News Clips
June 30-July 6, 2018

July 6

Prefer JEE candidates who used exact numerical value, IIT-Kanpur told

http://www.newindianexpress.com/states/tamil-nadu/2018/jul/06/prefer-jee-candidates-who-used-exact-numerical-value-iit-kanpur-told-1839030.html

Justice S Vaidyanathan gave the directive while allowing a writ petition from L Lakshmi Sree, who wrote the JEE in Chennai on May 20.

The Madras High Court has directed the Indian Institute of Technology in Kanpur (IIT-K) to give preference to candidates who have answered in exact numerical value in decimal notation, rounding off to second decimal place, to candidates who answered by rounding off values to one decimal point or without any decimal notation in the Joint Entrance Examination Advanced (JEE Advanced-2018).Justice S Vaidyanathan gave the directive while allowing a writ petition from L Lakshmi Sree, who wrote the JEE in Chennai on May 20.

Petitioner said candidates were instructed to answer in correct numerical value in decimal notation rounded off to the second decimal place. Full marks are to be given only if answered as per the instructions. According to petitioner, as per the instructions, she spent quality time to answer the questions by entering correct numerical value in decimal notation rounding off to second decimal. However, some candidates, without reading the instructions carefully, had answered with one decimal point or without any decimal notation, she added.

Subsequently, the authorities concerned made a clarification on their website stating that “If an answer is the integer 11, all the answers entered as 11, 11.0, or 11.00 will be correct.”The petitioner wrote an e-mail to the authorities concerned on June 1 stating that awarding marks to candidates who had not strictly followed the original instructions would affect the marks and ranks of those who had followed the instructions spending time. Since there was no reply from the authorities, she filed the present petition.

Admitting the plea on June 7 and passing an interim order, the court had directed the authorities to evaluate papers based only on original instructions and if evaluation was made based on the clarification, allotment of seats should not be made till further orders.When the plea was taken up for final hearing on July 2 last, the authorities argued that evaluation in both ways would not alter the total number of candidates selected.The judge allowed the petition and gave the directive after holding that by giving preference to candidates like the petitioner, the total number of candidates who had been selected, was not going to be affected. Their rankings alone will get changed.

12 BMC, IIT-Bombay and railway teams to audit 445 bridges in Mumbai

http://www.dnaindia.com/mumbai/report-12-bmc-iit-bombay-and-railway-teams-to-audit-445-bridges-in-mumbai-2633653

Two days after Union Railway Minister Piyush Goyal spoke about tying up with the Indian Institute of Technology-Bombay for railway audits, 12 teams were formed on Thursday to inspect the 445 road and foot overbridges that crisscross rail lines in Mumbai and its metropolitan region. The teams, comprising members from the civic and railway authorities and IIT-B, will start the inspection with bridges that are 30 years old or older.

The decision was taken at a meeting held at the Brihanmumbai Municipal Corporation (BMC) headquarters in CST area. It was headed by Central and Western Railway general managers DK Sharma and AK Gupta respectively, and BMC Commissioner Ajoy Mehta. Representatives from IIT-Bombay were present at the meeting. Sources said if the teams find a particular bridge to be weak, they will ask the traffic police to stop traffic and also halt train services so they can inspect it better.

"There will be 12 teams, each having at least 3 members, one each from the different agencies. They have been asked to come up with a detailed report within six months, as asked for by Minister Goyal," said a railway official who attended the meeting.

Starting today, the teams will draw a detailed plan for structural audit. "We will start with old bridges like Lokmanya Tilak Bridge in Dadar and Elphinstone Bridge," said Sunil Udasi, chief public relations officer, Central Railway.

The authorities said that a majority of big bridges that are made of stone were built during the British era and are roughly 100 years old. For several months now, talks of demolishing Carnac Bunder bridge have been going on as the railways has deemed it dangerous. Heavy vehicles have been barred from using it. A couple of years ago, Byculla's Hancock Bridge, which was over 130 years, was demolished.

IIT-B TO THE RESCUE

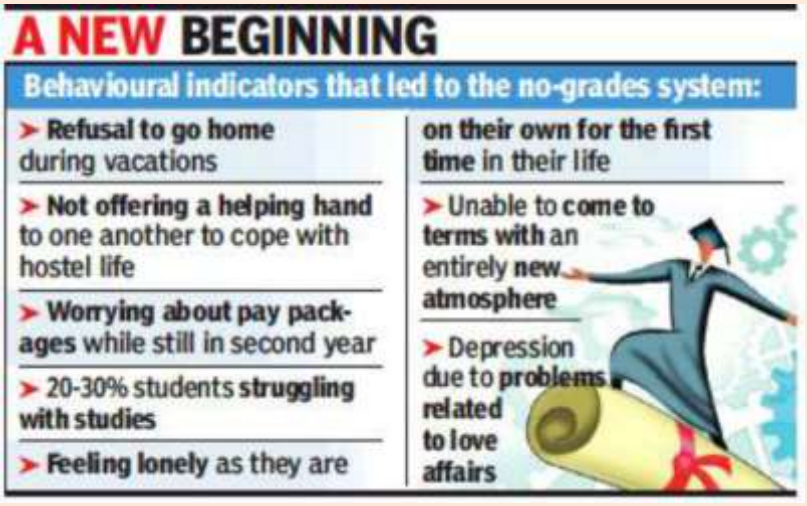
Rail Minister Piyush Goyal had said the rlys requested IIT-B to carry out safety audits of 445 bridges crossing rail lines jointly with civic officials.

The teams are to submit a report within six months.

IIT Goa may keep out F grade in first year

https://timesofindia.indiatimes.com/city/goa/iit-goa-may-keep-out-f-grade-in-first-yr/articleshow/64876671.cms

The Indian Institute of Technology (IIT), Goa, is out to set a new example in the country by becoming the first IIT to give no grades, instead of an F grade to underperforming first year students.



“F grade has a stigma attached. We will just say that you are underperforming so you get no grade. At least, the student will study to learn something without the fear of failing. We will take the anxiety out for the students and parents. It will be a unique experiment in the country,” IIT Goa director B K Mishra said.

The move has been triggered after IIT Goa, like Madras and Hyderabad, hired the virtual counselling services of Your Dost in January. The feedback said over 30% students of IIT Goa had contacted them with both academic and non-academic issues like career advice, difficulty in coping with the syllabus, dealing with life alone for the first time and love affairs.

IIT Goa shells out around Rs 40,000 a month for the services of Your Dost, where students can use a proxy name and chat with counsellors anonymously online.

“We want to take preventive measures rather than waiting for the worst to happen. Some universities abroad have already successfully adopted the no-grades system for non-performing students. We are hoping the learning outcome will be better now,” said Mishra.

The IIT began operations in 2016 and enters its third academic session this year. Mishra said the plan

is to implement the no-grade system for underperformers from the new batch that begins from mid-July.

“In IITs, the stress is on understanding the concepts. Students, who are used to learning differently in Kota and other coaching centres, suddenly come here and can’t cope with the fact that they aren’t doing as well as they were doing in coaching centres. This can lead to depression,” said Mishra.

Here is why govt must clarify on funding powers in the post-UGC era

https://www.financialexpress.com/opinion/here-is-why-govt-must-clarify-on-funding-powers-in-the-post-ugc-era/1233208/

The Union government’s move to expand the scope of the Higher Education Funding Agency (HEFA) is undoubtedly a good one.

The UGC regime was marked by both over-regulation that curbed the autonomy of top-notch institutions and under-regulation of academic quality that led to a mushrooming of sub-standard institutions, as also the gross abuse of its funding powers.

The Union government’s move to expand the scope of the Higher Education Funding Agency (HEFA) is undoubtedly a good one. HEFA was formed in 2016 as an NBFC to finance infrastructure development in the IITs and a few other top-rung institutes. As per the Wednesday decision of the government, HEFA’s capital base has been increased from Rs 2,000 crore to rs 10,000 crore, and it has been tasked with mobilising a further Rs 1 lakh crore by 2022. This will be used to extend loans for research and academic infrastructure development—under very soft repayment conditions—to technical institutes, central universities, AIIMSs, Kendriya Vidyalayas (KVs) and Navodaya Vidyalayas. Given how this will fulfil unmet needs of such institutions, the boost to education will be significant. That said, the government will still need to mend the many chinks in higher education regulation that remain.

The government certainly did well to announce a plan to close down the present higher education regulator, the University Grants Commission (UGC), and usher in the Higher Education Commission of India (HECI). The UGC regime, ironically, was marked by both over-regulation that curbed the

autonomy of top-notch institutions and under-regulation of academic quality that led to a mushrooming of sub-standard institutions, as also the gross abuse of its funding powers. The draft HECI Bill frames the body as one solely concerned with regulation of academic quality. However, there are a few grey areas that must be revisited if HECI is to prove different from UGC. The draft Bill talks of an autonomy-promoting mandate for HECI, wherein it will lay down the standards, presumably in setting the curriculum, fixing fees, etc. However, the draft Bill only allows already-autonomous institutes to fix their curriculum. The HECI system must make sure that existing non-autonomous institutions, too, are allowed to set their curriculum as they advance towards autonomy. Apart from this, there is also the government shadow on HECI independence, in the form of an advisory council that will be chaired by the Union HRD minister and that will have the chiefs of the state higher education councils as members, as well as the top two HECI officials; the recommendations of the council, the draft Bill suggests, will have to be implemented by the HECI. Also disturbing is the lack of clarity on who gets the UGC's grant-giving powers. While some news reports claimed that the Union HRD ministry will be assuming these powers, the ministry has said that a final call is yet to be taken and that it is keen to ensure that the grant-giving process is purely merit-based. In keeping with its intent, the Union government must ensure that grant-giving powers are vested in an independent body well before the HECI regime kicks off. At the very least, if the powers do rest with the ministry eventually, there should be an independent advisory body, consisting of eminent persons from across fields, whose advice the ministry should have to consider—and if it goes against the advice, it should have to explain why.

July 5

IIT-Delhi tops MHRD mandate, enrols 16% girls in all its courses

https://timesofindia.indiatimes.com/city/delhi/iit-delhi-tops-mhrd-mandate-enrols-16-girls-in-all-its-courses/articleshow/64862109.cms

At a time when engineering institutes are struggling to admit girls, IIT-Delhi has touched an all-time high number of female students this year. The HRD ministry had mandated that all 23 IITs increase the enrolment of girls to 14% in 2018. While there are still another 15-odd days for the admission season to get over, IIT-Delhi has already recorded a 16% enrolment of girls in every course.

"Our faculty members conducted special interaction sessions with all JEE-qualified girl students and their parents both last year and this year to explain the prospects of studying at IIT," said Aditya Mittal, professor and chairman of Joint Entrance Examination-Advanced at IIT-Delhi.

The sessions for two consecutive years are already showing results. In 2016, IIT-D admitted 70 girls, which increased by over 30% to 93 in 2017 and this year it is likely to reach 150 out of a total 851 seats.

The idea behind the initiative was to help qualified female candidates make their choices during the JEE/JoSAA (Joint Seat Allocation Authority) 2018 counselling process. “The session saw over 150 students attending it where not just faculty members, but even student mentors interacted with potential candidates,” Mittal said.

Asked why fewer girls enrol in IITs despite getting good ranks, Mittal attributed it to several factors. “Our IIT-Mandi director Timothy Gonsalves in his four-year research found that there are many girls who get good ranks in JEE Advance but don’t enrol in IITs. Several parents we interacted with had the perception that engineering sectors like mechanical and chemical are not viable for girl students. Many avoid IITs as they prefer institutes closer to their homes,” he added.

There were some parents who didn’t agree to send their daughters for specialised preparations as they would do for boys. “The central idea to bring in more girls was based on the IIT ethos that we don’t provide literacy but education. It is also because we revise curriculum frequently. While 40% of our curriculum is core, 60% are electives chosen by the students,” Mittal said.

“We at IIT-Delhi are vying for more than 14% girl students this year. We want to enrol 17% in 2019 and 20% in 2020. Eventually, we hope that these steps would be enough to encourage more girl students to join the institute,” said Mittal.

The chairman of the JEE counselling said that the increase in enrolment will not be radical but gradual. “We have limited space in hostels, laboratories and classrooms and this endeavour will not be affecting the seats already allotted for non-female students,” Mittal added.

No parking at Flats Ground, rope in IIT-D to end woes: HC

https://timesofindia.indiatimes.com/city/dehradun/no-parking-at-flats-ground-rope-in-iit-d-to-end-woes-hc/articleshow/64875327.cms

The Uttarakhand high court on Thursday ordered that no vehicle should be parked in Flats Ground in Nainital town which is marked for sports activities. The court also said that Nainital district administration should hold talks with the Indian Institute of Technology, Delhi to find solutions to the parking problems in the lake town.

The court was hearing a public interest litigation requesting declaration of Nainital as an eco-sensitive zone. The PIL was filed by Nainital-based activist Ajay Singh Rawat in 2012. Key district officials including additional district magistrate, senior superintendent of police and executive officer of Nainital Municipal Corporation were present in court while hearing was on.

The Flats Ground in Nainital have been turned into a parking spot with tourists often parking vehicles there. The area is meant for sports activities.

The court also asked the state forest department to explore possibilities of carving out a parking space near Botanical Garden, 6km outside of Nainital town, and summoned chief conservator of forests, Kumaon division on July 30 to be present in the court to submit their report.

The court further ordered the district administration to ensure that laying down of optical fibre cables should be finished in a month and potholes be filled within two weeks.

Earlier on June 11, the court had issued show cause notices to the district magistrate and senior superintendent of police of Nainital district to explain why they should not be held in contempt for not complying with the directions of the court related to traffic management in Nainital town.

IIT-Madras collaborating with health technology firms

http://www.thehansindia.com/posts/index/Young-Hans/2018-07-05/IIT-Madras-collaborating-with-health-technology-firms-/395505

IIT-Madras collaborating with health technology firms

Indian Institute of Technology Madras is initiating an alliance called 'Digital Wellbeing Alliance' to deploy digital technologies with the objective of making Chennai the 'Digital Wellbeing Capital' of the World.

The Institute will use its expertise in Blockchain, Artificial Intelligence/Machine Learning, IoT and Motion Capture Technology to work for the wellbeing of the community, specifically the young workforce and weaker sections of the Society. The Alliance was inaugurated on Wednesday at IIT Madras by Dr Ram D Sriram, a renowned AI and healthcare expert and is currently the chief of the Software and Systems Division, Information Technology Laboratory, at the National Institute of Standards and Technology (NIST), US federal government.

Speaking about the importance of this workshop, Prof M Manivannan, Biomedical Engineering Group, Department of Applied Mechanics, IIT Madras, who organised this alliance, said, “There are many issues that only an alliance can solve.We will brainstorm to identify those issues in this workshop. This Alliance is spearheaded by several passionate people, apart from me, including Prof D Janakiram of IIT Madras, Sridharan Sivan of S10 Health Solutions, SharmilaDevadas of MedioTek Health Systems, Subbarao of Chola MS Risk, again emphasising alliance of people rather than individuals.”

The stakeholders of this Alliance would be Academic Institutions such as all the IITs, Health technology companies, medical device makers, digital health players, medical institutions, corporate firms, Government bodies such as NITI Aayog and Certifying/Regulating Agencies. The ‘Global Alliance’ is an initiative of IIT Madras along with Industrial partners, hospitals, and global thought leaders. The Alliance has its own blockchain which is a decentralised platform that enables secure, fast and transparent exchange and usage of medical data with smart contracts. With the blockchain technology, the community end user is at the centre of the digital transformation of healthcare and is empowered with the right of his/her own data.

This Alliance would work to foster market-driven innovation, to enhance skill development, to protect intellectual property and develop best-in-class manufacturing infrastructure, spawn new products and services around Industry 4.0. This alliance enables cooperation of all stakeholders through blockchain for setting policy, standards and regulatory framework. The focus would be on Culture of Wellbeing, Interoperability, Data privacy, Cyber security, Policy, Consumer engagement and Evidence and Evaluation. The Alliance will be a great platform to drive the global penetration for the thriving health tech start-up community.

Two IIT-Gandhinagar professors among 50 women education leaders

http://www.dnaindia.com/ahmedabad/report-two-iit-gandhinagar-professors-among-50-women-education-leaders-2633326

Two professors of the Indian Institute of Technology, Gandhinagar (IIT-Gn), have been named among the 50 women education leaders for 2018. Professors Uttama Lahiri and Prachi Thareja will receive the 'Prof. Indira Parikh 50 Women in Education Leaders' Award at the World Education Congress on 'Sustainable Development Goals, Quality Education for All' to be held in Mumbai on July 5.

The award is given to 50 illustrious women after a meticulous process of selection.

Prof Uttama Lahiri is an associate professor of Electrical Engineering and has worked extensively on automated techniques for stroke rehabilitation and autism intervention. One of her ideas may soon find commercial application.

She said: "This award will help encourage my endeavours in carrying out cutting-edge research to deliver tangible technological devices beneficial to mankind."

Her research interests include virtual reality-based human-computer interaction used in effective computing, eye tracking, and physiology-based modeling techniques, human-robot interaction used in cognitive studies, and the like.

Prachi Thareja is an associate professor of Chemical Engineering and her research seeks to answer how underlying microstructure influences the flow properties of soft materials.

Mumbai Bridge Collapse: Will Study Design and Give Our Expertise, Says IIT-B Director

https://www.mid-day.com/articles/mumbai-bridge-collapse-will-study-design-and-give-our-expertise-says-iit-b-director/19578199

Adds there is no clarity and guidelines on matter, as railways were yet to approach them formally

Prof. Devang V Khakhar, director, IIT-Bombay

The director of the Indian Institute of Technology - Bombay, Prof. Devang V Khakhar, has said the institute will offer all possible technical expertise to the railways in Mumbai, to avert mishaps like the one involving the Andheri road over bridge in the future.

Following the collapse of the pathway of the road over bridge at Andheri on Tuesday, Railway Minister Piyush Goyal, during a visit to the site, had announced that he had reached out to IIT director Prof. Khakhar, to conduct an audit of all such bridges in Mumbai, and use the institute's expertise to narrow down on a solution.

Speaking to mid-day, Prof. Khakhar said IIT-B would definitely help the railways for the study. "Yes. We will offer all possible assistance, but it will be difficult for our teams to physically join the audit teams, and individually examine the hundreds of bridges along the Mumbai railway. We will offer to study the design and give our expertise on how they can be improved further for safety," he said.

But asked when the exercise was set to begin, and whether he would visit the collapsed bridge site at Andheri, Prof. Khakhar said there was no clarity and guidelines on the matter yet, as the railways were to approach them formally. "But we can offer them the best possible design solution keeping safety in mind," he said.

Prof. Khakhar has been part of the Scientific Advisory Council to the prime minister, of the Scientific Advisory Council to the Cabinet, the Science and Engineering Research Board, the Atomic Energy Regulatory Board and the Central Advisory Board for Education.

IIT Kanpur develops tech to make artificial rain: Minister

https://timesofindia.indiatimes.com/home/education/news/iit-kanpur-develops-tech-to-make-artificial-rain-minister/articleshow/64863548.cms

Indian Institute of Technology (IIT) Kanpur has developed indigenous technology to make artificial rain, said Uttar Pradesh irrigation minister Dharmpal Singh on Wednesday evening.

During his brief stay at the irrigation department's guest house here on his way to Agra from Lucknow, Singh said, "We had planned to an artificial rain in Bundelkhand's Mahoba district in May and a contract with China was sealed, but that couldn't be materialised. Now, our engineers at IIT Kanpur have developed the technology of producing artificial rain, which is much cheaper in comparison to China. Artificial rain can be produced in case a district faces drought-like situation."

Divulging details of the failed contract with China, which "couldn't materialise owing to some strategic reasons", the minister said, "The deal with China was sealed for making artificial rain covering an area of 1,000 square kilometres for Rs 11 crore, but China withdrew. The technology developed by IIT Kanpur, however, will cost only Rs 5.5 crore to cover 1,000 square kilometres with artificial rains."

Singh said artificial rain would not harm the ecology rather it would help improve situation drought situation.

आईआईटी कानपुर में बनेगा उत्तर भारत का प्रदूषण नियंत्रण केंद्र, गंगा प्रदूषण पर रिसर्च होगा संचालित

https://www.livehindustan.com/national/story-iit-kanpur-will-be-formed-in-north-india-pollution-control-center-2051256.html

आईआईटी कानपुर में उत्तर भारत के लिए सबसे बड़ा प्रदूषण नियंत्रण केंद्र बनेगा। इसके लिए केंद्र सरकार ने पहल की है। प्रस्तावित केंद्र में रिसर्च के साथ-साथ प्रदूषण फैलाने वाले तत्वों की जांच की जाएगी। सरकारी एजेंसियों जैसे उत्तर प्रदेश पॉल्यूशन कंट्रोल बोर्ड और केंद्रीय पॉल्यूशन कंट्रोल बोर्ड की तरफ से आने वाले प्रदूषण के सैंपल की जांच भी इसी केंद्र पर होगी। दोनो एजेंसी के ऑफिसर भी इस केंद्र के संपर्क में रहेंगे।

स्वच्छ भारत मिशन के तहत यह पहल की गई है। इस केंद्र में पानी, हवा और मिट्टी की जांच होगी। इन पर रिसर्च भी होंगे। इनके अलावा सबसे अधिक फोकस गंगा पर रहेगा। देश भर में गंगा पर होने वाले रिसर्च को इसी केंद्र से संचालित किया जाएगा। फिलहाल गंगा के प्रदूषण को लेकर अलग-अलग शोध हो रहे हैं। इनका कोई सही नतीजा सामने नहीं आ पा रहा है।

आईआईटी में होने वाली जांचों की गुणवत्ता अंतरराष्ट्रीय स्तर पर मान्य होगी। आईआईटी कानपुर के निदेशक प्रोफेसर अभय करिंदकर का कहना है कि प्रदूषण नियंत्रण केंद्र छात्रों के शिक्षा के स्तर को भी मजबूती देगा। छात्र यहां रिसर्च कर सकेंगे। अब तक आईआईटी में गंगा प्रदूषण पर जो भी काम हुए हैं, उन पर अमल के लिए योजना भी बनाई जाएगी। उत्तर प्रदेश सरकार से भी इस केंद्र के बारे में वार्ता हो चुकी है।

July 4

585 seats vacant after round 1 of IIT admissions

https://timesofindia.indiatimes.com/city/mumbai/585-seats-vacant-after-round-1-of-iit-admissions/articleshow/64848462.cms

It seems not everyone is keen on getting into an Indian Institute of Technology (IIT) as 585 seats remained unfilled after the first round of admissions across the 23 IITs. Last year, 397 seats were vacant after round one.

The second round of the Joint Seat Allocation Authority 2018 saw more seats being allocated. By the end of round two, a total of 32,763 male and 6,305 female candidates were shortlisted to join the IITs/NITs/IIITs.

Across the 23 IITs, a total of 12,071 students—10,219 boys and 1,852 girls—have been allotted seats. There are 11,279 seats up for grabs at the IITs.

“One cannot compare this year’s vacancy with that of last year’s as the IITs have created 800 supernumerary seats this year for female candidates,” said professor Shalabh, organizing chairman of JEE (Advanced). The maximum number of girl candidates have been allotted seats in Kharagpur—222. At IIT-Bombay, 868 boys and 159 girls have been allotted seats.

The numbers clearly point to the fact that the IITs may not faced a candidate crunch with their initial shortlist of 18,138 students that were considered qualified after the JEE Advanced results were announced. Then the ministry of human resource development had asked the IITs to lower their entry barrier and extend their merit list; about 32,000 students were declared qualified by dipping the cut-off marks.

Last year, 121 BTech seats were lying vacant across IITs. In 2016, vacancies were 96, and in 2015, there were 50 unfilled seats. The Joint Seat Allocation Authority will conduct seven rounds of seat allotment for filling all the seats in the 93 participating engineering institutes—23 IITs, 31 NITs, 23 IIITs and 20 GFTIs—across the country.

JEE (Advanced) Counselling 2018: JoSAA to declare second JEE allotment list today at josaa.nic.in

https://scroll.in/announcements/885081/jee-advanced-counselling-2018-josaa-to-declare-second-allotment-list-today-at-josaa-nic-in

The JoSAA will begin its second round of seat allocation for JEE (Advanced) candidates at 5 p.m. today, as per the official site, josaa.nic.in.

The Joint Seat Allocation Authority (JoSAA) is expected to release the second round of seat allotment for JEE (Advanced) today, July 3rd, at around 5 p.m. Candidates who have registered for the JoSAA 2018 counselling and seat allocation process will have to check the official website, josaa.nic.in, after the JEE (Advanced) seat allotment results have been declared.

The registration process for JoSAA 2018 counselling and seat allotment began on June 15th and the first JEE (Advanced) allotment list was released on June 27th at 5 p.m. Admissions based on the JoSAA first allotment list ran from June 28th to July 2nd. The JoSAA will be conducting seven rounds of counselling this year.

Candidates whose name features in today's allotment list can download the "Provisional Seat Allotment letter" and e-challan. The e-challan must be used to pay the seat acceptance fee, which amounts to Rs.45,000 (Rs. 20,000 for reserved categories). The fee can be paid through SBI Bank's Net Banking & e-challan facility. Candidates must take a printout of the fee payment for further use.

How to check JoSAA 2018 second allotment results

1) Log on to the official JoSAA website.
2) Click on the link for the specified round to view allotment results and pay the seat acceptance fee.
3) Enter your JEE (Main) roll number and password, and click on 'Login'.

4) Candidates can check whether their name features on the list and take the necessary next steps.

The process of document verification for the second round of JoSAA seat allotment and counseling will be held on July 4th and 5th. The next (3rd) round of seat allotment will be released on July 6th at aroudn 5 p.m. on the JoSAA website.

The JoSAA 2018 registration process is mandatory for qualified candidates interested in joining any of the IITs, NITs, IIITs and Other-GFTIs (within the purview of the JoSAA 2018). This year the counselling process is being held for around 36,000 seats.

How climate change can erode Indian coastline more intensely than ever

https://indianexpress.com/article/explained/climate-change-research-indian-coastline-rising-sea-level-5244688/

Rising sea levels, accompanied by stronger waves and currents, are likely to reshape the coastlines and potentially inundate or even submerge many low-lying areas.

One of the biggest impacts of climate change is likely to be felt along coastlines across the world. Rising sea levels, accompanied by stronger waves and currents, are likely to reshape the coastlines and potentially inundate or even submerge many low-lying areas.

With a nearly 7,500-km coastline, India has a lot to worry. Although present knowledge suggests that sea-level rises around the Indian coastline are likely to be relatively small compared to many other regions, it does not mean that there is no threat. India is in the process of preparing a comprehensive vulnerability map of its coastline, which will be used to finalise a coastal zone management plan.

A new study by scientists of IIT Bombay has now concluded that the impacts of climate change on India's coasts, at least in terms of coastal sediment transport, shoreline erosion and overall coastal vulnerability, could be far worse than previously understood. Rajasree B R, B Gopikrishna and M C Deo of the IIT's department of civil engineering conducted a study of potential climate-change impacts on five beaches and found that the rates of transport and erosion could be much higher than estimated.

The amount and rate of erosion of coastlines is generally studied using data from the past and extrapolating the changes into the future. The researchers, however, used newly released data on projections of a large number of climate variables in the future.

"Refined climate models and data on basic variables are coming in, as more and more research happens on climate change and its impacts. So far, we have had to rely on historical data to make our assessments. But the latest models, computational resources as well as analysis techniques are now giving us a different picture. Our claim is that the projected data that we have used in our studies presents a more accurate depiction of what is likely to happen to our coasts in the future," Deo says.

One of the key variables the researchers relied on was projected wind-generated waves around Indian coastline. Wind vectors influence wave height as well as direction, and also the currents that in turn affect the rates of coast sediment transport and erosion.

Deo cited the example of the coast in Udupi of Karnataka. There is likely to be around a 25% increase in average wind speeds, resulting in about a 35% increase in mean wave height in the region. Greater transport of sediments would likely result in erosion in the next 30 years rising to 1½ times as compared to the previous three decades.

“Different locations would face different kinds of impacts. Local geo-morphology as well as factors like whether the coastline is uninterrupted or is interspersed with barriers like harbours or river-mouths play a role. But, at a very general level, we can say that winds are likely to intensify, and there is likely to be greater attack on our beaches, and coasts in the future than we had so far imagined. This will lead to a greater vulnerability of the coastline,” Deo said.

This can have far-reaching implications for the efforts to safeguard our coasts. Deo says many more studies, based on projected data and using new and sophisticated climate models, require to be undertaken for a better assessment of the potential impacts. “In the meanwhile, we need to strictly enforce the current regulations, including the Coastal Regulation Zone rules,” he said.

July 3

Ericsson establishes CoE and Innovation Lab for 5G at IIT Delhi

https://www.devdiscourse.com/Article/49117-ericsson-establishes-coe-and-innovation-lab-for-5g-at-iit-delhi

The program will focus on delivering research, innovation and industrial pilots that use next-generation 5G networks as an enabler.

Ericsson today announced the establishment of the Centre of Excellence (CoE) and Innovation Lab for 5G in the country at the Indian Institute of Technology (IIT) Delhi. This first-of-its-kind 5G innovation Lab will drive the development of the country’s 4.5G and 5G ecosystems by bringing together telecom ecosystems, academia, industry and start-ups.

“I would like to congratulate Ericsson for taking the lead in terms of setting up the first 5G Center of Excellence and Innovation Lab in the country. The 5G Center of Excellence supports the Government’s plans to foster a robust and vibrant 5G ecosystem in India. We want India to be an active participant in the design, development and manufacture of 5G-based technologies, products and apps," commented Communications Minister Manoj Sinha while speaking at the inauguration.

"I would, therefore, like to urge the industry, academia, students and start-ups to leverage the Ericsson Innovation Lab to develop new 5G-based apps and business models that could potentially lead to better agricultural yields, better healthcare, smarter cities, more efficient manufacturing and enhanced lifestyles. We need the entire ecosystem to work together to make 5G a reality in India over the next 2-3 years," he further added.

The program will focus on delivering research, innovation and industrial pilots that use next-generation 5G networks as an enabler. It will help initiate cross-industry research collaborations focused on the integration of ICT in industrial processes, as well as products and services. It will position India as an active participant in the design, development and manufacture of 5G-based technologies, products, services, and applications.

Börje Ekholm, President and CEO, Ericsson, said: “Ericsson is leading 5G standardization globally. The 5G Center of Excellence and Innovation Lab aims to stimulate the 5G ecosystem in India. We would like to unleash the creativity and innovation of the Indian industry, academia and entrepreneurs to fully leverage and make 5G a reality in India.”

5G enabled digitization revenue potential in India will be USD 27.3 billion by 2026. The Indian operators can generate additional revenue of USD 13 Billion or half of the stated potential if they take up roles beyond being Connectivity and infrastructure providers to become service enablers and service creators, says a report by Ericsson.

IIT Kanpur Undergrad Bags Fellowship of ‘Google Brain’ – An AI Research Team of Google

https://www.indianweb2.com/2018/07/03/iit-kanpur-undergrad-bags-fellowship-of-google-brain-an-ai-research-team-of-google/

Archit Sharma, a senior undergraduate from Indian Institute of Technology (IIT), Kanpur, has made India proud by bagging the fellowship of Google Brain, an artificial intelligence research team of Google. The Google Brain fellowship is offered only to 50 students from across the globe.

We recently reported about ‘Google Brain’, where we mentioned that, with this Artificial Intelligence (AI) driven tool, Google can forecast a host of patient outcomes, including how long people may stay in hospitals, their odds of re-admission and chances they will soon die.

Archit, who hails from Amritsar, Punjab, is pursuing Electrical Engineering and a minor in Artificial Intelligence and Linguistic Theory from IIT-Kanpur.

Archit on his selection for Google fellowship, said to The Tribune, “Now, I am feeling relaxed. It could not have been possible without the support of my parents and faculty at the IIT-Kanpur. I am looking forward to work with Google. I am excited as well as happy.”

“I liked mathematicians which drew me towards engineering. I am very happy with the Google Brain fellowship. I have a deep interest in artificial intelligence. It is a step closer to explore the world of artificial intelligence. I have multiple options but I believe Google Brain is the best place for me,” says Archit, who scored 9.9 of the CGPA 10 in his B.Tech.

Archit has proved his mettle by winning various medals for his academic performance at the 51st annual convocation of the Indian Institute of Technology (IIT), Kanpur. This year, he even got departmental rank of 1, out of 140 undergraduates, in Electrical Engineering, IIT Kanpur.

On top of this, in 2012, even NASA has awarded Archit a first position in IX-X category amongst participants from over 10 countries for designing a space settlement capable of hosting nearly 10,000 humans independently.

Speaking about Google Brain, it is a deep learning artificial intelligence research team at Google formed in early 2010. It combines open-ended machine learning research with system engineering and Google-scale computing resources.

One unique thing about Google Brain team is that its members set their own research agenda, with the team as a whole maintaining a portfolio of projects across different time horizons and levels of risk.

Google Brain also have a Residency Program based in Mountain View, California, which is targeted at people (specifically students) who are eager to devote own passion to machine learning and artificial intelligence. This is an opportunity to get hands-on experience in Google team and have chance to keep in touch with professional researchers with Google Brain team. The program lasted 12 months.

Within the program were groups of new graduates from top universities with degree of BAs or Ph.Ds in computer science, physics, mathematics, and neuroscience, or others who come from years of industry experience. They were picked to work with researchers in Google Brain Team at the forefront of machine learning.

The residency program is similar to spending a year in a Master's or PhD program in machine learning. Residents are expected to read papers, work on research projects, and encouraged to publish in top-tier venues. By the end of the program, residents are expected to gain significant research experience in machine learning.

IIT KGP and South Korea researchers jointly develop smart

https://www.business-standard.com/article/pti-stories/iit-kgp-and-south-korea-researchers-jointly-develop-smart-118070300710_1.html

A team of scientists from IIT Kharagpur and South Korea have together developed a eco-friendly smart device powered by energy from spider silk web instead of conventional battery.

The project was funded by Union Department of Science & Technology (DST) and National Research Foundation of Korea.

Scientists at IIT KGP, along with a team of researchers from South Korea's POSTECH developed the device, an IIT KGP statement said here today.

The innovation was led by the research group of Prof B.B. Khatua, with his research student Sumanta Kumar Karan at IIT KGP, in collaboration with Prof. Jin Kon Kim and Dr. Sandip Maiti (post-doctoral researcher and former PhD student of Prof. Khatua) from POSTECH (Pohang University of Science And Technology), it said.

Khatua said various biomedical applications and devices require a continuous energy source.

As the new device will be self-powered, run by energy generated from spider silk fibre, "it will be a better alternative to commercial batteries as continuous energy source," he said.

The new device can monitor minute physiological signals, such as arterial pulse response, he said.

The IIT KGP and POSTECH team collaborated in developing the device, while a team of Prof. Yunseok Kim from SKKU (Sungkyunkwan University), South Korea earlier tested and improvised the energy generating capacity of spider silk fibre.

The instant research work has been published in the global journal 'Nano Energy'.

IISc scientist explores the path taken by cancer mutations

https://researchmatters.in/news/iisc-scientist-explores-path-taken-cancer-mutations

Dr. Prathima Iengar, scientist from Indian Institute of Science, Bengaluru has been studying the different biological process that are affected by cancer. Her new study throws light on the genes and pathways that are most affected in cancer.

Scientists worldwide are working hard to find a cure for cancer, however, in order to succeed, we better understand the disease first. The most important aspect of it is being able to find the key genes undergoing mutations and affecting processes in biological pathways, leading to cancer.

In the past 10 years, new cancer research strategies have developed, including extensive genome sequencing of cancer cells, and the information being available online for researchers. COSMIC (Catalogue of Somatic Mutations In Cancer), is one such online database which provides information about the somatically acquired mutations (mutations not inherited by children), found in different types of cancers. KEGG (Kyoto Encyclopedia of Genes and Genomes), is another online database dealing with human biological pathways. Moving in this direction, utilising online genome databases, Dr. Prathima Iengar has put one step forward, by conducting a genome wide computational study, to see what all genes and biological pathways are mostly affected by mutations in cancer.

The study published in Journal Genomics, investigates the genes mutated in 15 types of cancers, sourced from COSMIC. Analysed together with 297 biological pathways, sourced from KEGG (where the biological pathways have been grouped based on similar functions). The author called a gene as ‘frequently mutated’ if it was found to be mutated in 10 cancer samples studied. Further, the pathways, where these frequently mutated genes are found, were considered to be affected in cancer.

The results were represented using novel doughnut plots, which makes it easier to visualize the extent to which a gene and a pathway is targeted in each cancer type. Study revealed that, the biological processes ('organismal systems' pathway group), which operate at whole organism level (e.g. nervous system), are the most targeted pathway in cancer. This is quite surprising, as the most studied and recognized pathway groups in cancer are signal transduction, cell-cycle and apoptosis, and DNA repair. Thus, through this study, it is quite evident now that 'organismal systems' is one of the important pathway group in cancer which needs further attention and research. The study further throws light on the processes affected in pathways of 7 different cancer types.

The study results offer clinical implications, where organismal systems pathway group can be studied in detail to find molecules as new drug targets and mutations for early cancer diagnosis through genetic screening.

July 2

IIT-Delhi alumni body to adopt 150 villages across India

https://www.thehindu.com/news/cities/Delhi/iit-delhi-alumni-body-to-adopt-150-villages/article24306965.ece

The initiative kicked off on Sunday, with the association formally adopting Gurugram's Pahari village.

To carry out development works, including sewage disposal, across the country

Members of the IIT-Delhi alumni association have come together to adopt 150 villages across the country to carry out a slew of development works, including sewage disposal, plantation and renovation of panchayat ghars.

Adoption of Pahari

The initiative was formally kicked off by Haryana Chief Minister Manohar Lal Khattar at an event on Sunday, with the association formally adopting Pahari village in Gurugram's Pataudi.

Haryana Irrigation Department superintending engineer Shiv Singh Rawat, who is also an association member, said 35 members of the outfit had expressed willingness to be a part of the initiative after the idea was mooted a month ago. Mr. Rawat said several members of the association had already

adopted villages and were working for their development in their individual capacities. Mr. Rawat has adopted 30 villages in Palwal district and has been working for their upliftment since the past two years.

Funds for initiative

"The association members have decided to adopt 150 villages across the country, including 35 in Haryana, as part of this initiative. Money will be raised through CSR funds, crowdfunding and contribution by association members. Social auditing of the development works will also be done," said Mr. Rawat.

Focus will be on sewage disposal, waste segregation, renovation of panchayat ghars/ community centres, opening of libraries and tree plantation in the adopted villages.

Unnat Bharat Abhiyan

The association's initiative has been linked with the Union Human Resource Development Ministry's Unnat Bharat Abhiyan and an expression of interest was signed in this regard during Sunday's event.

Mr. Rawat said Mr. Khattar appreciated the initiative and proposed the launch of a programme in Haryana on the lines of the Unnat Bharat Abhiyan.

IIT experts take cue from mosquitoes for painless jab

https://timesofindia.indiatimes.com/home/science/iit-experts-take-cue-from-mosquitoes-for-painless-jab/articleshow/64820270.cms?

Researchers at the Indian Institute of Technology (IIT) Ropar, in collaboration with scholars at Ohio State University in the United States, have developed a technology of painless micro-needles, based on the concept of a mosquito bite.

The study was jointly led by Bharat Bhushan and Navin Kumar of IIT Ropar, and Ohio State doctoral student Dev Gurera is also a co-author. The research paper has been recently published in an international Journal of the Mechanical Behaviour of Biomedical Materials.

"We took the idea of painless needles from the mosquito. It is a new kind of research that will prove helpful for patients who fear piercing. Till now, we have only developed a technology, however no such device has been made. In the near future, we may develop the device or needle based on our

technology or we will look out for someone who could make this device," said Navin. These needles are likely to be costlier than the traditional ones, but will be useful for children and adults.

Based on an idea of mosquito proboscis — tubular mouthparts used for feeding and sucking — these researchers identified how mosquitoes do not let their victims feel the pain. Nano-indentation technique was used to study and analyse the stiffness of the tip of the labrum — an outer cover of the proboscis. The researchers found that labrum was softer near the tip and the edges, but it remained harder in the upper part of the labrum.

Having a serrated design, the fascicle — another part of proboscis — makes the insertion easier by vibrating, thus reducing the force needed to pierce the skin. Researchers claimed the mosquito also releases saliva, which acts as a numbing agent, once the proboscis is inserted, and the pain is reduced because of the protein-rich saliva.

They envision a micro-needle with two needles inside. One would immediately inject a numbing agent, while the second needle would draw the blood or inject the drug. This second needle, like the fascicle of the mosquito, would have a serrated design and will be flexible and softer on the tip and sides for easy insertion. The needle would also vibrate on insertion.

July 1

India's profile in global medical fraternity: Rich in research, poor in patents

http://www.newindianexpress.com/thesundaystandard/2018/jul/01/indias-profile-in-global-medical-fraternity-rich-in-research-poor-in-patents-1836169.html

A government study has admitted that Indian researchers focus only on publishing research findings rather than filing patents and reaping financial benefits.

For a country that is among the global top five in excellence in research, India's patent profile is far from remarkable. Among the key reasons for this is a lack of awareness of intellectual property protection and of ways to commercially deploy patents to one's benefit, discover Richa Sharma and Kanu Sarda.

India is among the top five countries in the world in terms of research but lags far behind on commercially exploiting innovations. A government study has admitted that Indian researchers focus only on publishing research findings rather than filing patents and reaping financial benefits.

Compared to India, the commercial exploitation of innovations by countries like the US, Germany, France, the UK, Japan and South Korea have contributed in a big way to their financial stability.

The revelation was made in a study entitled 'Mapping Patents and Research Publications of Higher Education Institutes and National R&D Laboratories of India'. It was done by the Government of India's Department of Science and Technology -- Centre for Policy Research at Panjab University, Chandigarh, for nearly 1000 institutions (higher education institutes and national R&D labs) for a period of seven years (2010-16).

The study emphasises that while India has a large number of institutes that excel in publishing research articles, only a handful of them translate it further through patent publications.

This is reiterated in the International Property Rights Index (IPRI) Report, 2017 as well, which states that India ranks fifth globally in terms of research publications but its patent profile needs a major boost as it is ranked 45th in the indicator of intellectual property rights (IPR).

According to the government study, the institutes performing well in both categories (research publications and patents granted) are IISc-Bangalore, IIT-Bombay, IIT-Kanpur, IIT-Madras, IIT-Delhi, University of Delhi-Delhi and AIIMS-Delhi.

According to the study, the highest number of patents (174) was granted to the IISc during the 2010-2016 period, but that figure is just 1.5 per cent of the number of publications (10852).

During the period 2010-16, the total number of research publications by the top 50 institutions across India ranged between 1854 and 15052. Among the top 50 institutions ranked on the basis of research publications, only 11 institutes generated over 25 patents (granted) led by IISc-Bangalore (174) and Central Food Technological Research Institue-Mysore (144). Fourteen institutions had no patent (granted) and 17 had patents (granted) in the range of 1-5.

Dr Ashutosh Sharma, Secretary, Department of Science and Technology, said the focus of many Indian researchers is more on publishing their research work, which a paradigm needs shift.

"In India, many patentable inventions are not being commercialised -- not because they do not work. but because the inventor is unable to exploit it commercially primarily due to lack of enhancing mechanisms. Hence, there is a need for inclusive IP mechanisms in the country," said Sharma.

"There is a need, and the responsibility lies on all of us, for making researchers aware about patent filing and the advantages of collaboration with the industrial sector for commercialising their innovations," he added.

Why are patents important?

The study explains that patents occupy a prominent position as global indicators for ranking of world economies. In general, there is a direct relation between the economy and the patent regime of a nation. An inventor has a legal right over inventions, which are termed as intellectual property rights (IPRs).
IP protection is critical to foster innovation.

Currently, IPRs cover patents, copyrights, trademarks, industrial designs, geographical indications (GI), layout designs, trade secrets and new plant varieties. Without the protection of ideas, individuals, as well as businesses, will not reap the full benefits of their inventions and thus will focus less on R&D.

The study highlights that to bridge the gap of converting research into tangible products or patents, researchers need to be supported with an adequate and effective translational research ecosystem comprising an IPR (intellectual property rights) cell, technology transfer cell (TTC), entrepreneur cell, and industry-institute partnership cell. Of the 16 top institutes pursuing research and patenting, only seven have dedicated TTCs. But among the top five, only three have dedicated TTCs.

The study says the main reasons for Indian institutes not going for patents are a lack of awareness among faculty about the importance of emphasising the necessity of IPRs to students/researchers; lack of financial support from the government for filing and maintenance of a patent; the long time taken to process a patent in India; absence of incentives or recognition for patent filing, among others.
It says a total of 12 institutes have introduced incentives for awarding and felicitating researchers for their contribution towards innovations and technology transfer.

These incentives are in the form of cash awards (salary hike, financial assistance for patent filing or attending international conferences), decreasing teaching load and so on. However, AIIMS-Delhi, IISER-Pune, BHU Varanasi and the University of Hyderabad are yet to introduce incentives.

The central government has conceded that the time taken for grant of a patent in India is longer than in most developed countries and assured that initiatives are being taken to expedite it.

The National IPR Policy was released in 2016 that emphasises on the promotion of IPR generation, commercialisation and creating public awareness about the economic, social and cultural benefits of IPRs among all sections of society.

“The Government of India is also working towards reducing the patent-granting period by modifying various stages of scrutiny and examination, including application filing, screening classification and request for examination. DST, GoI-sponsored patent information centres (PICs) are also actively engaged in supporting innovations in their respective states,” said Dr Jatinder Kaur Arora, Executive Director, Punjab State Council for Science and Technology.

According to the central government, the time taken for trademark examination has already been brought down from 13 months to just one month, while trademark registration has recorded an increase of almost 5 times in 2017-18 to 300,913 from 2015-16. Examination of patent application in FY 2017-18 has almost quadrupled to 60,330 compared to FY 2015-16, while the shortest time taken to grant a patent recently has been just 113 days from the filing of the request for examination.

“A nation-wide campaign has been launched for furthering IPR awareness in educational institutions and industry, along with training programmes for police, customs officials and the judiciary. There has been significant augmentation of manpower in the IP offices across the nation, resulting in direct impact on the pendency of IP applications,” said Rajiv Aggarwal, Joint Secretary, Department of Industrial Policy and Promotion.

For a PATENT, wait 4 years

It took Shubham Sharma (name changed) four long years to get a patent on software that he developed for his company. “On my seniors’ advice, I approached the authorities to get the software patented. But as soon as I filed the research paper on it, I faced a whole lot of regulatory issues. Finally, after all submissions, I got the patent,” the 35-year-old said.
Shubham blamed time-consuming laws and poor infrastructure for this. “In this age of technology, no one is willing to wait so long to get patenting work done. Moreover, there is a total lack of awareness about patent laws in India and the government seems to be doing nothing about it.”

A holistic approach for lake restoration

http://www.newindianexpress.com/cities/chennai/2018/jul/01/a-holistic-approach-for-lake-restoration-1836634.html

Based on the preliminary findings of the hydrological survey by IIT Madras, the restoration of the Sembakkam lake is set to get holistic focus. “Usually when it comes to lake restoration, only the

Dumping of solid waste in the lake was one the main issues raised by residents λ Sunish P Surendran

Based on the preliminary findings of the hydrological survey by IIT Madras, the restoration of the Sembakkam lake is set to get holistic focus. “Usually when it comes to lake restoration, only the lake area is looked at; we are planning to look at other aspects including cleaning the inflow and outflow canals to the lake,” said Jayshree Vencatesan, managing trustee of Care Earth Trust.

A second round of meeting with the residents regarding lake restoration was carried out by Care Earth Trust and The Nature Conservancy organisations, who have taken up the restoration work. It will be carried out with research support from IIT Madras. “The study will go on for another two months. But, based on its preliminary findings, the desilting work will be carried out, alongside strengthening of bunds,” said M Nisha Priya, project manager of the Nature Conservancy Centre.

Among the first areas of intervention, along with cleaning the inflow and outflow canals would be to allow native plant species to thrive by removing the invasive ones. One of the main objectives of the project is the conservation of the Pallikaranai marshlands, one of the last remaining freshwater marsh, using a watershed basin approach. “We are looking at restoring the damaged lakes that drain into the Pallikaranai marshland; Sembakkam is one such lake,” said Nisha.

The organisations are looking at interacting with residents, holding stakeholder discussions regularly. Residents who attended the meeting, mostly comprising resident welfare associations in Sembakkam and surrounding areas, raised two issues — dumping of solid waste in the lake and the absence of an underground drainage system. “Our main request was for sustainable maintenance of the lake. For that, underground drainage system is important,” said Ramakrishnan of Sri Sarvamangala Nagar Residents Association, Chitlapakkam. “But if underground drainage is introduced, steps must also be taken to treat sewage before it is let into the lake which is not the case in many nearby municipalities that have underground drainage system,” he added.

Residents said better management of the lake would have meant averting the drinking water crisis that is now plaguing many of the southern suburbs. They also complained of dropping ground water levels. About 10 years ago, groundwater was available even at four feet. Now, however, they said, the levels have dropped to as much as 300 feet.

First step

Among the first areas of intervention, along with cleaning the inflow and outflow canals would be to allow native plant species to thrive by removing the invasive ones.

June 30

Computer Science and IIT-Bombay are hot favorites of JEE toppers

https://www.newsbytesapp.com/timeline/India/26069/117815/all-toppers-want-computer-science-in-iit-bombay

Computer Science and IIT-Bombay have emerged as the top favorites this time, with most JEE toppers preferring this course in this institute, the Joint Seat Allocation Authority (JoSAA) has revealed.

Interestingly, the all-India toppers across all categories- general, women, SC, SCT and OBC- have made it to Computer Science in IIT-Bombay.

The number of women at IIT-Bombay has also doubled from 8% to 16.5%.

Details IIT-Bombay followed by Delhi, Madras, Kharagpur and Kanpur

Though the JoSAA hasn't released all details, it has said that IIT-Bombay received the most applications this year, followed by IIT-Delhi, IIT-Madras, IIT-Kharagpur and IIT-Kanpur.

"All seats, except for some which had no takers, have been allotted in the first round itself," an official said.

The first seat allotment was issued publicly yesterday. IITs plan seven more, assuming seats remain vacant.

Women-Women at IIT-Bombay double from 8% to 16.5%

This was also the first time that all IITs kept aside 14% seats for women.

At IIT-Bombay, 159 candidates have been allotted these reserved seats in the first round.

This has taken women's representation at Bombay to 16.5%. However, it might increase, as more girls might be admitted in the other gender-neutral seats.

Last year, women accounted for just 9.15% of all IIT seats.

Supplementary list-Qualified candidates increased from 18,138 to 31,980 this time

This time, only 18,138 had been shortlisted after the JEE Advanced, but it raised worries that all 11,279 seats might not be filled.

Upon directions from the HRD Ministry, the Joint Admission Board then issued a supplementary list, taking the number of qualified candidates to 31,980.

By rule, the number of shortlisted candidates must be at least twice the number of seats.

Vacancies- Rising number of vacancies at IITs a cause for concern

According to IIT-Kanpur, the 2018 JEE-Advanced organizer, an "error-free question paper" was the main reason behind the fall in qualifiers this time.

Last year, seats were fewer (10,998) and qualifiers more (51,000), yet 121 seats were left vacant after seven rounds of counseling.

The number of seats left empty has been increasing: in 2014, there were three, 50 in 2015, and 96 in 2016.