

GATE 2017

Graduate Aptitude Test in Engineering

Information Brochure

Organizing Institute: IIT Roorkee



Exam schedule of GATE 2017

4th & 5th February 2017 (Saturday & Sunday)

11th & 12th February 2017 (Saturday & Sunday)

Dear GATE 2017 Candidates,

On behalf of the GATE 2017 Teams, it is my pleasure to welcome you all to GATE 2017. The Graduate Aptitude Test in Engineering (GATE) conducted by IISc and IITs has emerged as one of the bench mark tests for engineering and science aptitude in facilitating admissions for higher education (M.Tech./Ph.D.) in IITs, IISc and various other Institutes/ Universities/ Laboratories in India. With the standard and high quality of the GATE examination in 23 disciplines of engineering and science subjects, it identifies the candidate's understanding of a subject and aptitude and eligibility for higher studies. During the last few years, GATE score is also being used as one of the criteria for recruitment in Government Organizations such as Cabinet Secretariat, and National/State Public Sector Undertakings in India. Because of the importance of the GATE examination, the number of candidates appearing in GATE exams has increased tremendously and in GATE 2016 more than nine hundred fifty thousand candidates applied for the examination. GATE exams are conducted by the IITs and IISc as a computer based test having multiple choice questions and numerical answer type questions. The questions are mostly fundamental, concept based and thought provoking. This year GATE 2017 shall also hold examinations for candidates in Bangladesh, Ethiopia, Nepal, Singapore, Sri Lanka, and United Arab Emirates. India is a great destination for foreigners for higher studies with world class Institutes such as IITs, IISc, IISERs, Central Universities etc., with high quality education, international recognition of degrees, English medium of instructions, affordable fees and living conditions, availability of high-end lab facilities etc. An Institute with various nationalities in its campus widens the horizons of an academic environment. We also believe that a foreign student brings with him/her a great diversity, culture and wisdom to share. Many GATE qualified candidates are paid scholarships/assistantship, especially funded by Ministry of Human Resources Development, Government of India and by other Ministries. GATE examination provides with a GATE score to all qualified candidates, which is valid for three years, but does not take any responsibility of admission of any candidate to any Institute. GATE is one of the opportunities to make career advancement, and certainly not the only one. Hence, all candidates are advised to study sincerely and perform honestly in this examination, without getting unduly stressed out. This brochure provides the GATE 2017 aspirant with relevant information about the GATE exams and corroborated with some performance/statistical data of GATE 2016 to make the candidate better understand the GATE system. Please read the complete document before making application.

With best wishes for a pleasant GATE 2017 experience and success.

Govind Chakrapani
Organizing chairman, GATE 2017
Indian Institute of Technology Roorkee
Roorkee247667, Uttarakhand, India

26th August 2016

What is new in GATE 2017?

New Section in XE	The XE (Engineering Sciences) paper now has a new section on Atmospheric and Oceanic Sciences (section H). With this the number of sections in the XE paper has increased to eight (A-H).
Examination dates/sessions	February 4 th , 5 th 11 th and 12 th 2017 (tentative) in two sessions (Forenoon session: 9.00 AM-12.00 Noon; Afternoon session: 2.00 PM-5.00 PM). Any change in timings or sessions/dates shall be displayed on GATE website (www.gate.iitr.ernet.in) The session timings at GATE International Centers according to their local time shall be notified well in advance.
GATE International	GATE examinations shall be conducted in Bangladesh, Ethiopia, Nepal, Singapore, Sri Lanka and United Arab Emirates. The pattern of examination remains same, exam timing/Center shall be notified in admit cards. The International candidates should have completed Bachelor's degree in Engineering or Master's degree in Science in relevant subject or are in the final year of the program. For admission of International candidates, a common admission portal is being developed and International candidates shall be informed about it well in time on this GATE website www.gate.iitr.ernet.in
Application process	No restriction on second choice examination city to be in the same zone as first choice city. It can be anywhere in India. Thumb impression of candidates needs to be uploaded during the application procedure. Candidates who have completed the qualifying degree, need to upload scanned image of degree completion certificate or final year/semester mark sheet. However, candidates studying in the final year of their qualifying degree need to upload scanned image of pre-final year (or fifth/sixth semester) mark sheet, or provisional certificate letter from his/her Institute as proof of eligibility criterion. Similarly this applies to candidates of AMIE, AMICE and other similar programs.

Important:

- 1. Admissions in IITs/IISc or other Institutes for M.Tech./Ph.D. through GATE 2017 scores shall be advertised separately by the Institutes and GATE 2017 does not take the responsibility of admissions.**
- 2. Cabinet Secretariat has decided to recruit officers for the post of Senior Field Officer (Tele) (From GATE papers of EC, CS, PH), Senior Research Officer (Crypto) (From GATE papers of EC, CS, MA), Senior Research Officer (S&T) (From GATE papers EC, CS, CY, PH, AE, BT) in the Telecommunication Cadre, Cryptographic Cadre and Science & Technology Unit respectively of Cabinet Secretariat. The details of the scheme of recruitment shall be published in National Newspaper/ Employment News by the concerned authority.**
- 3. Some Government of India Organizations have expressed their interest to utilize GATE 2017 scores for their recruitment purpose. The Organizations who intend to utilize GATE 2017 scores shall make separate advertisement for this purpose in Newspapers and shall also contact the Organizing Institute of GATE 2017, IIT Roorkee for this purpose.**

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1. Introduction

Graduate Aptitude Test in Engineering (GATE) is an examination that primarily tests the comprehensive understanding of the candidates in various undergraduate subjects in Engineering/Technology/Architecture and post-graduate level subjects in Science. The GATE score of a candidate reflects a relative performance level in a particular subject in the examination across several years. The score is used for admissions to post-graduate programs (e.g., M.E./M.Tech/ Direct Ph.D.) in centrally funded Indian Institutes of higher education (i.e., Institutes which are provided with financial assistance by MHRD and other Government agencies). The score is also used by some Public and Private Sector Undertakings for employment processes in India. **Direct recruitment to Group 'A' level posts i.e., Senior Field Officer (SFO Tele), Senior Research Officer (SRO) (Crypto) and SRO (S&T) in Cabinet Secretariat is now being done on the basis of GATE scores.**

This year GATE 2017 examination shall be held in Bangladesh, Ethiopia, Nepal, Singapore, Sri Lanka and United Arab Emirates for admissions of candidates from these nationalities in IITs and IISc.

For admission of International candidates, a common admission portal is being developed and International candidates shall be informed about it well in time on this GATE website www.gate.iitr.ernet.in

The information in this brochure is mainly categorized into **Pre-Examination** (Eligibility, Application submission, Examination Centers etc.), **Examination** (Syllabus, Pattern, Marks/Score, Model Question Papers etc.) & **Post-Examination** (Answers, Results, Scorecard etc.) sections.



2. About GATE

The Indian Institute of Science (IISc) and seven Indian Institutes of Technology (IITs at Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) jointly administer the conduct of GATE. The operations related to GATE in each of the 8 zones are managed by a zonal GATE Office at the IITs or IISc. The Organizing Institute (OI) is responsible for the end-to-end process and coordination amongst the administering Institutes. **Indian Institute of Technology Roorkee is the Organizing Institute for GATE 2017.**

2.1. Financial Assistance

A valid GATE score is essential for obtaining financial assistance during Master's programs and direct Doctoral programs in Engineering/ Technology/ Architecture, and Doctoral programs in relevant branches of Science in Institutes supported by the MHRD or other Government agencies. As per the directives of the MHRD, the following procedure is to be adopted for admission to the post-graduate programs (Master's and Doctoral) with MHRD scholarship/assistantship. Depending upon the norms adopted by a specific institute or department of the Institute, a candidate may be admitted directly into a course based on his/her performance in GATE only or based on his/her performance in GATE and an admission test/interview conducted by the department to which he/she has applied and/or the candidate's academic record. If the candidate is to be selected through test/interview for post-graduate programs, a minimum of 70% weightage will be given to the performance in GATE

and the remaining 30% weightage will be given to the candidate's performance in test/interview and/or academic record, as per MHRD guidelines. The admitting institutes could however prescribe a minimum passing percentage of marks in the test/interview. Some colleges/institutes specify GATE qualification as the mandatory requirement even for admission without MHRD scholarship/assistantship.

To avail of financial assistance (scholarship), the candidate must first secure admission to a program in these Institutes, by a procedure that could vary from institute to institute. The admitting Institutes may also specify the number of candidates who shall be provided financial assistance (scholarship), if admission is secured. **International candidates, similarly may be provided with scholarship/assistantship (all or limited) as per the notification of the admitting Institutes.** Qualification in GATE is also a minimum requirement to apply for various fellowships awarded by many Government organizations. Candidates are advised to seek complete details of admission procedures and availability of MHRD scholarship/assistantship from the concerned admitting institution. The criteria for postgraduate admission with scholarship/assistantship could be different for different institutions. The management of the post-graduate scholarship/assistantship is also the responsibility of the admitting institution. Similarly, reservation of seats under different categories is as per the policies and norms prevailing at the admitting institution and Government of India rules. *GATE offices will not entertain any enquiry about admission, reservation of seats and/or award of scholarship/assistantship.*

For admission of International candidates, a common admission portal is being developed and International candidates shall be informed about it well in time on this GATE website www.gate.iitr.ernet.in

2.2 Employment

Several public sector undertakings, have, in the past, used GATE scores for screening of candidates. A few such organizations are: Indian Oil Corporation Limited, National Thermal Power Corporation, Oil and Natural Gas Corporation and Power Grid Corporation etc.

Note: GATE administration is not responsible for employment opportunities. The qualified candidates must check newspapers and other reliable sources for any such information.

2.3 Administration

GATE is administered and conducted jointly by the Indian Institute of Science (IISc) and seven Indian Institutes of Technology (IITs) on behalf of the National Coordination Board (NCB)-GATE, Department of Higher Education, Ministry of Human Resource Development (MHRD), Government of India. The GATE committee, which comprises of representatives from these administering institutes, is the sole authority for regulating the examination and declaring the results.

GATE is conducted through the collaboration of eight zones. The zones and the corresponding administrative institutes are:

Zone-1: Indian Institute of Science, Bangalore

Zone-2: Indian Institute of Technology Bombay

Zone-3: Indian Institute of Technology Delhi

Zone-4: Indian Institute of Technology Guwahati

Zone-5: Indian Institute of Technology Kanpur

Zone-6: Indian Institute of Technology Kharagpur

Zone-7: Indian Institute of Technology Madras

Zone-8: Indian Institute of Technology Roorkee

Indian Institute of Technology Roorkee shall be responsible for the overall coordination of GATE 2017.



3. Basic Features of GATE 2017

1. Examinations for **all the 23 papers (disciplines)** will be conducted by an **ONLINE** Computer Based Test (CBT). **A candidate can appear only in any one paper of the GATE examination.** The online examination paper will contain some questions for which numerical answers must be keyed in by the candidate using the virtual keypad. Rest of the questions shall be of Multiple Choice Question (MCQ) type. A virtual on screen calculator only shall be used during examination. **The candidates shall use ONLY virtual calculator to be provided by GATE. Physical calculator, mobile phone and wrist watches with calculation facility are strictly prohibited and candidates possessing these in the examination hall (even if not using) shall be disqualified.**
2. Biometric information (Photograph and Fingerprints) for randomly selected candidates may be captured before the start of the examination.
3. GATE 2017 examinations will be held during forenoon and afternoon sessions on weekends (Saturday and Sunday) on 4th, 5th, 11th and 12th February 2017. Examination for some of the papers in GATE 2017 will be held in multiple sessions. Exact details regarding complete

examination schedule will be notified at a later date, on the GATE 2017 website. The candidate has to appear at the GATE Examination Center on the date and time specified in the admit card; no request for any change in Center or Date/Time shall be entertained. Similarly, this being an examination body with certain constraints, candidates needing very special or specific facility for the exam may not be entertained. Hence, candidates are requested to adhere to the facilities that are possible within the ambit and resources of GATE exam body.

The session timings at GATE International Centers as per their local time shall be notified well in advance.

4. For GATE 2017 the entire process of filling up of application form, uploading of certificates/documents etc., shall be online only and the candidates should **not** send any hard copy of his/her application form/documents etc., to IITR or any of the IIT's zonal GATE office.
5. The payment of application fees would be through electronic mode; online as well as through payment at bank counters using e-challan.
6. The admit cards for GATE 2017 would be available through the online process only. Candidates can download their admit card from GATE 2017 website. Candidates need to download and print admit cards from gate website and **NO printed copy of admit cards shall be sent by post to the candidates.**

3.1 General Information on GATE 2017

1. **Application Process:** For GATE 2017, all information related to the candidates will be available in a single GATE Online Application Processing System (GOAPS). Candidates have to register and fill the application via **ONLINE mode ONLY**. The photograph, signature, thumb impression, qualifying degree certificate, and category certificate (SC/ST/PwD) wherever applicable, must be uploaded during the online application. **Candidates shall be required to enter the specified number in their identification card of any one of Passport, PAN**

Card, Voter ID, Aadhaar UID, valid College ID, Employee identification or and Driving License. The candidates who do not have any of these identity cards, may please get one of these cards issued before application procedure. Please note that **no** application form is **available for sale** anywhere. **For International candidates, ONLY a valid Passport/ Government issued ID/College ID/ Employee ID shall be accepted as the recognized identification.**

2. **Admit Card:** Admit cards have to be downloaded from the GOAPS website tentatively from 5th January 2017. The candidate has to bring a printed copy of the admit card to the test centre along with the original identification card whose number has been given in the application (**Passport, PAN Card, Voter ID, Aadhaar UID, Valid College ID, Employee identification card or Driving License**). **For International candidates, ONLY a valid Passport/ Government issued ID/College ID/ Employee ID shall be accepted as the recognized identification. The only permitted photo identifications are; Passport, PAN Card, Voter ID, Aadhaar UID, Valid College ID, Employee identification card or Driving License. NO candidate shall be allowed to enter the examination hall (however, the Center gate shall be closed 25 minutes after start of the examination) after 30 minutes of the start of the examination.**

3. **Types of Questions:** The GATE examination shall be of 3 hours duration with a maximum of 100 marks. The question paper for GATE 2017 will consist of questions of both multiple-choice type and numerical answer type. For multiple choice type questions, candidates have to choose the answer from the given choices. For numerical answer type questions, candidates have to enter a number as the answer using a virtual keypad.

3.2 Important Dates

Table 3.1: Important dates related to GATE 2017 (No age limit)

GATE Online Application Processing System (GOAPS) Website Opens	Thursday	1st September 2016 (00:00 Hrs)
Last Date for Submission of Online Application through Website	Tuesday	4 th October 2016 (23:59 Hrs)
Last Date for Request for Change in the Choice of City	Wednesday	16 th November 2016
Availability of Admit Card on the Online Application Interface for printing	Thursday	5 th January 2017
GATE 2017 Online Examination Forenoon: 9.00 AM to 12.00 Noon Afternoon: 2.00 PM to 5.00 PM	Saturday and Sunday	February 4, 2017 February 5, 2017 February 11, 2017 February 12, 2017
Announcement of Results on the Online Application Website	Monday	27 th March 2017 (18:00 Hrs)



4. Pre-Examination Related Information

4.1 Eligibility

Before starting the application process, the candidate must ensure that he/she meets the educational eligibility criteria of GATE 2017 as shown in Table 4.1.

Table 4.1 Eligibility Criteria for GATE 2017 (No age limit)

Qualifying Degree	Qualifying Degree/Examination (Descriptive)	Degree Status	Year of qualification not later than-
B.E./ B.Tech./ B.Pharm.	Bachelor's degree in Engineering/ Technology (4 years after 10+2 or 3 years after B.Sc./Diploma in Engineering/ Technology) and those who are in the final year of such programs	Currently in the final year or already completed	2017
B. Arch.	Bachelor's degree in Architecture (Five years course)	Currently in the final year or already completed	2017
B.Sc. (Research)/ B.S.	Bachelor's degree in Science (Post-Diploma/ 4 years after 10+2)	Currently in the 4 th year or already completed	2017

M. Sc./ M.A./MCA or equivalent	Master's degree in any branch of Science/Mathematics / Statistics/Computer Applications or equivalent	Currently in the final year or already completed	2017
Int. M.E/ M.Tech (Post-B.Sc.)	Post-BSc Integrated Master's degree programs in Engineering / Technology (Four year program)	Currently in the 2 nd /3 rd /4 th year or already completed	2019
Int. M.E./ M.Tech or Dual Degree (after Diploma or 10+2)	Integrated Master's degree program or Dual Degree program in Engineering / Technology (Five year program)	Currently in the 4 th /5 th year or already completed	2018
Int. M.Sc/ Int. B.S.-M.S.	Integrated M.Sc. or Five year integrated B. S./M. S. program	Currently in the final year or already completed	2017
Professional Society Examination (equivalent to B.E./ B.Tech./ B.Arch.)	B.E./B.Tech./B.Arch. equivalent examinations of Professional Societies, recognized by MHRD/UPSC/AICTE (e.g., AMIE by Institution of Engineers-India, AMICE by the Institute of Civil Engineers-India)	Completed section A or equivalent of such professional courses	NA

Candidates from Bangladesh, Ethiopia, Nepal, Singapore, Sri Lanka and United Arab Emirates must have completed or are in the final year of their Bachelor's degree in Engineering/Technology or Post-graduate (M.Sc.) degree in any relevant science subject.

Note: **Eligibility criteria certificate as applicable shall only be uploaded in application and NOT to be sent by post.** If a candidate is pursuing any higher degree or already obtained a degree higher than that mentioned in the above table, then the candidate can select the minimum required qualifying degree while filling the application form. In case, a candidate has completed one of the qualifying examinations as mentioned above in 2016 or earlier, he/she has to submit the degree certificate/provisional degree certificate/course completion certificate/membership certificate issued by the society or institute. In case, the candidate is expected to complete one of the qualifying criteria in 2017 or later as mentioned above, he/she has to upload a Provisional Certificate Letter (as shown in the next page and issued by the Head of Institute/Dean/Registrar/Head of Department) or a copy of marks card for section A of AMIE etc. Candidates with backlog (arrears/failed subjects) in any of the papers in their qualifying degree should upload a copy of any of the mark sheet of the final year issued from the Institute where studying. **Internet downloaded mark sheet shall not be accepted.**

PROVISIONAL CERTIFICATE LETTER

This is to certify that Mr./Ms. _____
S/O or D/O _____ is studying
in the final year for the degree of _____.

Signature of Candidate with Date:

Signature of the Institute Head/Dean/Registrar/Head of Department with
Date and Seal:

4.2 GATE Papers

GATE 2017 will be conducted in the subjects (papers) shown in Table 4.2. Candidates must note down the paper code for the paper of their choice, as this information shall be required at the time of application form submission.

A candidate is allowed to appear in ONLY ONE GATE paper. If a candidate makes more than one application for the same paper, he/she shall be allowed to appear the paper in any one session ONLY. Duplicate/triplicate applications shall be treated as one paper only, with out refund of application fees.

Since a candidate is allowed to appear in **ONLY ONE** of the 23 papers for which GATE 2017 examination is being held, the candidate has to make the choice of the paper he/she wishes to write carefully. It will **NOT** be possible to change the paper choice after online application has been submitted on the website. Table 4.2 shows a list of GATE papers and paper codes for GATE 2017.

Table 4.2: GATE Papers and the Paper Codes for GATE 2017

GATE Paper	Code	GATE Paper	Code
Aerospace Engineering	AE	Geology and Geophysics	GG
Agricultural Engineering	AG	Instrumentation Engineering	IN
Architecture and Planning	AR	Mathematics	MA
Biotechnology	BT	Mechanical Engineering	ME
Civil Engineering	CE	Mining Engineering	MN
Chemical Engineering	CH	Metallurgical Engineering	MT
Computer Science and Information Technology	CS	Petroleum Engineering	PE
Chemistry	CY	Physics	PH
Electronics and Communication Engineering	EC	Production and Industrial Engineering	PI
Electrical Engineering	EE	Textile Engineering and Fiber Science	TF
Ecology and Evolution	EY	Engineering Sciences	XE
		Life Sciences	XL

4.3 Qualifying Disciplines

Table 4.3 shows a list of the qualifying disciplines. This is just an exhaustive list and not necessary that the name of the candidate's degree has to be as per the Table 4.3.

Table 4.3: Qualifying Disciplines for Eligibility Degrees

Discipline: Engineering/Technology	Discipline: Science
Aeronautical Engg./ Aerospace Engg.	Agricultural Science
Agricultural Engg.	Applied Electronics
Applied Mechanics	Applied Physics
Architecture	Biochemistry
Automobile Engg.	Bio-Sciences
Biochemical Engg.	Chemistry

Biomedical Engg.	Computer Applications
Biotechnology	Earth Sciences
Ceramic & Glass Technology	Electronics
Chemical Engg.	Engineering Physics
Chemical Technology	Geology/ Geophysics
Civil/Civil & Environmental/Structural Engg./ Construction Engg.	Industrial Chemistry
Computer Engg./Computer Science & Engg./Technology	Life Science/Veterinary/Animal Science
Control and Instrumentation	Life Sciences
Electrical Engg./ Electrical and Electronics Engg./Power Engineering	Life Sciences (Botany)
Electro-Chemical Engg.	Life Sciences (Zoology)
Electronics & Comm./Electronics Engg./Comm. Engg. /Telecommunication Engg.	Materials Science
Energy Engg.	Mathematics/Applied Mathematics
Environmental Engg.	Microbiology
Food Technology/Food Processing Engg.	Nano Science & Technology
Industrial Engg.	Nuclear Physics
Industrial Management	Operations Research
Information Science/Information Technology/Information and Communication Technology	Pharmaceutical Sciences/Pharmacy
Instrumentation/ Electronics/Control	Physics
Instrumentation & Process Control	Radio Physics
Manufacturing Engg.	Radio Physics & Electronics
Material Science and Engineering	Statistics
Mechanical Engg.	Textile Chemistry
Mechatronics	All other disciplines in Sciences
Medical Instrumentation	
Metallurgical Engg./ Industrial Metallurgy	

Mineral Engg./Mineral Dressing	
Mining Engg./Technology, Mining & Machinery	
Naval Architecture/Marine Engg.	
Oil Technology	
Paint Technology	
Petro-Chemical Engg.	
Petroleum Engg./Technology	
Planning	
Plastic Technology	
Polymer Technology/Science	
Production & Industrial Engg.	
Renewable Energy	
Rubber Technology	
Textile Engineering & Fiber Science	
All other disciplines in Engg./Technology	

4.4 Zone-wise List of Cities

Choice of Examination City: The candidates can choose three cities from the list of examination cities given in Table 4.4 as their first, second and third choices. There is no restriction on the second and third chosen city to be in the same GATE zone as the first chosen city. Because of operational constraints, the GATE 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.

Table 4.4 shows a tentative list of the cities (zone-wise) in which GATE 2017 shall be held. Also shown in the table are the Zonal GATE Offices (one of the IITs or IISc).

Table 4.4: Zone-wise examination city list for GATE 2017

Zone No.	Zonal GATE Office	Tentative List of Examination Cities*
1	IISc Bangalore Bengaluru - 560 012 Website: http://gate.iisc.ernet.in/	Ananthapur, Bagalkot, Bengaluru, Bellary, Belgaum, Bidar, Davengere, Gulbarga, Hassan, Hubli, Hyderabad, Kannur, Kasargod, Kolar, Kozhikode, Kurnool, Malappuram, Mangalore, Manipal, Mysore, Palakkad, Payyannur, Port Blair, Shimoga, Thrissur, Tumkur, Vadakara
2	IIT Bombay, Powai, Mumbai - 400 076 Website: http://www.gate.iitb.ac.in/	Ahmedabad, Ahmednagar, Amravati, Anand, Aurangabad, Bhavnagar, Bhuj, Gandhinagar, Goa, Jalgaon, Kolhapur, Mehsana, Mumbai, Nagpur, Nanded, Nashik, Navi Mumbai, Pune, Rajkot, Ratnagiri, Sangli, Satara, Solapur, Surat, Thane, Vadodara
3	IIT Delhi, HauzKhas, New Delhi – 110016 Website: http://gate.iitd.ac.in/	Ajmer, Alwar, Bahadurgarh, Bikaner, New Delhi, Faridabad, Greater NOIDA, Gurgaon, Hisar, Indore, Jammu, Jaipur, Jodhpur, Karnal, Kota, Mathura, Palwal, Rohtak, Sikar, Udaipur, Ujjain
4	IIT Guwahati Guwahati – 781039 Website: http://www.iitg.ernet.in/gate/	Agartala, Asansol-Durgapur, Burdwan, Dhanbad, Dibrugarh, Gangtok, Guwahati, Imphal, Jorhat, Kalyani, Patna, Shillong, Silchar, Siliguri, Tezpur
5	IIT Kanpur Kanpur – 208016 Website: http://gate.iitk.ac.in/	Agra, Aligarh, Allahabad, Bareilly, Bhopal, Gorakhpur, Gwalior, Jabalpur, Kanpur, Lucknow, Varanasi
6	IIT Kharagpur Kharagpur – 721302 Website: http://gate.iitkgp.ac.in/	Balasore, Berhampur (Odisha), Bhilai, Bhimavaram, Bhubaneswar, Bilaspur (CG), Cuttack, Eluru, Hooghly, Jamshedpur, Kakinada(Surampalem), Kharagpur/Haldia/Bishnupur, Kolkata, Raipur, Rajahmundry, Ranchi, Rourkela, Sambalpur, Tadepalligudem, Vijayawada, Visakhapatnam, Vizianagaram

7	IIT Madras Chennai – 600036 Website: http://gate.iitm.ac.in/	Alappuzha, Aluva, Angamaly, Attingal, Bapatla, Chennai, Chengannur, Chittoor, Coimbatore, Cuddalore, Dindigul, Ernakulam, Erode, Gudur, Guntur, Idukki, Kadapa, Kanjirapally, Kanyakumari, Karimnagar, Karur, Khammam, Kollam, Kothamangalam, Kottayam, Madurai, Muvattupuzha, Nagercoil, Nalgonda, Namakkal, Nedumangad, Nellore, Ongole, Pala, Puducherry (Pondicherry), Punalur, Salem, Thanjavur, Thiruchengode, Thiruvannamalai, Thiruvananthapuram, Tiruchirapalli, Tirunelveli, Tirupati, Tuticorin, Vellore, Villupuram, Virudhunagar, Warangal
8	IIT Roorkee Roorkee – 247667 Website: http://www.iitr.ac.in/gate/	Ambala, Amritsar, Bathinda, Bhimtal, Dehradun, Ghaziabad, Haldwani, Hamirpur (HP), Jalandhar, Kurukshetra, Ludhiana-Khanna, Meerut, Mohali, Moradabad, Muzaffarnagar, NOIDA, Panipat, Pathankot, Patiala-Sangrur, Roorkee, Shimla-Solan-Baddi, Sonapat, Yamunanagar
9	(For GATE International Candidates) IIT Roorkee Roorkee – 247667 Website: http://www.iitr.ac.in/gate/	Addis Ababa (Ethiopia), Colombo (Sri Lanka), Dhaka (Bangladesh), Dubai/Abu Dhabi (United Arab Emirates), Kathmandu (Nepal) and Singapore (These are tentative only)

*** This is a tentative list, and any change shall be updated on website (www.gate.iitr.ernet.in)**

4.5 How to Apply

All candidates have to apply **only ONLINE**. Details of the application fee are shown in Table 4.5. **The application fee is non-refundable.**

Table 4.5: Details of application fee for GATE 2017

Women candidates	Rs. 750
SC/ST/PwD* category candidates	Rs. 750
All other candidates	Rs. 1500
GATE International candidates	US Dollars 50

* PwD means a person who is physically challenged.

For International candidates, there is no need to attach PwD (person with disability) certificate and category (SC/ST) is NOT APPLICABLE. The examination fee is uniform for all (US Dollars 50). A candidate can appear in any one GATE paper ONLY.

GATE 2017 application fee payments would have to be made through online by using net banking or debit card or e-challan facilities. **Additional charges** will be applicable as per the rule of the bank from where the money is being transferred. This charge will be specified on the payment portal.

4.5.1 GATE Online Application Processing System (GOAPS)

An online interface is provided for your interaction with the GATE Office. With this interface you can,

1. Apply for the examination online.
2. Upload photograph, signature, thumb impression and other relevant documents such as, graduation certificate, category certificate (wherever applicable) etc.
3. Pay the application fee through net-banking or debit card or e-challan.
4. Check the Status of your application form: Received, Under Scrutiny, Accepted, Defect Status, Status after Rectification, Rejected with Valid Reasons, Admit Card Ready for Download, etc.
5. Contact the zonal GATE Office in case of any queries/problems.

6. Download Admit Card.
7. View your answers, marks and GATE score.

The login to this interface uses your GOAPS password. Keep your password information safe, secure and confidential.

The application procedure remains same for International candidates.

4.5.2 Filling in Application Online

1. **GOAPS:** GATE Online Application Processing System (GOAPS website) has the web address

<http://appsgate.iitr.ernet.in>

It can also be accessed from the website of the respective Zonal GATE Offices or from the website of the GATE 2017 Organizing Institute.

Candidates are discouraged from making application through a third person. If somebody else is making the application on behalf of the candidate, the candidate must ensure that the data submitted is absolutely correct. It has been revealed by some candidates with wrong information in their application that their application was done from a computer café owner etc. or by an acquaintance/friend, who did not have proper and sufficient information about the details of the candidates. Hence, we strongly discourage such practice in application making.

2. **Registration:** A candidate must first register by providing a valid email address, mobile number and a GOAPS password. All communications from the GATE Offices will be sent to this email address (ONLY ONE PERSON CAN REGISTER WITH ONE e-mail ADDRESS). Give your personal mobile number or mobile number of a close relation or friend who is in regular touch with you, because most of the communications may also be sent via SMS. **The international candidates shall be contacted only through email address. However, mobile number information shall be used only when the GATE 2017 Organizing Institute tries to pass some important information through mobile phone.**

GOAPS Password: The candidate chooses a password during Enrollment at GOAPS. This password must be remembered along with the GOAPS

Enrolment ID to login to GOAPS. It is strongly encouraged that the password that cannot be guessed easily (it should not be the candidate's name, date of birth, or some easily guessable string of numbers or letters like 12345 or abcd).

3. **GOAPS Enrollment ID:** Upon registration, an email containing the GOAPS Enrollment ID will be sent to the candidate.
4. **Data Requirement for Filling Application:** The following data will be required while filling the form at GOAPS.
 - a) Personal information (name, date of birth, your personal mobile number, parent's name, parent's mobile number, etc.).
 - b) Address for Communication (including PIN code),
 - c) Eligibility degree details
 - d) College address, PIN code of college,
 - e) GATE paper, choice of GATE examination cities,
 - f) High quality image of your photograph conforming to the requirements specified.
 - g) Good quality image of your signature conforming to the requirements specified.
 - h) High quality image of your thumb impression confirming to the requirements specified.
 - i) Scanned copy of Degree Certificate or mark sheet of previous semester/year (for final year candidates) in pdf format.
 - j) Scanned copy of Category/PwD Certificate (if applicable) in pdf format.
 - k) Details of the valid ID Proof that you will carry to the examination hall.
 - l) Your net-banking details.
5. **Application Filling:** The GOAPS allows you to enter data, "Save" partially filled form, "Logout", and resume filling in by logging in again. The GOAPS portal is self-explanatory and user-friendly. Online help about using GOAPS is also available.

6. Before you make the payment, you will be shown a “Preview” of your application, where you have to carefully check for any errors.
7. Once you press “**Confirm and Final Submit**” button, **no further changes to the application can be made by you.**
8. For online payment follow the instructions given for payment options.
9. **Problems in Login into GOAPS** –In case of forgotten user ID or password, follow instructions on the GOAPS portal to retrieve them.

4.5.2.1 Supporting Documents

4.5.2.1.1 Eligibility Documents

Eligibility criteria and necessary supporting documents shall be as mentioned earlier.

4.5.2.1.2 SC/ST/PwD Certificate

Candidates who belong to SC or ST or PwD category have to upload a valid documentary evidence for concession in fees.

- **Authorities Empowered to Issue SC/ST Certificates**

- District Magistrate/ Additional District Magistrate/ Collector/ Deputy Collector/ Deputy Commissioner/ Additional Deputy Commissioner/ 1st Class Stipendiary Magistrate/ City Magistrate/ Sub-Divisional Magistrate/ Taluk Magistrate/ Executive Magistrate/ Extra Assistant Commissioner.
- 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 her/his family normally resides
- Administrator/ Secretary to Administrator/ Development Officer (Lakshadweep Islands)

Certificate issued by authorized officials only shall be valid, and necessary actions shall be initiated for any wrong doing and misinformation.

- **Authorities Empowered to issue PwD (Person with Disabilities) Certificates**

In order to avail concession under the PwD category, the candidates should attach a recently obtained proper PwD certificate issued by the competent authority. The same shall be required to be submitted to the admitting institution at the time of admission. The onus of verifying PwD certificate lies with the admitting institute. The GATE committee will not be responsible for any incorrect declaration of the PwD status of candidates.

4.5.3 Application Fee Payment Options

The application fee and various payment options are shown in Table 4.6. **The application fee is non-refundable.**

Table 4.6: Application fee and Payment Options

Candidate Category	Mode*	Application Fee in ₹
Women candidates	Online Net Banking	750
	e-challan	750
SC/ST/PwD candidates	Online Net Banking	750
	e-challan	750
All other candidates	Online Net Banking	1500
	e-challan	1500
GATE International candidates	Online net banking or credit card transaction	US dollars 50

***Bank charges will be applicable as per the norm.**

4.5.3.1 Online Net-banking Payment Details

1. From the GATE Online Application Processing System (GOAPS), you will be redirected to the website of the bank of your choice.
2. The fee can be paid with net-banking or debit card or e-challan.
3. The fee amount and bank charges will be shown to you, and you have to confirm that the payment is for GATE 2017.
4. Once you confirm and the payment is successful, you will be redirected back to the GATE Online Application Website.
5. If you have a difficulty (due to internet connection or power failure, for example), and you are not sure whether your payment has been processed or not, then please login back to GOAPS and check the status of the payment. You can also check the status from your bank.
6. In case the fee amount has been debited from your bank account and GOAPS does not acknowledge any fee payment, then the money will be credited back to your account within seven working days.
7. In such a case, you may initiate a fresh payment using GOAPS, even without waiting for the money to be credited back to your account, so that your application is on time.
8. Once the payment is successful a “Fee Payment Number” will be generated which is unique and **MUST be saved by the candidate** as it will be used in the later stages when he/she fills up the GATE 2017 Application form.

Important: It is essential that the candidate fills in the details in GOAPS without any error as the application **is liable to be rejected if there is any error**. As a checklist the candidate MUST verify that he/she has filled in and uploaded the following as required

- a) Personal information (name, date of birth, personal mobile number, parent’s name, parent’s mobile number etc.).
- b) Address for Communication (including PIN code).
- c) Eligibility degree details (College address, PIN code of college).
- d) Eligibility documents required to appear in GATE 2017 (e.g., degree certificate).

- e) High quality image of a recent photograph conforming to the requirements specified earlier.
- f) **Category certificate** in case a discounted application fee is claimed.
- g) Good quality image of signature conforming to the requirements specified.
- h) High quality image of thumb impression confirming to the requirements specified.
- i) Details of the same valid ID Proof that will be carried to the examination hall.
- j) **Fee payment number.**

Note: Before submitting the GATE 2017 Application, please ensure that all the details and all the necessary supporting documents are filled / uploaded and there is NO ERROR. **An application once submitted CAN NOT be changed / rectified.** The current status of an application will be updated after the receipt and scrutiny of the application by the respective zonal GATE Office. This status can be checked anytime by logging into GOAPS.

4.5.4 Photograph and Signature Requirements

The GATE 2017 Online Application Processing System requires that your photograph and signature are uploaded electronically at the time of submitting your application. Uploading photograph or signature that does not meet the specifications can result in rejection of the application without any refund of the application fee.

4.5.4.1 Photograph Requirements

Please pay attention to upload only good quality photograph. **Poor quality of the photograph submitted will lead to rejection of your GATE application, without any refund of the application fee.** The GATE score card will be printed with the photograph you submit.

1. A passport size photograph of the face of the candidate is required for application form. The photograph must be in color and taken after 1st

September 2016 in a professional studio. **Photographs taken using a mobile phone and other self-composed portraits may result in rejection of application.**

2. Background of the photograph must be white or a very light color.
3. The face should occupy at least 75% of the area of the photograph with a full-face view looking into the camera directly.
4. 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.
5. If you normally wear spectacles, a photograph with glare on glasses is not acceptable in application. While you may wear spectacles for the photo shoot, if glare cannot be avoided, then remove the spectacles.
6. You must not wear spectacles with dark or tinted glasses, only clear glasses are permitted.
7. There should be proper flash i.e., proper lighting while taking photograph.
8. Ask your photo studio to provide the image in a JPEG format and also on a standard 3.5 cm × 4.5 cm (Width x Height) print.
9. Maximum pixel resolution for JPEG: 480 × 640 (0.3 Mega pixel) (Ask your studio to reduce it to this resolution if it is higher).
10. Minimum pixel resolution for JPEG: 240 × 320.
11. The photograph must match with your appearance on the day of the examination.

Figure 4.1 shows the sample of two good quality photographs to recognize the candidate easily in person in examination hall and to print on the score card.



Figure 4.1: Sample Photograph

4.5.4.2 Signature Specifications

1. Please draw a rectangular box of size 2 cm × 7 cm (Height x Width) on an A4 white paper. Sign with black or dark blue ink pen within this box. The signature with all capital letters or in any other color than black and blue shall NOT be accepted.
2. Get the digital image of the rectangular box (with your signature inside) scanned by a professional using a scanner. Crop it to the border of the box.
3. Only JPEG image formats will be accepted.
4. The maximum pixel resolution for the image is 160 × 560.
5. The minimum pixel resolution for the image is 80 × 280.
6. Photographs of the signatures taken using mobile phone are not acceptable, and can result in rejection of the application without any refund of the fee.

4.5.4.3 Thumb Impression Specifications

1. Please draw a rectangular box of size 3 cm × 5 cm (Height x Width) on an A4 white paper. Mark your **left thumb impression** within this box using a blue or black stamp pad. (Right thumb impression, if it is difficult to access the left thumb for any reason. For candidates unable to provide thumb impression for any reason, please provide impression of any finger)
2. Get the digital image of the rectangular box (with your thumb impression inside) scanned by a professional using a scanner. Crop it to the border of the box.
3. Only JPEG image formats will be accepted.
4. The maximum pixel resolution for the image is 160 × 560.
5. The minimum pixel resolution for the image is 80 × 280.
6. Photographs of the thumb impression taken using mobile phone are not acceptable, and can result in rejection of the application without any refund of the fee.

4.6 Admit Card

The Admit Card can only be downloaded from the GATE portal from 5th January 2017 (tentative). **Admit Cards shall NOT be sent by post/email.** Bring a color print-out of the downloaded Admit Card to the Test Center along with the original and valid photo identification photocopy / scanned copy/invalid or expired identification. **Please note that you have to give details of this ID proof while filling the online application.** Candidates will **NOT** be permitted to take the test, if the original and valid photo identification is not presented in the examination hall. It may be noted that you would have specified one of the following IDs during the online application process: Passport, PAN Card, Voter ID, Aadhaar UID, College ID, Employee Identification Card or Driving License. **For International candidates, ONLY a valid Passport/ Government issued ID/College ID/ Employee ID shall be accepted as the recognized identification.**



5. Examination Related Information

5.1 Papers in GATE 2017

For the GATE 2017 examination, a candidate can apply for only one of the 23 papers listed in Table 5.1. The syllabus for each of the papers is given separately. Making a choice of the appropriate paper during GATE application is the responsibility of the candidate. Some guidelines in this respect are suggested below.

The candidate is expected to appear in a paper appropriate to the discipline of his/her qualifying degree. **The candidate can choose any paper of GATE 2017, however, it is better to choose a paper in line with the eligibility criteria of the institutions in which he/she wishes to seek admission.** For more details regarding the admission criteria in any particular institute, the candidate is advised to refer to the website of that institute. **NO PAPER CHANGE IS PERMISSIBLE AFTER AN APPLICATION HAS BEEN SUBMITTED.**

Table 5.1: List of GATE Papers and Corresponding Codes

Paper	Code	Paper	Code
Aerospace Engineering	AE	Geology and Geophysics	GG
Agricultural Engineering	AG	Instrumentation Engineering	IN
Architecture and Planning	AR	Mathematics	MA
Biotechnology	BT	Mechanical Engineering	ME
Civil Engineering	CE	Mining Engineering	MN
Chemical Engineering	CH	Metallurgical Engineering	MT
Computer Science and Information Technology	CS	Petroleum Engineering	PE
		Physics	PH
Chemistry	CY	Production and Industrial Engineering	PI
Electronics and Communication Engineering	EC	Textile Engineering and Fibre Science	TF
Electrical Engineering	EE	Engineering Sciences	XE*
Ecology and Evolution	EY	Life Sciences	XL**

* XE PAPER SECTIONS	CODE	**XL PAPER SECTIONS	CODE
Engineering Mathematics (Compulsory)	A	Chemistry (Compulsory)	P
Fluid Mechanics	B	Biochemistry	Q
Materials Science	C	Botany	R
Solid Mechanics	D	Microbiology	S
Thermodynamics	E	Zoology	T
Polymer Science and Engineering	F	Food Technology	U
Food Technology	G		
Atmospheric and Oceanic Sciences	H		

*XE (Engineering Sciences) and **XL (Life Sciences) papers are of general nature and will comprise of Sections listed in the above table. More detailed explanation is given below.

5.1.1 General Aptitude Questions

All the papers will have a few questions that test the General Aptitude (Language and Analytical Skills), apart from the core subject of the paper.

5.1.2 XE Paper

A candidate appearing in the XE paper has to answer the following

1. Section A – Engineering Mathematics
2. GA – General Aptitude
3. Any two of XE sections B to H

The choice of two sections from B to H can be made during the examination after viewing the questions. Only two optional sections can be answered at a time. A candidate wishing to change midway of the examination to another optional section must first choose to deselect one of the previously chosen optional sections (B to H).

5.1.3 XL Paper

A candidate appearing in the XL paper has to answer the following

1. Section P– Chemistry
2. GA – General Aptitude
3. Any two of XL sections Q to U

The choice of two sections from Q to U can be made during the examination after viewing the questions. Only two optional sections can be answered at a time. A candidate wishing to change midway of the examination to another optional section must first choose to deselect one of the previously chosen optional sections (Q to U).

5.2 Duration and Marks

The GATE examination consists of a single paper of **3-hour** duration that contains **65** questions carrying a maximum of **100 marks**. The question paper will consist of both multiple choice questions (MCQ) and numerical answer type (NAT) questions. The pattern of question papers is discussed in Section 5.3.

The examination for all the papers will be carried out in an ONLINE Computer Based Test (CBT) mode where the candidates will be shown the questions in a random sequence on a computer screen. The candidates are required to either select the answer (for MCQ type) or enter the answer for numerical answer type question using a mouse on a virtual keyboard (keyboard of the computer will be disabled). Each candidate will be provided with a scribble pad for rough work. The scribble pad has to be returned after the examination. At the end of the 3-hour window, the computer will automatically close the screen from further actions.

5.3 Pattern of Question Papers

In all the papers, there will be a total of 65 questions carrying 100 marks, out of which 10 questions carrying a total of 15 marks will be on General Aptitude (GA).

In the papers bearing the codes AE, AG, BT, CE, CH, CS, EC, EE, IN, ME, MN, MT, PE, PI, TF and XE, the Engineering Mathematics will carry around **15% of the total marks**, the General Aptitude section will carry **15% of the total marks** and the **remaining 70% of the total marks** is devoted to the subject of the paper.

In the papers bearing the codes AR, CY, EY, GG, MA, PH and XL, the General Aptitude section will carry **15% of the total marks** and the **remaining 85% of the total marks** is devoted to the subject of the paper.

GATE 2017 would contain questions of two different types in various papers:

(i) Multiple Choice Questions (MCQ) carrying 1 or 2 marks each in all papers and sections. These questions are objective in nature, and each will have a choice of four answers, out of which the candidate has to mark the correct answer(s).

(ii) Numerical Answer Questions of 1 or 2 marks each in all papers and sections. For these questions the answer is a real number, to be entered by the candidate using the virtual keypad. No choices will be shown for this type of questions. **The answer can be a number such as 10 (an integer only). The answer may be in decimals as well, for example, 10.1 (one decimal) or 10.01 (two decimals) or 10.001 (three decimals). Wherever required and possible, it is better to give NAT answer up to a maximum of three decimal places.**

Design of Questions

The questions in a paper may be designed to test the following abilities:

(i) Recall: These are based on facts, principles, formulae or laws of the discipline of the paper. The candidate is expected to be able to obtain

the answer either from his/her memory of the subject or at most from a one-line computation.

Example

Q. During machining, maximum heat is produced

- (A) in flank face
- (B) in rake face
- (C) in shear zone
- (D) due to friction between chip and tool

(ii) Comprehension: These questions will test the candidate's understanding of the basics of his/her field, by requiring him/her to draw simple conclusions from fundamental ideas.

Example

Q. A DC motor requires a starter in order to

- (A) develop a starting torque
- (B) compensate for auxiliary field ampere turns
- (C) limit armature current at starting
- (D) provide regenerative braking

(iii) Application: In these questions, the candidate is expected to apply his/her knowledge either through computation or by logical reasoning.

Example

Q. The sequent depth ratio of a hydraulic jump in a rectangular channel is 16.48. The Froude number at the beginning of the jump is:

- (A) 5.0
- (B) 8.0
- (C) 10.0
- (D) 12.0

The questions based on the above logics may be a mix of single standalone statement/phrase/data type questions, combination of option codes type questions or match items type questions.

(iv) Analysis and Synthesis: In these questions, the candidate is presented with data, diagrams, images etc. that require analysis before a question can be answered. A *Synthesis* question might require the

candidate to compare two or more pieces of information. Questions in this category could, for example, involve candidates in recognizing unstated assumptions, or separating useful information from irrelevant information.

5.4 Marking Scheme

For **1-mark** multiple-choice questions, **1/3** mark will be deducted for a wrong answer. Likewise, for **2-mark** multiple-choice questions, **2/3** mark will be deducted for a wrong answer. **There is NO negative marking for numerical answer type questions.**

5.4.1 General Aptitude (GA) Questions

In all papers, GA questions carry a total of **15 marks**. The GA section includes 5 questions carrying **1-mark** each (sub-total **5 marks**) and 5 questions carrying **2-marks** each (sub-total **10 marks**).

5.4.2 Question Papers other than GG, XE and XL

These papers would contain **25** questions carrying **1-mark** each (sub-total **25 marks**) and **30** questions carrying **2-marks** each (sub-total **60 marks**). The question paper will consist of questions of multiple choice and numerical answer type. For numerical answer questions, choices will not be given. Candidates have to enter the answer (which will be a real number, signed or unsigned, e.g., 25.06, -25.06, 25, -25 etc.) using a virtual keypad. The questions shall be mentioned with up to which decimal places, the candidates need to make an answer. Also, an appropriate range will be considered while evaluating the numerical answer type questions so that the candidate is not penalized due to the usual round-off errors.

5.4.3 GG (Geology and Geophysics) Paper

Apart from the General Aptitude (GA) section, the GG question paper consists of two parts: Part A and Part B. Part A is common for all candidates. Part B contains two sections: Section 1 (Geology) and

Section 2 (Geophysics). Candidates will have to attempt questions in Part A and either Section 1 or Section 2 in Part B.

Part A consists of **25** multiple-choice questions carrying **1-mark** each (sub-total **25 marks** and some of these may be numerical answer type questions). Each section in Part B (Section 1 and Section 2) consists of **30** multiple choice questions carrying **2-marks** each (sub-total **60 marks** and some of these may be numerical answer type questions).

5.4.4 XE Paper (Engineering Sciences)

In XE paper, Engineering Mathematics section (Section A) is **compulsory**. This section contains **11** questions carrying a total of **15 marks**: 7 questions carrying **1-mark** each (sub-total **7 marks**), and 4 questions carrying **2-marks** each (sub-total **8 marks**). Some questions may be of numerical answer type questions.

Each of the other sections of the XE paper (Sections B through H) contains 22 questions carrying a total of **35 marks**: 9 questions carrying **1-mark** each (sub-total **9 marks**) and 13 questions carrying **2-marks** each (sub-total **26 marks**). Some questions may be of numerical answer type.

5.4.5 XL Paper (Life Sciences)

In XL paper, Chemistry section (Section P) is **compulsory**. This section contains **15** questions carrying a total of **25 marks**: 5 questions carrying **1-mark** each (sub-total **5 marks**) and 10 questions carrying **2-marks** each (sub-total **20 marks**). Some questions may be of numerical answer type.

Each of the other sections of the XL paper (Sections Q through U) contains 20 questions carrying a total of **30 marks**: 10 questions carrying **1-mark** each (sub-total **10 marks**) and 10 questions carrying **2-marks** each (sub-total **20 marks**). Some questions may be of numerical answer type.

5.4.6 Negative Marking

For a wrong answer chosen for the **multiple choice questions** (MCQs), there would be negative marking. For **1-mark** multiple choice questions, **1/3** mark will be deducted for a wrong answer. Likewise, for **2-mark** multiple choice questions, **2/3** mark will be deducted for a wrong answer. However, there is **NO negative marking for a wrong answer in numerical answer type questions.**



6. Post-Examination Related Information

6.1 GATE Score

After the evaluation of the answers, the raw marks obtained by a candidate will be converted to a normalized GATE Score.

The GATE score will be computed using the formula given below.

Calculation of Normalized Marks for CE, CS, EC, EE and ME papers (multi-session papers)

In GATE 2017, examination for some papers may be conducted in multi-sessions. Hence, for these papers, a suitable normalization is applied to take into account any variation in the difficulty levels of the question papers across different sessions. The normalization is done based on the fundamental assumption that "in all multi-session GATE papers, the distribution of abilities of candidates is the same across all the sessions". This assumption is justified since the number of candidates appearing in multi-session papers in GATE 2017 is large and the procedure of allocation of session to candidates

is random. Further it is also ensured that for the same multi-session paper, the number of candidates allotted in each session is of the same order of magnitude.

Based on the above, and considering various normalization methods, the committee arrived at the following formula for calculating the normalized marks for the multi-session papers.

Normalization mark of j^{th} candidate in the i^{th} session \hat{M}_{ij} is given by

$$\hat{M}_{ij} = \frac{\bar{M}_t^g - M_q^g}{\bar{M}_{ti} - M_{iq}^g} (M_{ij} - M_{iq}^g) + M_q^g$$

where

M_{ij} : is the actual marks obtained by the j^{th} candidate in i^{th} session

\bar{M}_t^g : is the average marks of the top 0.1% of the candidates considering all sessions

M_q^g : is the sum of mean and standard deviation marks of the candidates in the paper considering all sessions

\bar{M}_{ti} : is the average marks of the top 0.1% of the candidates in the i^{th} session

M_{iq}^g : is the sum of the mean marks and standard deviation of the i^{th} session

After evaluation of the answers, normalized marks based on the above formula will be calculated corresponding to the raw marks obtained by a candidate and the GATE 2017 Score will be calculated based on the normalized marks.

For all papers for which there is only one session, actual marks obtained will be used for calculating the GATE 2017 Score.

Calculation of GATE Score for all papers

GATE 2017 score will be calculated using the formula

$$GATE\ Score = S_q + (S_t - S_q) \frac{(M - M_q)}{(\bar{M}_t - M_q)}$$

In the above formulae

M : marks obtained by the candidate (actual marks for single session papers and normalized marks for multi-session papers)

M_q : is the qualifying marks for general category candidate in the paper

\bar{M}_t : is the mean of marks of top 0.1% or top 10 (whichever is larger) of the candidates who appeared in the paper (in case of multi-session papers including all sessions)

S_q : 350, is the score assigned to M_q

S_t : 900, is the score assigned to \bar{M}_t

In the GATE 2017 score formula, M_q is usually 25 marks (out of 100) or $(\mu + \sigma)$, whichever is larger. Here μ is the mean and σ is the standard deviation of marks of all the candidates who appeared in the paper.

After the declaration of results, GATE Scorecards can be downloaded by

- (a) All SC/ST/PwD candidates whose marks are greater than or equal to the qualifying mark of SC/ST/PwD candidates in their respective papers, and
- (b) All other candidates whose marks are greater than or equal to the qualifying mark of OBC (NCL) candidates in their respective papers.

There is no provision for the issue of hard copies of the GATE Scorecards.

The GATE 2017 Committee has the authority to decide the qualifying mark/score for each GATE paper. In case any claim or dispute arises in respect of GATE 2017, the Courts and Tribunals in Roorkee alone shall have the exclusive jurisdiction to entertain and settle any such dispute or claim.

6.2 GATE 2017 Results

GATE 2017 **results will be announced on March 27, 2017 at 17:00 hours** and will be available on the GATE Online Application Website.

GATE 2017 score is valid for **THREE YEARS** from the date of announcement of the results.

GATE 2017 results may be made available on payment basis to Government organizations (Educational Institutions, R & D Laboratories, Industries, etc.) in India and abroad based on a Memorandum of Understanding (MOU) between the Indian Institute of Technology Roorkee and the organization intending to use the GATE score. Details in this regard can be obtained from The Organizing Chairman, GATE 2017, Indian Institute of Technology - Roorkee.

6.3 GATE 2017 Score Card

After the declaration of results, qualified candidates can download their GATE 2017 Score Card for the paper (for which he/she has taken the examination). The GATE 2017 score cards can be downloaded between March 27, 2017 to May 26, 2017 from the GOAPS portal of gate website.

In case any candidate requires a soft copy of his/her GATE Score Card after May 26, 2017 till December 31, 2017, they can do so by paying a fee of ₹ 500 (five hundred only) on the GOAPS portal.



7. Frequently Asked Questions (FAQ)

7.1 Application Process

1. Can I appear in any paper in GATE 2017?

The candidate is expected to appear in a paper appropriate to the discipline of his/her qualifying degree. The candidate can also choose any paper of GATE 2017, however, it is better to choose a paper in line with the eligibility criteria of the institutions in which he/she wishes to seek admission.

2. How do I apply ONLINE?

Refer to Section-4.5 given in the GATE 2017 Brochure and by visiting the website <http://appsgate.iitr.ernet.in>

3. Can I use one e-mail address to fill multiple application forms?

NO, one e-mail address can be used to submit only **one** application form.

4. Why should I choose three examination cities?

A candidate will most likely be allotted a centre in the examination city of his/her first choice. Only in cases where there are too many candidates opting for a certain city as their first choice, the other two choices shall be relevant. A candidate is required to fill his/her choices of cities to appear for the examination, but should remember that because of operational constraints, the GATE 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.

For candidates from the six other countries, the Centers from that particular country shall be only one choice (by default) and these are: Abu Dhabi. Dubai (UAE), Addis Ababa (Ethiopia), Colombo (Sri Lanka), Dhaka (Bangladesh), Kathmandu (Nepal) and Singapore.

5. My power/internet connection failed during the application process, what do I do?

Please login to the GATE 2017 application website **<https://appsgate.iitr.ernet.in>** again and continue the application process.

6. Only SC/ST/PwD candidates have been asked to upload the category certificates. What about the OBC (non-creamy layer) candidates? Do they have to upload the category certificate too?

NO. Category certificate is required only to decide the rate for the application fee. As far as the GATE 2017 examination is concerned, only SC/ST/PwD candidates and all women candidates qualify for a reduced fee. That is the purpose of asking for the certificate.

This aspect does not apply to candidates from Bangladesh, Ethiopia, Nepal, Singapore, Sri Lanka and UAE

7. **How do I make the fee payment for GATE 2017 examination?**

There is a link to a payment gateway from the application process.

8. **If I want the Online Payment (Net-banking) option, how should I complete the application process?**

After filling all the fields in the ONLINE application form, choose the Online Payment option and proceed for payment by following the instructions.

- a) Your browser screen will re-direct you to the bank you choose. Login with your Internet Banking credentials and confirm the payment.
- b) After confirming the payment, you will be re-directed back to the GATE 2017 application website where you would be required to fill in all the details.
- c) At the end of this process, a PDF file will be generated with the following pages:
 1. **Page 1:** Application form with the necessary details of the candidates, like full name, date of birth (DoB), scanned photograph, scanned thumb impression, sex, category (GE/OBC/SC/ST), PwD (Y/N), full contact address, mobile number, email id, etc.
 2. **Page 2:** Bachelor degree certificate or previous semester/year grade sheet or mark sheet if you are in final year (depending on your eligibility status).
 3. **Page 3:** The uploaded caste certificate.
 4. **Page 4:** The uploaded PwD certificate.
 5. **Page 5:** Online payment details like your bank account number, bank name, transaction id, date and time of transaction, amount paid, etc.
- d) Save it or take a printout of the entire PDF file for your future reference/use.

8. My power/internet connection failed during online payment. What do I do?

When you can get back online, first check the status of your payment on the GATE application website.

- a) If the payment was received by GATE, you can continue the process of printing the application form.
- b) If the payment was not received by GATE, you have to start with the payment step again, to complete payment.

9. My net banking account has been debited (money taken out) more than once. How do I get the money back?

This can happen if your bank account was used more than once or you pressed refresh or back/forward button of your internet browser. Please check your bank account after 48 hours. Any unaccounted or excess money that was received on behalf of GATE 2017 from this account will automatically be returned (credited) to the same bank account.

10. My bank account has been debited (money taken out), but GATE Application website says that the payment has not been received. What do I do?

This happens because of some failure in internet transactions (including failure of internet connection at your end). As soon as possible, you MUST initiate a fresh payment process on the GATE application website, and make the payment again. The money that was debited (taken out) from your account in the first attempt, will be credited (put back) to your bank account within seven working days. You will be charged only once. Any excess/unaccounted debits will be returned to you.

11. If I want the e-challan option, how should I complete the application process?

If you select the e-challan option, then you will have to print the generated challan and will have to go to a branch of the State Bank of India and pay.

12. Do I have to send the print-out of the application form?

No.

13. When and how will I know the status of my application?

You can check the status of your application by logging into GOAPS website.

14. After completing the ONLINE application process and generating a PDF file, will I be able to change my application data?

NO. After completing all the steps up to PDF application form generation in the ONLINE application process, you can only download the application form and **CANNOT** modify the data. Hence you need to be very careful while entering the data. You may also save a partially filled application and login in again at a later point in time to complete and submit the application, however it must be within the specified deadline.

15. I have missed to take a print-out of my ONLINE application at the end of my application process. How will I get access to it?

You can login using GOAPS Enrolment ID and password and take a printout if you want it for your own reference. The print out must not be sent to GATE organizing institute.

16. If I have not uploaded photograph not as per the specifications mentioned, will my application be rejected?

Yes, the application shall be rejected.

17. Which identification card numbers shall be accepted in application form?

Only numbers of the following identification cards shall be accepted: Passport, PAN card, Voter ID, Aadhaar UID, college ID, Employee Identification Card for Indian candidates and for **International candidates, ONLY a valid Passport/ Government issued ID/College ID/ Employee ID/Driving License shall be accepted as the recognized identification.**

18. If I am in the final year of my degree program, but do not yet have my mark sheet (transcript) of my previous year/semester, what certificate do I upload?

If a candidate who is in the final year of his/her degree program, but does not have official mark sheet of previous semester/year issued at the time of application, the candidate may upload a provisional certificate issued by the Institute mentioning that the candidate is studying in the final year of the program. In case, no provisional certificate is issued by the Institute, a Letter with Signature and Seal issued by the Head of Institute/Dean/Registrar/Head of Department, where the candidate is studying must be uploaded. The content of the Letter should be as shown below.

PROVISIONAL CERTIFICATE LETTER

This is to certify that Mr./Ms. _____
S/O or D/O _____ is
studying in the final year for the degree of _____.

Signature of Candidate with Date:

Signature of the Institute Head/Dean/Registrar/Head of Department with
Date and Seal:

19. If I have completed the degree in 2016, but my Institute has still not provided me with the degree certificate/provisional

certificate and also official mark sheet of 7th/8th semester is not available yet, which certificate should I upload as eligibility certificate?

You should either upload the filled and signed provisional certificate letter or upload the original 6th semester mark sheet issued by the Institute.

7.2 Admit Card

1. When will I receive my admit card?

Admit Card can **ONLY** be downloaded from the zonal GATE websites from 5th January 2017. Admit Cards will **NOT** be sent by post or as email attachment.

2. Is the Admit card alone sufficient to gain entry to the exam?

NO. The Admit Card has to be brought to the test center **along with** at least one original (not photocopied/scanned copy) and valid (not expired) photo identification, whose details have been entered while filling the application. **ONLY** one of the following photo identifications is permitted: Driving license, Passport, PAN Card, Voter ID, Aadhaar UID, valid College ID, Employee Identification Card or driving License. Candidates will not be permitted to take the exam if the original and valid photo identification is not presented.

7.3 GATE 2017 Exam

1. For how many GATE papers can I apply?

A candidate can apply for only **ONE** of the 23 papers listed in the GATE INFORMATION BROCHURE or GATE website. The choice of the appropriate paper is the responsibility of the candidate. Some guidelines in this respect are suggested below.

1. The candidate is expected to appear in a paper appropriate to the discipline of his/her qualifying degree.

2. The candidate is, however, free to choose any paper according to his/her admission plan, keeping in mind the eligibility criteria of the institutions in which he/she wishes to seek admission.

2. After submission of application, am I permitted to change my GATE Examination Paper?

Requests for change of GATE Examination paper after the submission of Application Form will not be considered.

3. After submission of application, am I permitted to change my GATE Examination City?

Requests for change of examination city will be accepted till 16th November, 2016 with a fee of ₹400/- (four hundred only) to be paid online using GOAPS.

4. Will I be provided with any white paper for rough work and calculations during the test?

A scribble pad will be provided to the candidate that can be used to do the rough work. The candidate has to return the scribble pad after the examination.

5. Am I allowed to leave the examination hall during the test?

NO. Candidates will **NOT** be allowed to leave the examination hall for any reason during the test. Candidates are allowed to leave the computer laboratory where the exam will be conducted only after the closure of the test at the scheduled end of examination in a session.

6. What items are not permitted to be brought with me inside the examination venue?

Only admit card, identification card and a pen shall be permitted to be taken by the candidate to be taken inside the examination hall. **A simple wrist watch without any calculation device is permissible.**

7. Can I use a physical calculator during the examination?

NO. During the online GATE 2017 examination, all candidates will be provided with a virtual scientific calculator which has to be used to answer the questions. No physical calculator will be allowed inside the examination hall. The same applies to mobile phones and wrist watches with calculation facility. GATE 2017 will not provide any storage space at examination locations for such objects. If a candidate brings personal belongings including mobile phones, those will have to be kept outside the examination hall at the candidate's risk. **If the candidate is found to be in possession (even if not using) of any calculator and mobile phone and wrist watch with calculation facility, he/she shall be disqualified and the result shall not be declared for the candidate.**

8. Will there be any arrangement at the test center for the safe keeping of my personal items such as my mobile phone?

NO. Such arrangements will not be possible at the test center.

9. What happens if a physical calculator (even on an electronic watch) or a mobile phone (even in switched off mode) is found in my possession in the examination hall?

Such cases will naturally constitute violation of GATE 2017 rules and will lead to disqualification of the candidature. All such candidates were disqualified in **GATE 2016.**

10. What is a NAT question?

For Numerical Answer Questions of 1 or 2 marks each in all papers and sections, the answer is a real number, to be entered by the candidate using the virtual keypad. No choices will be shown for this type of questions. **The answer can be a number such as 10 (an integer only). The answer may be in decimals as well, for example, 10.1 (one decimal) or 10.01 (two decimals) or 10.001 (three decimals). Wherever required and possible, it is better to give NAT answer up to a maximum of three decimal places.**

7.4 Guidelines related to PwD candidates

1. What are the details of the guidelines that will be followed about PwD candidates writing GATE 2017 examination?

GATE 2017 will follow the guidelines as mentioned in the government regulations.

Please refer to

<http://www.ccdisabilities.nic.in/content/en/docs/omguide.pdf> and

<http://www.ccdisabilities.nic.in/content/en/docs/CCDLetters.pdf>

2. Will the facility of scribe and/or additional time be given to all PwD candidates?

Please refer to

<http://www.ccdisabilities.nic.in/content/en/docs/CCDLetters.pdf>(in

particular to the fifth page of the document) for the clarification

issued by CCPD on 18.03.2013. *“The facility of scribe is meant for only those PwD candidates who have physical limitation to write including that of speed. The **additional time** would be applicable **only** to such candidates.”*

3. Will there be a “magnified question paper” for visually challenged PwD candidates?

Yes. Once you reach the examination hall please contact the GATE - Institute representative through the invigilator in your examination hall and he/she will do the needful.



IISc Bangalore

8 Performance of Candidates in GATE 2016

A few performance and statistical data from GATE 2016 examinations are provided here for the candidates to make a self assessment of the examination.

Table 8.1 Statistics of marks scored by qualified candidates in various papers of GATE 2016

Papers	No. of Qualified Candidates	Max Marks (out of 100)	Min. Marks (out of 100)	Average Maks	Standard Deviation
AE	648	82.00	19.67	39.42	11.85
AG	165	45.33	16.67	27.97	6.68
AR	1240	75.67	26.00	43.37	8.32
BT	1936	64.33	18.00	31.35	6.88
CE	18013	87.86	16.79	33.91	11.39
CH	3317	83.00	22.00	39.59	9.55
CS	15207	85.95	16.71	33.59	10.8
CY	3126	77.00	19.67	34.42	7.48
EC	25339	86.27	16.73	31.17	9.24
EE	21396	88.39	16.74	34.09	11.17
EY	139	89.00	30.67	55.03	13.01
GG	1166	81.00	22.00	39.71	9.98
IN	2566	84.67	21.00	40.58	11.11
MA	778	54.00	16.67	27.62	5.76
ME	32670	94.66	19.77	41.65	13.04
MN	559	66.33	22.00	37.21	9.18
MT	961	73.00	28.00	45.55	8.93
PE	474	83.00	26.67	48.56	10.72
PH	2140	79.00	24.33	41.87	8.14
PI	582	78.67	17.67	33.92	10.49
TF	306	59.67	17.67	31.19	7.76
XE	566	78.33	18.00	33.54	8.95
XL	2098	58.00	17.33	30.15	6.4
Total	135392	94.00	16.67		

Table 8.2: Year-wise Statistics (2006-2016) of GATE candidates

Year	Registered	Appeared	Qualified	% Appeared	% Qualified
2006	184308	170252	33813	92.37	19.86
2007	168917	153822	44387	91.06	28.86
2008	184672	166027	31694	89.90	19.09
2009	230341	212130	35273	92.09	16.63
2010	460541	420596	59853	91.33	14.23
2011	612568	558480	96239	91.17	17.23
2012	777134	686614	108526	88.35	15.81
2013	1200728	984855	136699	82.02	13.88
2014	1033625	889157	149694	86.02	16.84
2015	927580	804463	121060	86.73	15.05
2016	971831	818850	135392	84.26	16.53

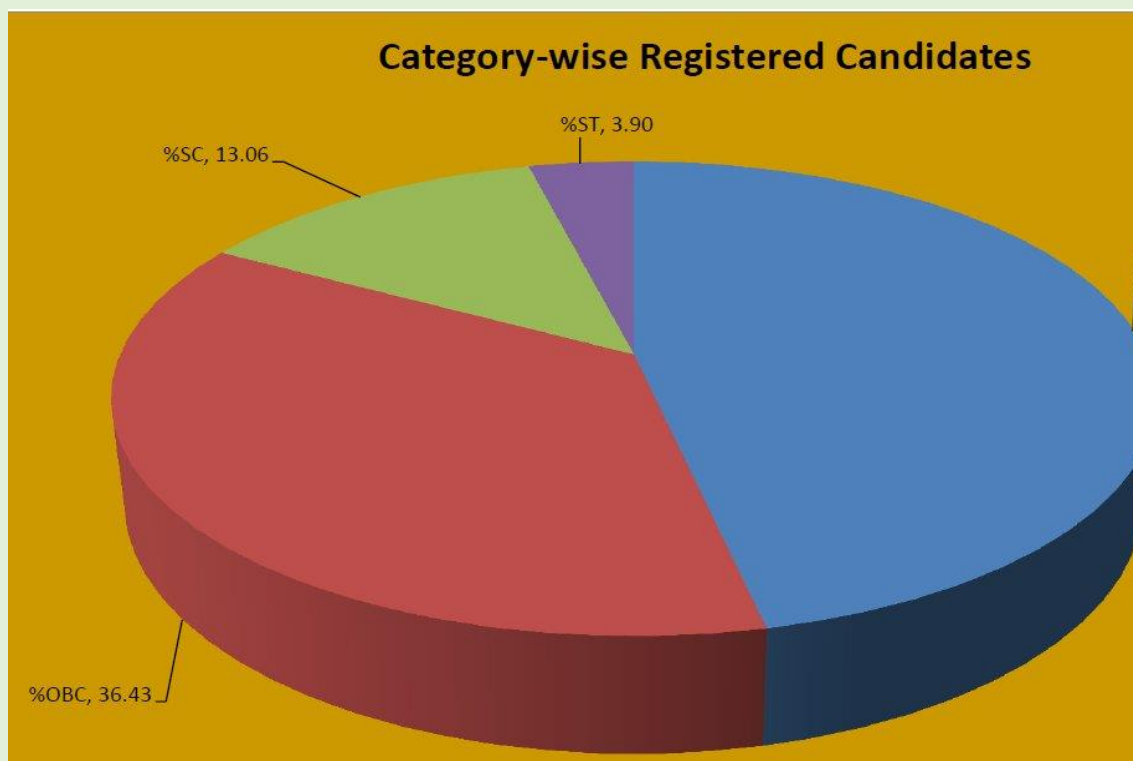


Figure 8.1: Category-wise Registered Candidates

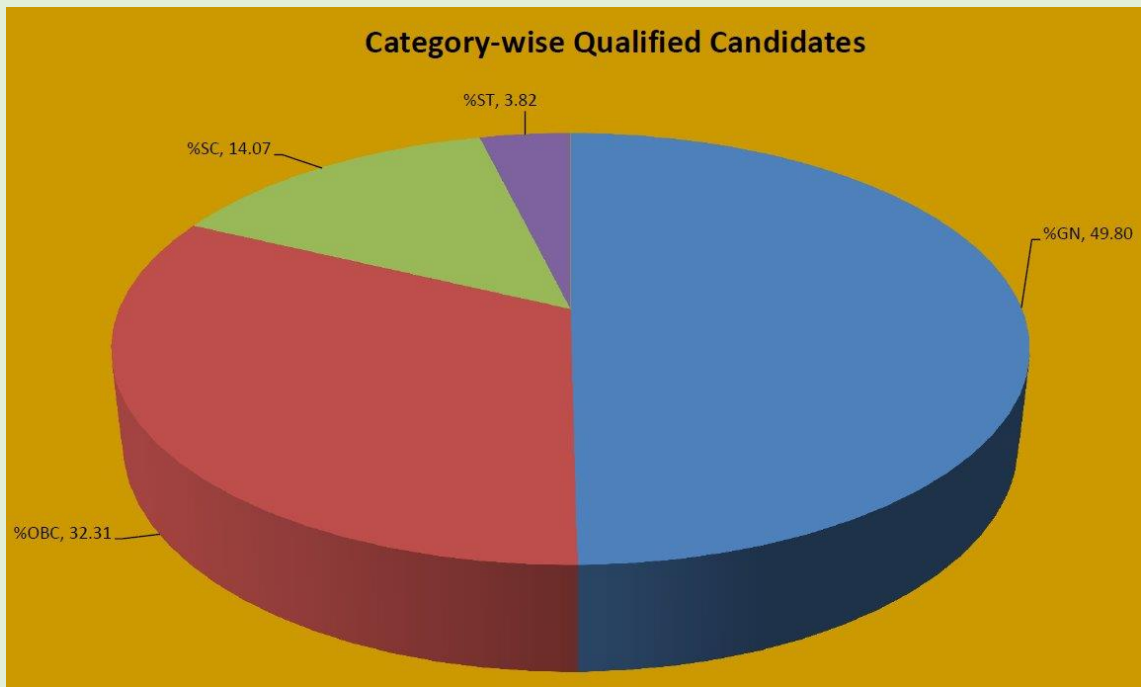


Figure 8.2 :Category-wise Qualified Candidates

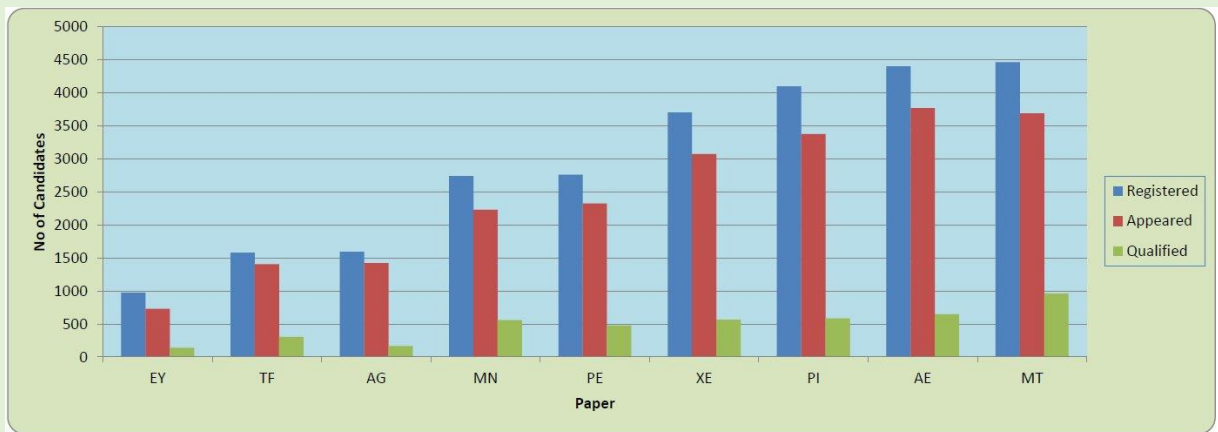


Figure 8.3 (a):Paper-wise Statistics of Performance

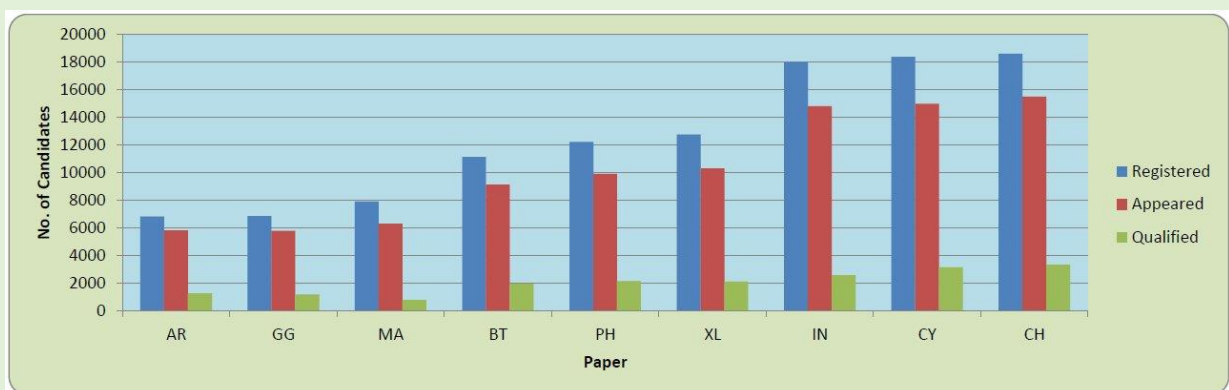


Figure 8.3 (b):Paper-wise Statistics of Performance

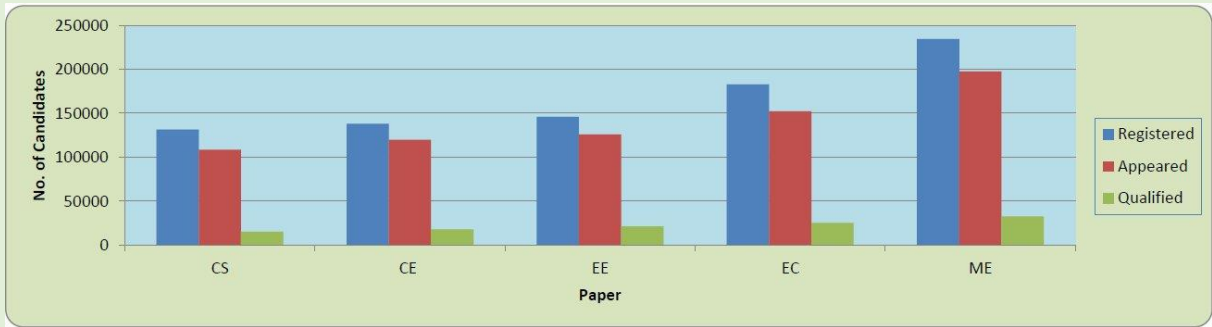


Figure 8.3 (c):Paper-wise Statistics of Performance

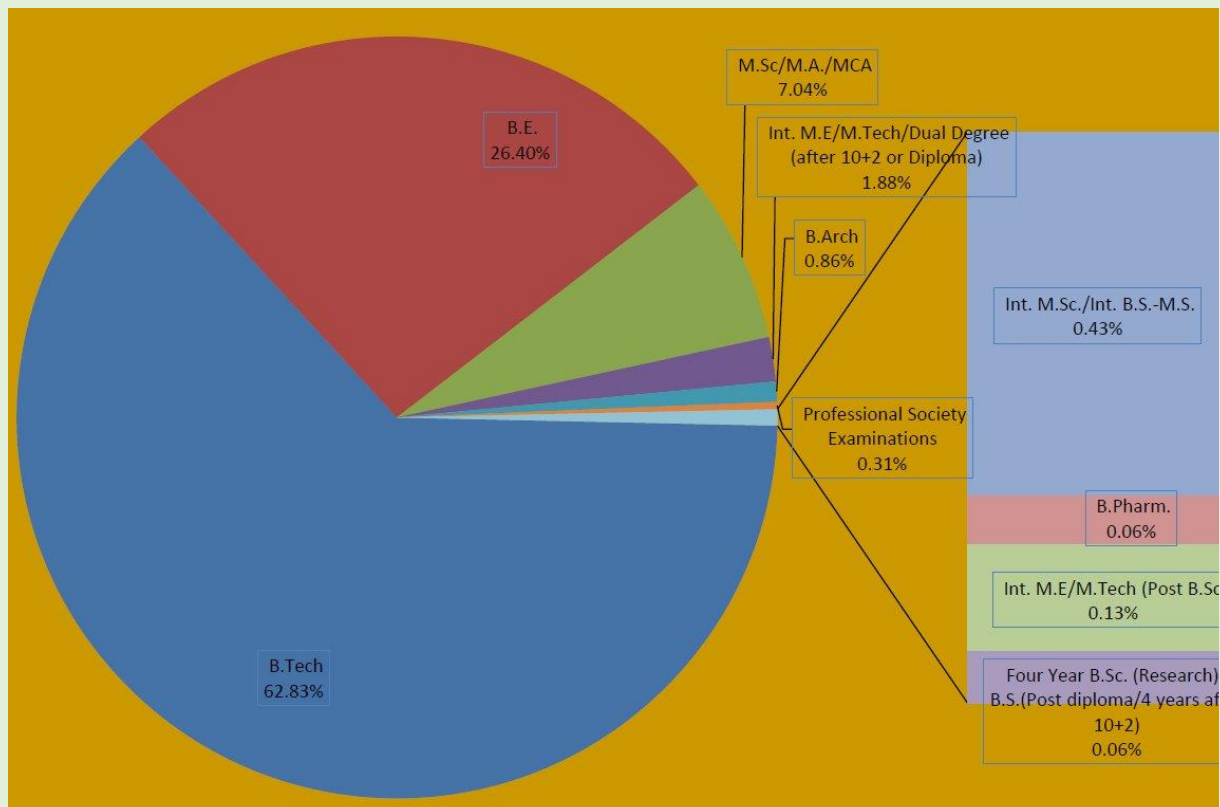


Figure 8.4 : Graduating Degree-wise Statistics of Qualified Candidates

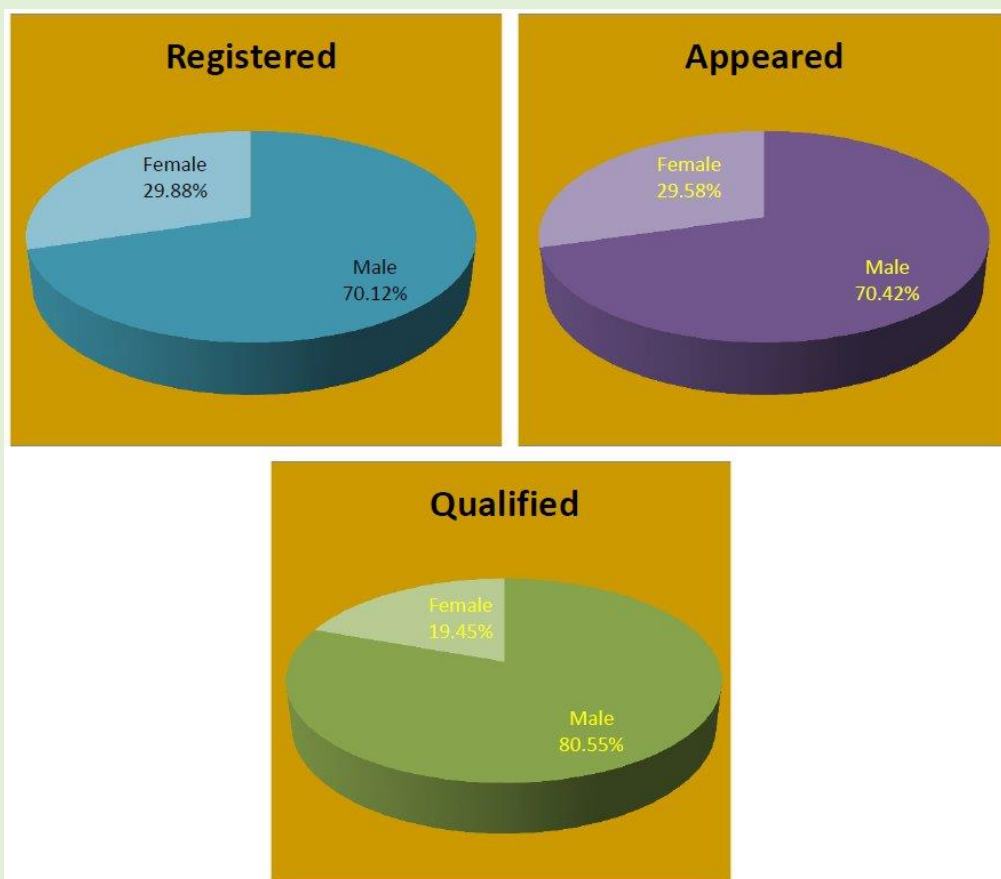


Figure 8.5: Gender-wise Statistics of Candidates

9. Contact Us

GATE is jointly administered and conducted by the Indian Institute of Science and seven Indian Institutes of Technology. Table 9.1 gives the details of each Zonal Office. Each of the institutes administers a zone and caters to a list of examination cities that fall under that zone. Candidates are assigned a zone at the time of application, based on the first city of choice. Candidates must note this zone number for contact purposes.

Candidates must first try to read FAQs. If a query is not resolved even after going through FAQs, then they should use GOAPS (GATE Online Application Processing System) to contact zonal GATE offices, which will provide quicker and clearer information.

Table 9.1: Contact details for Zonal GATE Offices

Zone	Contact Address	Phone Number	e-mail Id
1	Chairman, GATE Indian Institute of Science Bengaluru 560 012	080-23606761, 23606762, 23606763, 23606764, 23606765	gate@gate.iisc.ernet.in
2	Chairman, GATE Indian Institute of Technology Bombay, Powai, Mumbai 400 076	022-2576 7068 022-2572 4054	gateoffice@iitb.ac.in
3	Chairman, GATE Indian Institute of Technology Delhi, HauzKhas, New Delhi 110 016	011-2659 1749 011-2659 6137	chrgate@admin.iitd.ac.in
4	Chairman, GATE Indian Institute of Technology Guwahati, Guwahati 781 039	0361-258 2751	gate@iitg.ernet.in
5	Chairman, GATE Indian Institute of Technology Kanpur, Kanpur 208 016	0512-259 7412	gate@iitk.ac.in
6	Chairman, GATE Indian Institute of Technology Kharagpur, Kharagpur 721 302	03222-282091	gate@adm.iitkgp.ernet.in

7	Chairman, GATE Indian Institute of Technology Madras, Chennai 600 036	044-2257 8200	gate@iitm.ac.in
8	Chairman, GATE Indian Institute of Technology Roorkee, Roorkee 247 667 (GATE International candidates may contact on this address)	01332-284531	gate@iitr.ac.in

Information contained in this brochure is correct to the best of the knowledge and understanding of GATE 2017 committee before the application processing to start on September 1, 2016. There may be changes in future due to unavoidable reasons. As and when any change happens, it will be notified on GATE 2017 website <http://gate.iitr.ernet.in>