two-year Master of Science (M.Sc.) Programmes in (i) Chemistry, (ii) Mathematics, and (iii) Physics, with an option to convert it to M.Sc.-Ph.D. dual degree programme during second semester. Programme conversion of the eligible students is confirmed at the end of the third semester subjected to them qualifying the CSIR/UGC-NET, GATE or any equivalent and meeting the short-listing criteria of the concerned discipline. Students continuing M.Sc.-Ph.D. dual degree programme are awarded M.Sc. degree after successful completion of all its prescribed requirements with recognition that it also partially fulfills the requirements of M.Sc. and PhD Dual Degree Program.

IX. **IIT Kanpur (IITK):** Two-year Master of Science (M.Sc.) Programmes in (i) Chemistry, (ii) Mathematics, (iii) Physics, and (iv) Statistics

M.Sc.-Ph.D. Dual Degree Programme in Physics (Transfer from M.Sc.-Ph.D. Dual Degree Programme to M.Sc. Physics Programme is not permitted. However, for the students admitted to the M.Sc.-Ph.D. Dual Degree Programme, the M.Sc. degree will be given after successful completion of all academic requirements of the first six semesters while working towards Ph.D. degree)

X. **IIT Kharagpur (IITKGP):** Joint M.Sc.-Ph.D. Programmes in (i) Chemistry, (ii) Geology, (iii) Geophysics, (iv) Mathematics, and (v) Physics

XI. **IIT Madras (IITM):** Two-year Master of Science (M.Sc.) Programmes in (i) Chemistry, (ii) Mathematics, and (iii) Physics

XII. **IIT Patna (IITP):** Two-year Master of Science (M.Sc.) Programmes in (i) Chemistry, (ii) Mathematics, and (iii) Physics

XIII. **IIT Roorkee (IITR):** Two-year Master of Science (M.Sc.) Programmes in (i) Applied Geology, (ii) Biotechnology, (iii) Chemistry, (iv) Economics, (v) Mathematics, and (vi) Physics

XIV. **IIT Ropar (IITRPR):** Two-year Master of Science (M.Sc.) Programmes in (i) Chemistry, (ii) Mathematics, and (iii) Physics.

The academic programmes, their durations and number of seats available in various institutes with programme codes are listed in **Appendix-I**.

Note: JAM 2016 may not admit candidates for some programmes for which admission was through JAM 2015. However, to get admitted into these programmes, the candidates must qualify JAM 2016 and apply separately to the concerned Institutes. The list of such programmes is given here.

Sl. No.	Programme	Offered by	JAM Test Papers
1	Integrated Ph.D. in Chemical Sciences	IISc	BL, CY, PH
2	Integrated Ph.D. in Mathematical Sciences	IISc	MA, MS
3	Integrated Ph.D. in Physical Sciences	IISc	PH
4	M. Sc. - Ph.D. Dual Degree in Energy	IITB	CY, MA, PH
5	M.Sc. Chemistry	IITJ	CY
6	M.Sc. Mathematics	IITJ	MA
7	M.Sc. Physics	IITJ	PH

4. TEST PAPERS AND MINIMUM EDUCATIONAL QUALIFICATIONS (MEQs) FOR ADMISSION

JAM 2016 examination will be conducted in seven subjects, also referred to as Test Papers, of Biological Sciences (BL), Biotechnology (BT), Chemistry (CY), Geology (GG), Mathematics (MA), Mathematical Statistics (MS) and Physics (PH). Candidates are advised to become familiar with the code(s) of the test paper(s) that they wish to appear as this information is required at the time of application form submission, at the time of examination, and later at the time of admission process.

The Minimum Educational Qualifications (MEQs) for admissions to various Academic Programmes covered under JAM are given in **Appendix-II**, along with the names of the Test Papers with their Codes and the Institute offering the Academic Programmes. Admission to each of the Academic Programmes shall be offered on the basis of merit in the corresponding Test Paper(s) of JAM 2016.

5. ELIGIBILITY REQUIREMENTS (ERs) FOR ADMISSION

The candidates who qualify in JAM 2016 shall have to fulfill the following Eligibility Requirement (ER) for admissions in IISc and IITs.

- All candidates admitted through JAM should have a Bachelor's degree.
- At least **55%** aggregate marks, **without rounding off**, (taking into account all subjects, including Languages and Subsidiaries, all years combined) for General/OBC-NCL Category Candidates and at least **50%** aggregate marks, **without rounding off**, (taking into account all subjects, including Languages and Subsidiaries, all years combined) for SC/ST and PwD Category Candidates in the qualifying degree.

For Candidates with letter grades/CGPA (instead of percentage of marks), the equivalence in percentage of marks will be decided by the Admitting Institute(s).

Proof of having passed the Qualifying Degree with the Minimum Educational Qualifications (MEQ) as specified by the admitting institute should be submitted by **September 30, 2016**.

At the time of admission, all admitted candidates will have to submit a physical fitness certificate from a registered medical practitioner in the prescribed form. At the time of admission, the admitted candidates may also have to undergo a physical fitness test by a medical board constituted by the Admitting Institute. In case a candidate is not found physically fit to pursue his/her chosen course of study, his/her admission is liable to be cancelled.

Note:
(a) It will entirely be the responsibility of the Candidate to prove that he/she satisfies the Minimum Educational Qualifications (MEQs) and Eligibility Requirements (ERs) for Admissions.
(b) The Admitting Institute has the right to cancel, at any stage, the admission of a candidate who is found to have been admitted to a course to which he/she is not entitled, being unqualified or ineligible in accordance with the rules and regulations in force.

6. PATTERN OF TEST PAPERS

The JAM 2016 examination for all the seven test papers will be carried out as **ONLINE** Computer Based Test (CBT) where the candidates will be shown the questions in a random sequence on a computer screen. For all the seven test papers, the duration of the examination will be 3 hours. The medium for all the test papers will be English only. There will be a total of 60 questions carrying 100 marks. The entire paper will be divided into three sections, A, B and C. All sections are compulsory. Questions in each section are of different types as given below:

- **Section–A** contains a total of 30 Multiple Choice Questions (MCQ) carrying one or two marks each. Each MCQ type question has four choices out of which only one choice is the correct answer. Candidates can mark the answer by clicking the choice.

- **Section–B** contains a total of 10 Multiple Select Questions (MSQ) carrying two marks each. Each MSQ type question is similar to MCQ but with a difference that there may be one or more than one choice(s) that are correct out of the four given choices. The candidate gets full credit if he/she selects all the correct answers only and no wrong answers. Candidates can mark the answer(s) by clicking the choice(s).

- **Section–C** contains a total of 20 Numerical Answer Type (NAT) questions carrying one or two marks each. For these NAT type questions, the answer is a signed real number which needs to be entered using the virtual numeric keypad on the monitor. No choices will be shown for these type of questions. Candidates have to enter the answer by using a virtual numeric keypad.

- In all sections, questions not attempted will result in zero mark. In Section – A (MCQ), wrong answer will result in **negative** marks. For all 1 mark questions, 1/3 marks will be deducted for each wrong answer. For all 2 marks questions, 2/3 marks will be deducted for each wrong answer. In Section – B (MSQ), there are **no negative** and **no partial** marking provisions. There is **no negative** marking in Section – C (NAT) as well.

- There is provision of using **online virtual calculator** and hence, the candidates should not bring any calculator with them.

- Mobile phones or any other electronic devices are **strictly prohibited** inside examination hall. Charts, graph sheets, tables, are also **NOT** allowed inside the examination hall.

- A scribble pad will be provided for rough work and this has to be returned back at the end of the examination.

- The candidates are required to select the answer for MCQ and MSQ type questions, and to enter the answer for NAT questions using only a mouse on a virtual numeric keypad (the keyboard of the computer will be disabled). At the end of the 3-hours the computer will automatically close the examination.

Use of unfair means by a candidate in JAM 2016, whether detected at the time of examination, or at any other stage, will lead to cancellation of his/her candidature as well as disqualification of the candidate from appearing in JAM in future.

The candidates are advised to visit the JAM 2016 website for more details on the patterns of questions for JAM 2016, including examples of the questions. Candidates will also be able to take a mock examination through a 'Mock Test' link that will be made available on the website closer to the examination date.

7. TEST SCHEDULE

The JAM 2016 online examination will be held on **February 07, 2016 (Sunday)** in two sessions as Computer Based Test (CBT). The schedule for different Test Papers of JAM 2016 is given in Table 1.

Table 1: JAM 2016 Examination Test Schedule

Exam Date	Session	Time	Test Papers and Codes
February 07, 2016 (Sunday)	I	9:00 a.m. - 12:00 noon	Biological Sciences (BL), Mathematics (MA) and Physics (PH)
	II	2:00 p.m. - 5:00 p.m.	Biotechnology (BT), Chemistry (CY), Geology (GG) and Mathematical Statistics (MS)

The Test Schedule will not be changed under any circumstances.

Number of Test Papers Allowed:

A candidate can appear in either one or two Test Paper(s). Such a candidate desirous of appearing in two Test Papers must ensure (from Table 1) that these Test Papers are not scheduled in the same session. For appearing in the second Test Paper, a requisite additional fee should be paid as per Table 2.

8. CHOICE OF EXAMINATION CITIES

The JAM 2016 examination is conducted through collaboration of eight zones. The names of these eight zones and the locations of Examination Cities/Towns for JAM 2016 are listed zone-wise in **Appendix-III**. Candidates must specify their first, second and third choice cities at the time of applying for JAM 2016 examination. When the first city choice is chosen, then zone gets determined and the candidates will be able to choose the second choice city from the same zone. The third choice city can be chosen from anywhere India including from the same zone. If enough candidates are not available at a listed City/Town, then the City/Town may be dropped from the final list, and those candidates will either be allotted a centre in the city of their second choice or third choice. However, because of operational constraints, the JAM 2016 Committee reserves the right to add a new city or remove an existing one, and allot a city that may not be any of the choices of a candidate.

An examination city may have one or more examination centres. A centre once allotted will not normally be changed. A request for change of a centre within the same City/Town will **NOT** be permitted in any circumstances. In exceptional circumstances, a change of examination City/Town may be permitted, if a request with a valid reason for the same is received in the office of the Organizing Chairman, JAM 2016, IIT Madras, Chennai-600036, on or before **October 31, 2015,** along with a Demand Draft of Rs. 500/- drawn in favour of **"Chairman, JAM-2016, IIT Madras",** on any Nationalized Bank, payable at Chennai. **Please note that payment of Rs. 500/- does not necessarily guarantee the change of centre.** The decision of the Organizing Chairman, JAM 2016, in this regard will be final.

9. RESERVED SEATS

In every programme, a certain number of seats are reserved for candidates belonging to various categories. The number of seats reserved under various categories in each of the programmes covered under JAM 2016 is given in **Appendix-I**. The category-wise list in a JAM paper will be prepared based on the category declared by the candidate in the application form. The final seat allotment will be done based on a valid Category Certificate (in the prescribed format) submitted along with the Application Form for Admission.

A candidate who seeks admission under SC/ST/OBC-NCL category must submit, along with the filled in application form for admission, the requisite certificate issued by a competent authority as specified in **Appendix-IV**, failing which his/her candidature for admission will not be considered under the reserved category.

A candidate who seeks admission under the OBC-NCL Category must submit an OBC-NCL Certificate in the format shown in **Appendix-V** along with the filled in application form for admission. **The candidate will be considered in the General Category in case the OBC-NCL Certificate is not in the prescribed format or has submitted an invalid certificate and no opportunity will be given to the candidate for late submission of the said certificate under any circumstances.**

For PwD candidates with any category of disability (viz., blindness or low vision, hearing impairment, loco-motor disability, and/or cerebral palsy), benefit will be given to only those who have at least **40%** permanent physical impairment with respect to a body part/ system/ extremity/ whole body, etc. Such candidates must submit, along with the filled in Application Form, the Certificate of Disability from a Government Medical Board and should be fit to pursue the Programme. The disability percentage of candidates selected for admission under PwD category may also be required to be certified by a Medical Board, duly constituted by the Admitting Institute.

Note:
(a) **The provisions for the reserved seats given above are subject to modification in accordance with any Government Order, if issued subsequently by the Government of India.**
(b) **It will entirely be the responsibility of a candidate to prove his/her eligibility for admission in terms of Minimum Educational Qualifications (MEQ), etc., and for claiming reservation under a specific category.**

10. APPLICATION PROCEDURE FOR JAM 2016

Candidates can apply for JAM 2016 only through an online application process at JAM 2016 website **http://jam.iitm.ac.in/jam2016**. The details of the application fee specific to Gender/ Category are given in Table 2. **The application fee is non-refundable**.

Table 2: Application Fee Details for JAM 2016

Group/Category	Fee Details	
	One Test Paper	**Two Test Papers**
Female (All Categories)/ SC/ST/PwD	Rs. 750/-	Rs. 1050/-
All Others	Rs. 1500/-	Rs. 2100/-

The facility for Online Registration and Application will be available through the website http://jam.iitm.ac.in/jam2016 from **September 02, 2015**. A candidate has to first register on the JAM 2016 website, by providing his/ her name, a valid E-mail address, a working mobile number and a password. The candidate must give an E-mail address that he/ she uses and checks frequently, as all communications to the candidate from JAM 2016 will be sent to this E-mail address. The candidate must not use somebody else's E-mail address and **only one candidate can be registered with one E-mail address**. Similarly, the candidate should provide his/her personal mobile number because most of the communications may also be sent via SMS. The password that the candidate provides should be chosen so that it cannot be guessed easily by others and this password must not be forgotten by the candidate as he/she will require it to login to the online application website. Upon successful registration, an E-mail containing your enrolment ID will be sent to the candidate in the E-mail address provided by the candidate. The enrolment ID will also be sent to the mobile number provided by the candidate. The candidate needs to use this enrolment ID along with the password for all JAM 2016 related communications or website operations.

Upon logging in to the JAM 2016 application processing website, the candidate needs to fill in information, such as parent/guardian's name and mobile number, city choices, the number and choice of test paper(s) that he/she wishes to appear, date of birth, gender, address for communication, category and PwD status. The candidate's application fee will get determined based on this information. The candidate should also fill his/her other details, such as information on qualifying degree, percentage of marks/CGPA, details of valid personal ID information, etc. It may be noted that the candidate can specify any one of the following photo ID card for the personal ID information: Aadhaar ID, College ID, Driving License, Employee ID, PAN Card, Passport, Voter ID.

The candidate should upload the following files/documents to the application website:
  A. A high quality image of the candidate's photograph, as per the requirements given below (*see section 10.1*).
  B. A good quality image of the candidate's signature, as per the requirements given below (*see section 10.2*).
  C. A good quality scanned image of SC/ST/PwD certificates, if applicable (*in JPEG/PDF format*).

NOTE to OBC-NCL Candidates: OBC-NCL candidates are NOT required to submit/upload any category certificate along with the filled online application form. However, they are required to submit this certificate in the prescribed format (Appendix-V) at a later date (see Section 13).

After filling in the required fields in the application form and uploading the required documents, the candidate must review his/her complete application form. After ensuring that there is no error in the application form and all the relevant and valid documents are uploaded, the candidate can submit the application and proceed for payment of application fee.

The application fee can be paid either **online** or through **e-challan** via State Bank of India, as detailed below. Additional bank charges may apply for the above transactions.

➢ If the candidate chooses to **pay through online** payment mode, then he/she will be able to make the payment using his/her netbanking account, debit or credit cards, until **October 14, 2015**. The charges may vary depending on the payment option.

➢ In case the candidate chooses the offline payment mode to **pay through e-challan**, then a e-challan will be generated (as a .pdf file). The candidate has to take the

printout of the e-challan and the payment should be made in cash at any SBI branch latest by **October 10, 2015 (Saturday)**. The payment information gets updated in the candidate's login typically within 72 hours. The candidate has to upload a **good quality scanned image of SBI-stamped JAM copy of e-Challan (*in JPEG/PDF format*) in the application website.**

The last date to complete and submit the application form is October 14, 2015 (Wednesday).

Any application which is incomplete in any respect and does not have the required valid documents will be summarily rejected. The candidates must take care to fill in the details in the application form correctly and must upload the correct and valid documents, including signatures and photographs.

The candidates are required to visit the '**How to Apply?**' link in JAM 2016 website for more information on the application and payment processes. The candidates are advised to visit the '**FAQ**' section as well for additional queries.
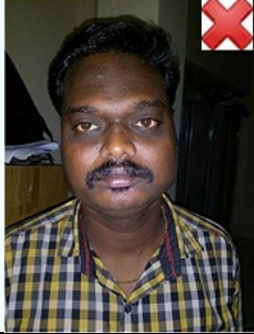
Note: If the fee paid is NOT as per the Gender and Category, and the number of Test Paper(s), entered in the Application Form, then the filled in form will be rejected without any intimation to the candidate.

10.1 Photograph Requirements

The JAM 2016 online application process requires the uploading of recent passport size photograph as an electronic file at the time of submitting the application. Uploading a photograph that does not meet specifications can result in disqualification of the application without any refund of the fee.

   i.   The photograph must be in color and must be taken in a professional studio. Photographs taken using a Mobile phone and other self-composed portraits are NOT acceptable.
   ii.   Photograph must be taken in a White or a very light background.
   iii. The photograph must have been taken after July 01, 2015.
   iv.   In the photograph, the face should occupy about 50% of the area, and with a full-face view looking into the camera directly.
   v.   The main features of the face must not be covered by hair of the head, any cloth or any shadow. Forehead, eyes, nose and chin should be clearly visible.
   vi.   If you normally wear spectacles, glare on glasses is not acceptable in your photo. Glare can be avoided with a slight downward tilt of the glasses or by removing the glasses for the photo shoot.
   vii. You must not wear spectacles with dark or tinted glasses, only clear glasses are permitted.
   viii. Ask your photo studio to provide the image in a JPEG format and also on a standard 3.5 cm x 4.5 cm print
   ix.   Maximum pixel resolution for JPEG: 480 x 640 (0.3 Mega pixel) (Ask your studio to reduce it to this resolution if it is higher)
   x.   Minimum pixel resolution for JPEG: 240 x 320.
   xi.   For your own benefit, it may be prudent not to intentionally change your facial features or hair style as in the photograph until the day of the exam.

Sample Photographs

Not Acceptable Photograph	Reason for Rejection	Acceptable	Not Acceptable Photograph	Reason for Rejection
	Photo taken with Mobile phone; Distorted face			**Shadow on face**
	Blue Background			**Improper flash or Improper Lighting**
	Facial Area is less than 50% of total			**Too much glare on spectacles**
	Not looking straight into Camera			**Dark/Tinted Spectacles or Sunglasses**
	Cloth Covering facial features			**Poor Digital Resolution (100×75)**

10.2 Signature Requirements

The JAM 2016 online application process requires the uploading of candidate's signature as an electronic file at the time of submitting the application. Uploading a signature file that does not meet specifications can result in disqualification of the application without any refund of the fee.

i. Please draw a rectangular box of size 7 cm × 2 cm (width x height) on an A4 white paper. Put your signature with black or dark blue ink within this box.

ii. Get the signature digitally image scanned by a professional using a scanner, and get the image cropped to the box by the professional.

iii. Only JPEG image formats will be accepted.

iv. The maximum pixel resolution for the image is 560 × 160.

v. The minimum pixel resolution for the image is 280 × 80.

vi. Photograph of signature taken using mobile phone is NOT acceptable, and can result in disqualification of the application without any refund of the fee.

11. 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 JAM 2016 website from **December 31, 2015 till Examination Date**. 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 the Organizing Chairman, JAM 2016, IIT Madras immediately. If a candidate is not able to download the Admit Card, then the Chairman JAM of the respective IISc/IITs (See Appendix III), under which the first choice Test City/Town of the candidate falls, may be contacted through Phone/Fax/E-mail, giving the Online Enrolment ID, Name, E-mail ID, Mobile Number, Mailing Address and City Code of the desired Test Centre (first choice) to get information about the Registration Number and the Name of the Test Centre allotted.

A printout of the downloaded Admit Card must be brought to the test centre along with the original and valid photo identification. Please note that you have to give the details of this ID proof while filling the online application. No candidate will be permitted to appear in JAM 2016 examination without a valid Admit Card, and a valid and original ID. The Admit Card should be presented to the invigilators/JAM officials for verification.

The Admit Card of JAM 2016 must be carefully preserved by the Candidate and produced at the time of admission, if required by the Admitting Institute.

The Organizing Institute may withdraw the permission granted to a candidate to appear in JAM 2016, if it is found that the candidate is not eligible to appear in the exam, even though an Admit Card has been issued and is produced by the candidate before the Presiding Officer of the Test Centre.

12. RANK AND MERIT LIST

12.1 Rank List

For each test paper in JAM 2016, an All India Rank (AIR) will be assigned to all the appeared candidates based on the performance of the candidates in the test paper.

Tie-Breaking: The tie-breaking criterion for awarding the ranks to candidates scoring the same aggregate marks in a test paper will be as follows:

The candidate with a higher ratio of positive marks to negative marks will be given a higher rank. If this criterion fails to break ties, the candidates concerned will be awarded the same rank.

12.2 Merit List

The results (merit lists) will be declared on **March 23, 2016 (Wednesday)**. The results will be available on the website: **http://jam.iitm.ac.in/jam2016**.

For each test paper, an All India Merit list will be prepared based on AIR. The number of candidates included in the All India Merit List will depend on the total number of seats available in each category (OBC-NCL, SC, ST, and PwD) in a given subject. These candidates (henceforth called Qualified Candidates) are eligible to apply for admission to any of the corresponding academic programmes available (see Appendix-I) at IISc and IITs. Please note that the number of category-wise (OBC-NCL, SC, ST, and PwD) candidates included in the All India Merit List will be based on the category declared by the candidates in their application.

The **Score Card (indicating the All India Rank(s) and the mark(s) obtained by the candidate)** will be available for download in the JAM 2016 website from **March 30, 2016** to **July 31, 2016** to qualified candidates.

13. ADMISSION PROCEDURE

Only the candidates who **qualify** in JAM 2016 (whose names appear in the Merit List) will be eligible to apply for admission to any of the corresponding academic programmes available at IISc and IITs (refer to **Appendices-I & II** of this Information Brochure).

Candidates are advised, in their own interest, to refer to the brief profiles of the Admitting Institutes and Departments at their respective websites (Table 3). Applicants should note that they have to apply for admission by filling an online Application Form for Admission (henceforth called Admission Form) available only at JAM 2016 website.

Based on the test paper(s) qualified, an applicant can apply to one or more academic programmes covered under that test paper(s), subject to fulfillment of the Minimum Educational Qualifications (MEQs) and the Eligibility Requirements (ERs) of the Admitting Institute(s). For the academic session 2016-17, the following admission procedure shall be followed for all the Programmes at IISc and IITs covered under JAM 2016. Candidates are also advised to refer to the JAM 2016 website for latest updates.

(i)   After JAM 2016 results are announced, **a qualified candidate will have to apply ONLINE only using the prescribed Admission Form available at JAM 2016 website http://jam.iitm.ac.in/jam2016, irrespective of IISc and IITs where the admission is sought.** The duration for **online Admission Form submission** is from **April 15-27, 2016.**

NOTE to OBC-NCL Candidates: The candidates must upload a valid OBC-NCL certificate in the prescribed format when they submit their application form for admission after the declaration of JAM 2016 results. The final seat allotment will be done based on the OBC-NCL certificate submitted along with the application form for admission. The candidate will be considered in the General category in case the OBC-NCL Certificate is invalid or not in the prescribed format or sent/ uploaded after April 27, 2016.

(ii) Irrespective of whether a candidate has qualified in one or two Test Papers, **only one** duly completed Admission Form should be submitted listing, in an option form, all the programmes at IISc and IITs (along with the order of preferences) where the candidate is seeking admission.

(iii) Upon logging in to the JAM 2016 website (JOAPS), the candidate needs to fill in the required information, such as choice of the programmes in order of preference, educational qualifications, percentage of marks/CGPA, category, PwD status etc. After carefully choosing the order of programme preferences based on the ER and MEQ of the programmes at Admitting Institutes, a payment of Rs 600/- (Rupees six hundred only) is to be made as non-refundable processing fee. The payment can be made **only through e-challan via State Bank of India**. After locking programme preferences and proceeding to payment, a e-challan will be generated as a .pdf file. The candidate has to take the printout of the e-challan and the payment should be made in cash at any State Bank of India branch latest by **April 27, 2016 (Wednesday)**. Additional bank charges may apply for this transaction. The candidate has to upload a **good quality scanned image of SBI-stamped JAM copy of e-Challan (*in JPEG/PDF format*) in the admission website**

(iv) The Admission Form will not be considered if it is found incomplete in any respect or if it is not accompanied by the payment and the candidate will not be considered for admission, irrespective of satisfying the ER and MEQ of any programme(s) for which the Admission Form has been submitted. Also, a candidate will be considered for admission only to the programme(s), given in his/her Admission Form.

(v) Taking into consideration the order of preference as given in the Admission Form and corresponding rank(s) in the Merit List, the **First Admission List** for each programme under JAM 2016 will be prepared by the Organizing Institute and will be announced on **June 03, 2016 (Friday)** on JAM 2016 website.

(vi) After the declaration of the First Admission List, admission offers will be sent by the respective Admitting Institute(s) to the concerned candidates on the next day. Along with the submission of the acceptance form, these candidates will also have to pay an advance seat booking fee (Rs. 10000/- for General/OBC-NCL category candidates and Rs. 5000/- for SC/ST/PwD category candidates) through **e-challan** via State Bank of India, within the deadline mentioned in the admission 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.

(vii) If seats remain vacant after the first admission process is over, the Organizing Institute will prepare a **Second Admission List**. This second list will be announced by the Organizing Institute on **June 20, 2016 (Monday)** on JAM 2016 website and the admission offers based on the second list, if any, will be sent by the Admitting Institute(s) to the candidates concerned.

(viii) Candidates who have been offered admission through the Second List but not through the First List, must submit their acceptance form, along with an advance seat booking fee (Rs. 10000/- for General/OBC-NCL category candidates and Rs. 5000/- for SC/ST/PwD category candidates) paid through **e-challan** via State Bank of India,

14

within the deadline mentioned in the admission 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.

(ix) If seats remain vacant even after the second admission process is over, the Organizing Institute will prepare a **Third and Final Admission List**. This third and final list will be announced by the Organizing Institute on **July 04, 2016 (Monday)** on JAM 2016 website and the admission offers based on the third list, if any, will be sent by the Admitting Institute(s) to the candidates concerned.

(x) **With the Third and Final Admission List, the admission process based on JAM 2016 will come to a close.**

(xi) If a qualified candidate is allotted a seat through the First Admission List and if the offer of admission is accepted, the lower preferences of the candidate, if any, will be automatically cancelled. However, the candidate will remain on the waiting list for all the higher preferences (if any). Qualified candidates, who are not allotted any seat in the First/Second Admission List, will remain on the waiting list in the next round of admission(s). If a qualified candidate fails to accept an admission offer, he/she will not be considered further in the admission process.

Important Note:

(a) **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.**

(b) **The offer of admission to a candidate will be provisional, subject to the fulfillment of all the requirements by the dates specified.**

(c) **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 made in order of merit and depending on the number of seats available at the Admitting Institute(s).**

14. PROFILE OF IISc and IITs

The profile of the admitting institutes covered under JAM 2016 can be seen at the websites of the respective institutions as given below in Table 3.

Table 3: Website Addresses of IISc Bangalore and IITs

S.No.	Name of Institute	Website
1	IISc Bangalore	gate.iisc.ernet.in/jam
2	IIT Bhubaneswar	www.iitbbs.ac.in
3	IIT Bombay	www.gate.iitb.ac.in/jam2016
4	IIT Delhi	gate.iitd.ac.in
5	IIT Gandhinagar	www.iitgn.ac.in
6	IIT Guwahati	www.iitg.ernet.in/jam
7	IIT Hyderabad	www.iith.ac.in
8	IIT Indore	www.iiti.ac.in
9	IIT Kanpur	gate.iitk.ac.in/jam
10	IIT Kharagpur	jam.iitkgp.ac.in
11	IIT Madras	jam.iitm.ac.in/jam2016
12	IIT Patna	www.iitp.ac.in
13	IIT Roorkee	www.iitr.ac.in/jam
14	IIT Ropar	www.iitrpr.ac.in

15. SYLLABI FOR TEST PAPERS

15.1 BIOLOGICAL SCIENCES (BL)

General Biology*:* Taxonomy and physiology, Pro-and eukaryotic organizms; cell organelles and their function; multicellular organization; energy transformations; internal transport systems of plants; respiration; regulation of body fluids and excretory mechanisms; cellular reproduction; Mendelian genetics and heredity; biology and populations and communities; evolution; genesis and diversity of organizms; animal behaviour, plant and animal diseases.

Basics of Biochemistry, Biophysics, Molecular Biology:

Buffers; trace elements in biological systems; enzymes and proteins; vitamins; biological oxidations, carbohydrates and lipids and their metabolisms; digestion and absorption; detoxifying mechanisms; plant and animal hormones and their action, nervous system, nucleic acids, nature of gene and its function, Genetic code, synthesis of nucleic acids and proteins. Enzyme mechanisms and kinetics, nucleic acid metabolism, photo synthesis.

Structure of biomolecules; intra and intermolecular forces; thermodynamics and kinetics of biological systems, principles of x-ray diffraction, IR and UV spectroscopy and hydrodynamic techniques.

Microbiology, Cell Biology and Immunology*:* Classes of microorganizms and their characterization, nutrient requirement for growth; laboratory techniques in microbiology, pathogenic microorganizms and disease; applied microbiology; viruses, Microbial genetics. Innate and adaptive immunity, antigen antibodies.Cell theory; Cell architecture; methods of cell fractionation; cell division; types of chromosome structure; biochemical genetics- inborn errors of metabolisms; viruses and fungi; principles of processes of development.

Mathematical Sciences*:* Mathematical functions (algebraic, exponential, trigonometric), their derivatives (derivatives and integrals of simple functions), permutations and combinations.

15.2 BIOTECHNOLOGY (BT)

The Biotechnology (BT) test paper comprises of Biology (44% weightage), Chemistry (20% weightage), Mathematics (18% weightage) and Physics (18% weightage).

BIOLOGY (10+2+3 level)

General Biology: Taxonomy; Heredity; Genetic variation; Conservation; Principles of ecology; Evolution; Techniques in modern biology.

Biochemistry and Physiology: Carbohydrates; Proteins; Lipids; Nucleic acids; Enzymes; Vitamins; Hormones; Metabolism – Glycolysis, TCA cycle, Oxidative Phosphoryation; Photosynthesis. Nitrogen Fixation, Fertilization and Osmoregulation; Vertebrates-Nervous system; Endocrine system; Vascular system; Immune system; Digestive system and Reproductive System.

Basic Biotechnology: Tissue culture; Application of enzymes; Antigen-antibody interaction; Antibody production; Diagnostic aids.

Molecular Biology: DNA; RNA; Replication; Transcription; Translation; Proteins; Lipids and Membranes; Operon model; Gene transfer.

Cell Biology: Cell cycle; Cytoskeletal elements; Mitochondria; Endoplasmic reticulum; Chloroplast; Golgi apparatus; Signaling.

Microbiology: Isolation; Cultivation; Structural features of virus; Bacteria; Fungi; Protozoa; Pathogenic micro-organizms.

CHEMISTRY (10+2+3 level)

Atomic Structure: Bohr's theory and Schrodinger wave equation; Periodicity in properties; Chemical bonding; Properties of s, p, d and f block elements; Complex formation; Coordination compounds; Chemical equilibria; Chemical thermodynamics (first and second law); Chemical kinetics (zero, first, second and third order reactions); Photochemistry; Electrochemistry; Acid-base concepts; Stereochemistry of carbon compounds; Inductive, electromeric, conjugative effects and resonance; Chemistry of Functional Groups: 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; Mechanism of organic reactions; Soaps and detergents; Synthetic polymers; Biomolecules – amino acids, proteins, nucleic acids, lipids and carbohydrates (polysaccharides); Instrumental techniques – chromatography (TLC, HPLC), electrophoresis, UV-Vis, IR and NMR spectroscopy, mass spectrometry.

MATHEMATICS (10+2 level)

Sets, Relations and Functions, Mathematical Induction, Logarithms, Complex numbers, Linear and Quadratic equations, Sequences and Series, Trigonometry, Cartesian System of Rectangular Coordinates, Straight lines and Family, Circles, Conic Sections, Permutations and Combinations, Binomial Theorem, Exponential and Logarithmic Series, Mathematical Logic, Statistics, Three Dimensional Geometry, Vectors, Matrices and Determinants, Boolean Algebra, Probability, Functions, limits and Continuity, Differentiation, Application of Derivatives, Definite and Indefinite Integrals, Differential Equations.

PHYSICS (10+2 level)

Physical World and Measurement, Elementary Statics and Dynamics, Kinematics, Laws of Motion, Work, Energy and Power, Electrostatics, Current electricity, Magnetic Effects of Current and Magnetism, Electromagnetic Induction and Alternating Current, Electromagnetic waves, Optics, Dual Nature of Matter and Radiations, Atomic Nucleus, Solids and Semiconductor Devices, Principles of Communication, Motion of System of Particles and Rigid Body, Gravitation, Mechanics of Solids and Fluids, Heat and Thermodynamics, Oscillations, Waves.

15.3 CHEMISTRY (CY)

PHYSICAL CHEMISTRY

Basic Mathematical Concepts: Functions, maxima and minima, integrals, ordinary differential equations, vectors and matrices, determinants, elementary statistics and probability theory.

Atomic and Molecular Structure: Fundamental particles, Bohr's theory of hydrogen-like atom; wave-particle duality; Uncertainty principle; Schrödinger's wave equation; Quantum numbers, shapes of orbitals; Hund's rule and Pauli's exclusion principle, electronic configuration of simple homonuclear diatomic molecules.

Theory of Gases: Equation of state of ideal and non-ideal (van der Waals) gases, Kinetic theory of gases. Maxwell-Boltzmann distribution law; equipartition of energy.

Solid state: Crystals, crystal systems, X-rays, NaCl and KCl structures, close packing, atomic and ionic radii, radius ratio rules, lattice energy, Born-Haber cycle, isomorphism, heat capacity of solids.

Chemical Thermodynamics: Reversible and irreversible processes; First law and its application to ideal and nonideal gases; Thermochemistry; Second law; Entropy and free energy, Criteria for spontaneity.

Chemical and Phase Equilibria: Law of mass action; K_p, K_c, K_x and K_n; Effect of temperature on K; Ionic equilibria in solutions; pH and buffer solutions; Hydrolysis; Solubility product; Phase equilibria– Phase rule and its application to one-component and two-component systems; Colligative properties.

Electrochemistry: Conductance and its applications; Transport number; Galvanic cells; EMF and Free energy; Concentration cells with and without transport; Polarography; Concentration cells with and without transport; Debey-Huckel-Onsagar theory of strong electrolytes.

Chemical Kinetics: Reactions of various order, Arrhenius equation, Collision theory; Theory of absolute reaction rate; Chain reactions – Normal and branched chain reactions; Enzyme kinetics; photochemical processes; Catalysis.

Adsorption: Gibbs adsorption equation, adsorption isotherm, types of adsorption, surface area of adsorbents, surface films on liquids.

ORGANIC CHEMISTRY

Basic Concepts in Organic Chemistry and Stereochemistry: Electronic effect (resonance, inductive, hyperconjugation) and steric effects and its applications (acid/base property). Optical isomerism in compounds without any stereocenters (allenes, biphenyls), conformation of acyclic systems (substituted ethane/npropane/n-butane) and cyclic systems (mono and di substituted cyclohexanes).

Organic Reaction Mechanism and Synthetic Applications: Chemistry reactive intermediates, carbine, nitrene, benzyne, Hofmann-Curtius-Lossen rearrangement, Wolf rearrangement, Simmons-Smith reaction, Reimer-Tiemann reaction, Michael reaction, Darzens reaction, Witting reaction, McMurry reaction. Pinacol-pinacolone, Favorskii, benzilic acid rearrangement, dienonc-phenol rearrangement, Bayer-Villeger reaction. Oxidation and reduction reactions in organic chemistry. Organometallic reagents in organic synthesis (Grignard and organocopper). Diels-Alder reaction, Sigmatropic reactions.

Qualitative Organic Analysis: Functional group interconversions, structural problems using chemical reactions, identification of functional groups by chemical tests, elementary 1H NMR and IR spectroscopy as a tool for structural elucidation.

Natural Products Chemistry: Introductory chemistry of alkaloids, terpenes, carbohydrates, amino acids, peptides and nucleic acids.

Heterocyclic Chemistry: Monocyclic compounds with one hetero atom.

INORGANIC CHEMISTRY

Periodic Table: Periodic classification of elements and periodicity in properties; general methods of isolation and purification of elements.

Chemical Bonding and Shapes of Compounds: Types of bonding; VSEPR theory and shapes of molecules;

hybridization; dipole moment; ionic solids; structure of NaCl, CsCl, diamond and graphite; lattice energy.

Main Group Elements (s and p blocks): Chemistry with emphasis on group relationship and gradation in properties; structure of electron deficient compounds of main group elements and application of main group elements.

Transition Metals (d block): Characteristics of 3d elements; oxide, hydroxide and salts of first row metals; coordination complexes; VB and Crystal Field theoretical approaches for structure, color and magnetic properties of metal complexes. Organometallic compounds, metal carnonyls, nitrosyls and metallocenes, ligands with back bonding capabilities; MO theory approaches to explain bonding in metal-carbonyl, metal-nitrosyl and metalphosphine complexes.

Bioinorganic Chemistry: Essentials and trace elements of life, basic reactions in the biological systems and the role of metal ions especially Fe^{2+}, Fe^{3+}, Cu^{2+} and Zn^{2+}, function of hemoglobin and myoglobin.

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

Analytical Chemistry: Principles of qualitative and quantitative analysis; acid-base, oxidation-reduction and EDTA and precipitation reactions; use of indicators; use of organic reagents in inorganic analysis; radioactivity; nuclear reactions; applications of isotopes.

15.4 GEOLOGY (GG)

The Planet Earth: Origin of the Solar System and the Earth; Geosphere and the composition of the Earth; Shape and size of the earth; Earth-moon system; Formation of continents and oceans; Dating rocks and age of the Earth; Energy in the earth system; Volcanism and volcanic landforms; Interior of earth; Earthquakes; Earth's magnetism and gravity, Isostasy; Elements of Plate tectonics; Orogenic cycles.

Geomorphology: Weathering and erosion; Transportation and deposition due to wind, ice, river, sea, and resulting landforms, Structurally controlled landforms.

Structural Geology: Concept of stratum; Contour; Outcrop patterns; Maps and cross sections; Dip and strike; Classification and origin of folds, faults, joints, foliation and lineation, unconformities; shear zones.

Palaeontology: Major steps in the evolution of life forms; Fossils; their mode of preservation and utility; Morphological characters, major evolutionary trends and ages of important groups of animals – Brachiopoda, Mollusca, Trilobita, Graptolitoidea, Anthozoa, Echinodermata; Gondwana plant fossils; Elementary idea of verterbrate fossils in India.

Stratigraphy: Principles of stratigraphy; Litho-, chrono- and biostratigraphic classification; distribution and classification of the stratigraphic horizons of India from Archaean to Recent.

Mineralogy: Symmetry and forms in common crystal classes; Physical properties of minerals; Isomorphism and polymorphism, Classification of minerals; Structure of silicates; Mineralogy of common rock-forming minerals; Mode of occurrence of minerals in rocks. Transmitted polarised light microscopy

and optical properties of uniaxial and biaxial minerals.

Petrology: Definition and classification of rocks; Igneous rocks-forms of igneous bodies; Crystallization from magma; classification, association and genesis of igneous rocks; Sedimentary rocks – classification, texture and structure; size and shape of sedimentary bodies. Metamorphic rocks – classification, facies, texture and properties.

Economic Geology: Properties of common economic minerals; General processes of formation of mineral deposits; Physical characters; Mode of occurrence and distribution in India both of metallic and non-metallic mineral deposits; Coal and petroleum occurrences in India.

Applied Geology: Ground Water; Mineral exploration, elements of Mining Geology and Environmental Geology; Principles of Engineering Geology.

15.5 MATHEMATICS (MA)

Sequences and Series of Real Numbers: Sequences and series of real numbers, Convergent and divergent sequences, bounded and monotone sequences, Convergence criteria for sequences of real numbers, Cauchy sequences, absolute and conditional convergence; Tests of convergence for series of positive terms – comparison test, ratio test, root test; Leibnitz test for convergence of alternating series.

Functions of One Variable: limit, continuity, differentiation, Rolle's Theorem, Mean value theorem. Taylor's theorem. Maxima and minima.

Functions of Two Real Variables: limit, continuity, partial derivatives, differentiability, maxima and minima. Method of Lagrange multipliers, Homogeneous functions including Euler's theorem.

Integral Calculus: Integration as the inverse process of differentiation, definite integrals and their properties, Fundamental theorem of integral calculus. Double and triple integrals, change of order of integration. Calculating surface areas and volumes using double integrals and applications. Calculating volumes using triple integrals and applications.

Differential Equations: Ordinary differential equations of the first order of the form $y'=f(x,y)$. Bernoulli's equation, exact differential equations, integrating factor, Orthogonal trajectories, Homogeneous differential equations-separable solutions, Linear differential equations of second and higher order with constant coefficients, method of variation of parameters. Cauchy-Euler equation.

Vector Calculus: Scalar and vector fields, gradient, divergence, curl and Laplacian. Scalar line integrals and vector line integrals, scalar surface integrals and vector surface integrals, Green's, Stokes and Gauss theorems and their applications.

Group Theory: Groups, subgroups, Abelian groups, non-abelian groups, cyclic groups, permutation groups; Normal subgroups, Lagrange's Theorem for finite groups, group homomorphisms and basic concepts of quotient groups (only group theory).

Linear Algebra: Vector spaces, Linear dependence of vectors, basis, dimension, linear transformations, matrix representation with respect to an ordered basis, Range space and null space, rank-nullity theorem; Rank and inverse of a matrix, determinant, solutions of systems of linear equations, consistency conditions. Eigenvalues and eigenvectors. Cayley-Hamilton theorem. Symmetric, skew-symmetric, hermitian, skew-hermitian, orthogonal and unitary matrices.

Real Analysis: Interior points, limit points, open sets, closed sets, bounded sets, connected sets, compact sets; completeness of R, Power series (of real variable) including Taylor's and Maclaurin's, domain of convergence, term-wise differentiation and integration of power series.

15.6 MATHEMATICAL STATISTICS (MS)

The Mathematical Statistics (MS) test paper comprises of Mathematics (40% weightage) and Statistics (60% weightage).

Mathematics

Sequences and Series: Convergence of sequences of real numbers, Comparison, root and ratio tests for convergence of series of real numbers.

Differential Calculus: Limits, continuity and differentiability of functions of one and two variables. Rolle's theorem, mean value theorems, Taylor's theorem, indeterminate forms, maxima and minima of functions of one and two variables.

Integral Calculus: Fundamental theorems of integral calculus. Double and triple integrals, applications of

definite integrals, arc lengths, areas and volumes.

Matrices: Rank, inverse of a matrix. Systems of linear equations. Linear transformations, eigenvalues and eigenvectors. Cayley-Hamilton theorem, symmetric, skew-symmetric and orthogonal matrices.

Differential Equations: Ordinary differential equations of the first order of the form $y' = f(x,y)$. Linear differential equations of the second order with constant coefficients.

Statistics

Probability: Axiomatic definition of probability and properties, conditional probability, multiplication rule. Theorem of total probability. Bayes' theorem and independence of events.

Random Variables: Probability mass function, probability density function and cumulative distribution functions, distribution of a function of a random variable. Mathematical expectation, moments and moment generating function. Chebyshev's inequality.

Standard Distributions: Binomial, negative binomial, geometric, Poisson, hypergeometric, uniform, exponential, gamma, beta and normal distributions. Poisson and normal approximations of a binomial distribution.

Joint Distributions: Joint, marginal and conditional distributions. Distribution of functions of random variables. Product moments, correlation, simple linear regression. Independence of random variables.

Sampling distributions: Chi-square, t and F distributions, and their properties.

Limit Theorems: Weak law of large numbers. Central limit theorem (i.i.d. with finite variance case only).

Estimation: Unbiasedness, consistency and efficiency of estimators, method of moments and method of maximum likelihood. Sufficiency, factorization theorem. Completeness, Rao-Blackwell and Lehmann-Scheffe theorems, uniformly minimum variance unbiased estimators. Rao-Cramer inequality. Confidence intervals for the parameters of univariate normal, two independent normal, and one parameter exponential distributions.

Testing of Hypotheses: Basic concepts, applications of Neyman-Pearson Lemma for testing simple and composite hypotheses. Likelihood ratio tests for parameters of univariate normal distribution.

15.7 PHYSICS (PH)

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, Algebra of complex numbers.

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 non-conservative 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.

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 oscillators, 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. Thick lens, thin lens and lens combinations. 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.

Electricity and Magnetism: Coulomb's law, Gauss's law. Electric field and potential. Electrostatic boundary conditions, Solution of Laplace's equation for simple cases. Conductors, capacitors, dielectrics, dielectric polarization, volume and surface 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's theorem, 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.

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.

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.

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. OPAMP 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.

Appendix-I: Academic Programmes (and their Codes) Covered under JAM 2016 at Various Admitting Institutes for JAM 2016 Qualified Candidates*

IISc Bangalore (Zone-11)*

Integrated Ph.D.	Biological Sciences
[Programme code] Seats Available	[1101] 10+5+3+2
Paper Code(s)	BL,BT

IIT Bombay (Zone-12)*

M.Sc. (4 semesters)	Applied Geology	Applied Geophysics	Applied Statistics and Informatics	Biotechnology	Chemistry	Mathematics	Physics
[Programme code] Seats Available	[1201] 17+9+5+3 GEN(1)	[1202] 10+6+3+1 OBC(1)	[1203] 19+10+5+3	[1204] 14+8+4+2 GEN(1)	[1205] 23+12+7+3 OBC(1)	[1206] 15+8+5+2 SC(1)	[1207] 20+10+6+4
Paper Code(s)	GG	PH	MS	BT	CY	MA	PH

M.Sc. – Ph.D. dual degree	Environmental Science and Engineering	Operations Research
[Programme code] Seats Available	[1213] 5+3+1+1 GEN(1)	[1214] 6+3+2+1 ST(1)
Paper Code(s)	BT,CY,MA,PH	MA,MS

M.Sc.-M.Tech. (8 semesters)	M.Sc.(Physics)-M.Tech. (Materials Sciences with specialization in Nano-Science & Technology)
[Programme code] Seats Available	[1216] 4+2+1+1 GEN(1)
Paper Code(s)	PH

IIT Delhi (Zone-13)*

M.Sc. (4 semesters)	Chemistry	Mathematics	Physics
[Programme code] Seats Available	[1301] 27+15+8+4 GEN(1), ST(1)	[1302] 27+15+8+4 GEN(1), OBC(1)	[1303] 27+15+8+4 GEN(1)
Paper Code(s)	CY	MA	PH

IIT Guwahati (Zone-14)*

M.Sc. (4 semesters)	Chemistry	Mathematics and Computing	Physics
[Programme code] Seats Available	[1401] 24+13+7+4 GEN(1), SC(1)	[1402] 24+13+7+4 GEN(1)	[1403] 24+13+7+4 OBC(1)
Paper Code(s)	CY	MA	PH

IIT Kanpur (Zone-15)*

M.Sc. (4 semesters)	Chemistry	Mathematics	Physics	Statistics
[Programme code] Seats Available	[1501] 20+11+6+3 GEN(1)	[1502] 20+11+6+3 SC(1)	[1503] 15+8+5+2 OBC(1)	[1504] 25+14+7+4 GEN(1)
Paper Code(s)	CY	MA	PH	MS

M.Sc.- Ph.D. dual degree	Physics
[Programme code] Seats Available	[1505] 8+4+2+1
Paper Code(s)	PH

IIT Kharagpur (Zone-16)*

Joint M.Sc.- Ph.D.	Chemistry	Geology	Mathematics	Physics	Geophysics
[Programme code] Seats Available	[1601] 23+12+7+4 SC(1)	[1602] 15+8+5+2 OBC(1)	[1603] 15+8+5+2 GEN(1)	[1604] 23+12+7+4 SC(1)	[1605] 12+6+4+2 GEN(1)
Paper Code(s)	CY	GG	MA	PH	GG,PH

IIT Madras (Zone-17)*

M.Sc. (4 semesters)	Chemistry	Mathematics	Physics
[Programme code] Seats Available	[1701] 27+15+8+4 GEN(1)	[1702] 27+15+8+4 GEN(1)	[1703] 22+12+7+3 GEN(1), OBC(1), SC(1)
Paper Code(s)	CY	MA	PH

IIT Roorkee (Zone-18)*

M.Sc. (4 semesters)	Applied Geology	Biotechnology	Chemistry	Mathematics	Physics	Economics
[Programme code] Seats Available	[1801] 8+4+2+1 SC(1)	[1802] 18+10+6+3 SC(1)	[1803] 12+7+4+2 SC(1)	[1804] 15+8+5+2 SC(1)	[1805] 12+7+4+2 SC(1)	[1806] 15+8+5+2 SC(1)
Paper Code(s)	GG	BT	CY	MA	PH	MA,MS

IIT Bhubaneswar (Zone-19)*

Joint M.Sc.-Ph.D.	Chemistry	Mathematics	Physics	Geology	Atmosphere and Ocean Sciences
[Programme code] Seats Available	[1901] 10+5+3+2 SC(1)	[1902] 10+5+3+2 GEN(1)	[1903] 10+5+3+2 OBC(1)	[1904] 10+5+3+2	[1905] 10+5+3+2
Paper Code(s)	CY	MA	PH	GG	CY,GG,MA,PH

IIT Gandhinagar (Zone-20)*

M.Sc. (4 semesters)	Chemistry	Mathematics	Physics
[Programme code] Seats Available	[2001] 10+5+3+2	[2002] 10+5+3+2 GEN(1)	[2003] 4+3+2+1
Paper Code(s)	CY	MA	PH

IIT Hyderabad (Zone-21)*

M.Sc. (4 semesters)	Chemistry	Mathematics/ Mathematics and Computing	Physics
[Programme code] Seats Available	[2101] 15+8+5+2	[2102] 8+4+2+1 OBC(1)	[2103] 10+5+3+2 OBC(1)
Paper Code(s)	CY	MA	PH

IIT Indore (Zone-22)*

M.Sc. (4 semesters)	Chemistry	Physics	Mathematics
[Programme code] Seats Available	[2201] 12+6+4+2	[2202] 12+6+4+2	[2203] 6+3+2+1
Paper Code(s)	CY	PH	MA

IIT Ropar (Zone-23)*

M.Sc. (4 semesters)	Mathematics	Chemistry	Physics
[Programme code] Seats Available	[2301] 5+3+1+1 SC(1)	[2302] 6+3+2+1 OBC(1)	[2303] 5+3+1+1 ST(1)
Paper Code(s)	MA	CY	PH

IIT Patna (Zone-25)*

M.Sc. (4 semesters)	Chemistry	Mathematics	Physics
[Programme code] Seats Available	[2501] 7+4+2+1 GEN(1)	[2502] 7+4+2+1 GEN(1)	[2503] 7+4+2+1 GEN(1)
Paper Code(s)	CY	PH	MA

*The number of seats is subject to change

Explanation of Entries in Cells (Appendix – I)

[1701] ⟶ Programme Code

GEN Seats ⟵ 27 + 15 + 8 + 4 ⟶ ST Seats

OBC Seats ⟵ ⟶ SC Seats

GEN(1)

⟶ Category of PwD Reservation (No. of Seats)
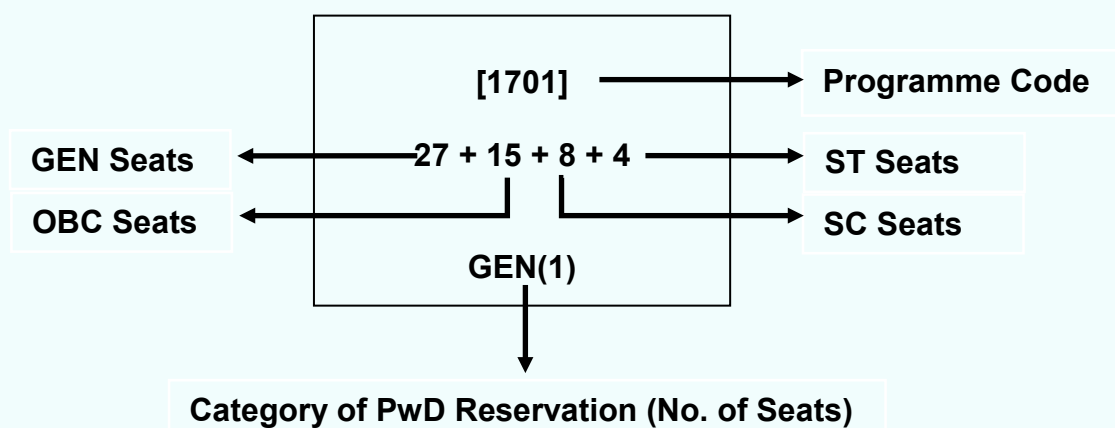
Appendix-II: Test Papers and their Codes, corresponding Academic Programmes offered by the Admitting Institutes and their Minimum Educational Qualifications for Admission

Test Paper (Test paper code)	Academic Programme(s)	Institute(s)	Minimum Educational Qualification(s) for Admission	
			Essential subjects in Bachelor's Degree along with minimum duration	Essential subjects at (10+2) level
Biological Sciences (BL)	Integrated Ph.D. in Biological Sciences	IISc	Biology/ Chemistry/ Physics/ Mathematics	Biology
Biotechnology (BT)	Integrated Ph.D.in Biological Sciences	IISc	Biology/ Chemistry/ Physics/ Mathematics	Biology
	M.Sc. Biotechnology	IITB, IITR	Any Branch/ Subject	Mathematics
	M.Sc.- Ph.D. Dual Degree in Environmental Science and Engineering	IITB	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	
Chemistry (CY)	M.Sc. Chemistry	IITB, IITD, IITG, IITGN, IITH, IITI, IITK, IITM, IITP, IITR, IITRPR	Chemistry for three years/ six semesters	Mathematics
	Joint M.Sc.- Ph.D. in Chemistry	IITBBS, IITKGP		
	M.Sc.- Ph.D. Dual Degree in Environmental Science and Engineering	IITB	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	Mathematics
	Joint M.Sc.- Ph.D. in Atmosphere and Ocean Sciences	IITBBS	Mathematics and Physics with any one of these subjects among Chemistry, Computer Science, Computer Application, Geology and Statistics	No Restrictions
Geology (GG)	M.Sc. Applied Geology	IITB, IITR	Geology for three years/ six semesters and any two subjects among Mathematics, Physics, Chemistry and Biological Science	Mathematics
	Joint M.Sc.- Ph.D. in Geophysics	IITKGP	Geology as a subject for three years/ six semesters and any two subjects among Mathematics, Physics and Chemistry	
	Joint M.Sc.- Ph.D. in Geology	IITKGP, IITBBS		
	Joint M.Sc.- Ph.D. in Atmosphere and Ocean Sciences	IITBBS	Mathematics and Physics and any one of these subjects among Chemistry, Computer Science, Computer Application, Geology and Statistics	No Restrictions

Test Paper (Test paper code)	Academic Programme(s)	Institute(s)	Minimum Educational Qualification(s) for Admission	
			Essential subjects in Bachelor's Degree along with minimum duration	Essential subjects at (10+2) level
Mathematics (MA)	M.Sc. in Economics	IITR	Mathematics as one of the core subjects	No Restrictions
	M.Sc. Mathematics	IITB, IITD, IITGN, IITI, IITK, IITM, IITP, IITR, IITRPR	Mathematics for at least two years/ four semesters	
	M.Sc. Mathematics/ Mathematics and Computing	IITH		
	M.Sc. Mathematics and Computing	IITG		
	Joint M.Sc.- Ph.D. in Mathematics	IITBBS, IITKGP	Mathematics/ Statistics as a subject for at least two years/ four semesters.	
	M.Sc.- Ph.D. Dual Degree in Operations Research	IITB		
	M.Sc.- Ph.D. Dual Degree in Environmental Science and Engineering	IITB	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.	Mathematics
	Joint M.Sc.- Ph.D. in Atmosphere and Ocean Sciences	IITBBS	Mathematics and Physics and any one of these subjects among Chemistry, Computer Science, Computer Application, Geology and Statistics	No Restrictions
Mathematical Statistics (MS)	M.Sc. in Economics	IITR	Mathematics as one of the core subjects	No Restrictions
	M.Sc. Applied Statistics and Informatics	IITB	Mathematics or Statistics for at least two years/ four semesters	
	M.Sc.- Ph.D. Dual Degree in Operations Research	IITB		
	M.Sc. Statistics	IITK	Statistics for at least two years/ four semesters	

Test Paper (Test paper code)	Academic Programme(s)	Institute(s)	Minimum Educational Qualification(s) for Admission	
			Essential subjects in Bachelor's Degree along with minimum duration	Essential subjects at (10+2) level
Physics (PH)	M.Sc. Physics	IITB, IITD, IITG, IITGN, IITH, IITI, IITK, IITM, IITP, IITR, IITRPR	Physics for at least two years/ four semesters and Mathematics for at least one year/ two semesters	No Restrictions
	Joint M.Sc.- Ph.D. in Physics	IITBBS, IITKGP		
	M.Sc.- Ph.D. Dual Degree in Physics	IITK		
	M.Sc.(Physics)-M.Tech (Materials Sciences with specialization in Nano-Science & Technology)	IITB		
	M.Sc. Applied Geophysics	IITB	Physics and Mathematics/ Mathematical Physics for two years/four semesters and at least one of them as subject for three years/ six semesters	
	Joint M.Sc.- Ph.D. in Atmosphere and Ocean Sciences	IITBBS	Mathematics and Physics and any one of these subjects among Chemistry, Computer Science, Computer Application, Geology and Statistics	
	Joint M.Sc.- Ph.D. in Geophysics	IITKGP	Geology as a subject for three years/ six semesters and any two subjects among Mathematics, Physics and Chemistry	Mathematics
	M.Sc.- Ph.D. Dual Degree in Environmental Science and Engineering	IITB	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	

Appendix–III: EXAMINATION CITIES / TOWNS FOR JAM 2016

IISc Bangalore Zone

Test City	Code
Bengaluru	101
Hubli	102
Kollam	103
Kottayam	104
Kozhikode	105
Mangalore	106
Palakkad	107
Thrissur	108

IIT Bombay Zone

Test City	Code
Ahmedabad	201
Goa	202
Hyderabad	203
Mumbai	204
Nagpur	205
Nanded	206
Nasik	207
Pune	208
Vadodara	209

IIT Delhi Zone

Test City	Code
Delhi-NCR	301
Faridabad	302
Ghaziabad	303
Gurgaon	304
Hisar	305
Indore	306
Jaipur	307
Jammu	308
Jodhpur	309
New Delhi	310

IIT Guwahati Zone

Test City	Code
Asansol - Durgapur	401
Dhanbad	402
Guwahati	403
Jorhat	404
Kalyani	405
Patna	406
Siliguri	407

IIT Kanpur Zone

Test City	Code
Agra	501
Allahabad	502
Bareilly	503
Bhopal	504
Kanpur	505
Lucknow	506
Varanasi	507

IIT Kharagpur Zone

Test City	Code
Bhubaneswar	601
Kharagpur	602
Kolkata	603
Raipur	604
Ranchi	605
Vijayawada	606
Vishakapatnam	607

IIT Madras Zone

Test City	Code
Chennai	701
Coimbatore	702
Ernakulam	703
Madurai	704
Thiruvananthapuram	705
Tiruchirapalli	706
Tirunelveli	707
Warangal	708

IIT Roorkee Zone

Test City	Code
Dehradun	801
Jalandhar-Phagwara	802
Kurukshetra	803
NOIDA	804
Mohali-Rupnagar-Fatehgarh Sahib	805
Moradabad	806
Roorkee-Muzaffarnagar	807

Appendix-IV

AUTHORITIES WHO MAY ISSUE SC / ST / OBC (NON CREAMY LAYER) CERTIFICATES

SC/ST/OBC (Non-Creamy Layer) candidates should submit a certificate issued by any of the following authorities:

District Magistrate / Additional District Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector /1st Class Stipendary Magistrate / Sub-Divisional Magistrate / Taluka Magistrate / Executive Magistrate / Extra Assistant Commissioner (not below the rank of 1st class Stipendary Magistrate) / Chief Presidency Magistrate / Additional Chief Presidency   Magistrate / Presidency Magistrate / Revenue Officer not below the rank of Tahsildar / Sub-Divisional Officer of the area where the candidate and / or his / her family normally resides / Administrator / Secretary to Administrator / Development Officer (Lakshadweep Island).
(Certificate issued by any other authority will be rejected)

IMPORTANT NOTE

- In all matters concerning JAM 2016, the decision of the **Organizing Institute** or the **Organizing Chairman, JAM 2016** will be final and binding on all the applicants.

- Although JAM 2016 is held at different centres across country, **Indian Institute of Technology Madras** is the **Organizing Institute**, and has the overall responsibility of conducting JAM 2016. In case of any claims or disputes arising in respect of JAM 2016, it is hereby made absolutely clear that the Madras High Court alone shall have the exclusive jurisdiction to entertain and settle any such disputes and claims.

Appendix-V: Proforma for Other Backward Class (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 _____ of Village/Town _____ in District/Division _____ in the State/Union Territory _____ belongs to the _____ Community which is recognized as a 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 _____ 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 08.09.1993 as amended from time to time.

District Magistrate,
Dated: Deputy Commissioner, etc.

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:
   (i) District Magistrate / Additional Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector / Ist 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 and
   (iv) Sub-Divisional Officer of the area where the candidate and / or his/her family resides.

The date of issue of OBC (NCL) certificate should be after March 31, 2015

IMPORTANT DATES FOR JAM 2016

Commencement of ONLINE Registration and Application on JAM 2016 Website	September 02, 2015 (Wednesday)
Last Date for Payment of Application Fee through e-Challan	October 10, 2015 (Saturday)
Last Date for Online Application Submission and Uploading of Documents on the Website	October 14, 2015 (Wednesday)
Date of JAM 2016 Examination	February 07, 2016 (Sunday)
Announcement of the Results of JAM 2016	March 23, 2016 (Wednesday)
Submission of Application Form for Admission on the JAM 2016 Website	April 15 - 27, 2016
Last Date for receipt of request for change of category in proper format/ rectification of defective documents at IIT Madras	May 10, 2016 (Tuesday)
Declaration of First Admission List	June 03, 2016 (Friday)
Declaration of Second Admission List	June 20, 2016 (Monday)
Declaration of Third and Final Admission List and the Closure of Admissions through JAM 2016	July 4, 2016 (Monday)

Note: For any information regarding JAM 2016 you will be informed by SMS also. So, you are advised to keep JAM 2016 Sender Id unblocked.

CONTACT ADDRESSES OF JAM OFFICES

Institute	E–mail	Website	Phone / Fax
IISc Bangalore, Bengaluru -560012	jam@gate.iisc.ernet.in	gate.iisc.ernet.in/jam	(080) 22932392 / 23601227
IIT Bombay, Mumbai-400076	jam@iitb.ac.in	www.gate.iitb.ac.in/jam2016	(022) 25767022 / 25722674
IIT Delhi, Hauz Khas,New Delhi-110016	chrjam@admin.iitd.ac.in	gate.iitd.ac.in/jam	(011) 26591749 / 26581579
IIT Guwahati, Guwahati-781039	jam@iitg.ernet.in	www.iitg.ernet.in/jam	(0361) 2582751 / 2582755
IIT Kanpur, Kanpur-208016	jam@iitk.ac.in	gate.iitk.ac.in/jam	(0512) 2597412 / 2590932
IIT Kharagpur, Kharagpur-721302	gate@adm.iitkgp.ernet.in	jam.iitkgp.ac.in	(03222) 282091 / 278244
IIT Madras, Chennai-600036 (Organizing Institute)	jam@iitm.ac.in	jam.iitm.ac.in	(044) 22578200 / 22578204
IIT Roorkee, Roorkee-247667	jam@iitr.ac.in	www.iitr.ac.in/jam	(01332) 284531 / 285707

JAM 2016 Website:
jam.iitm.ac.in/jam2016