



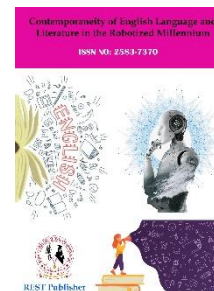
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## Gate Coaching Centers in India Using TOPSIS method

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**Abstract:** GATE (Graduate Aptitude Test in Engineering) is a national-level examination conducted in India for admission to postgraduate programs in engineering and technology. As GATE is a highly competitive exam, many aspirants opt for coaching to enhance their preparation and improve their chances of success. Coaching centres play a crucial role in providing guidance, study materials, practice tests, and expert faculty to help students crack the GATE exam. While I can provide you with a list of popular coaching centres in India that have been well-known for GATE preparation, it's important to note that the availability and quality of coaching centres may vary from year to year and across different regions. It's advisable to research and gather up-to-date information about coaching centres in your desired location. **Quality Preparation:** GATE is a highly competitive exam, and proper guidance and preparation are crucial for success. Researching coaching centres helps identify reputed institutes with experienced faculty who can provide high-quality study materials, expert guidance, and effective teaching methodologies. **Structured Study Material:** Coaching centres often provide well-structured study materials, which can save time and effort for candidates. Researching coaching centres helps identify institutes that offer comprehensive and updated study materials tailored specifically for GATE preparation. **Mock Tests and Practice Papers:** Mock tests and practice papers are essential for GATE aspirants to assess their progress, identify strengths and weaknesses, and get familiar with the exam pattern. Coaching centres often provide regular mock tests and practice papers. Researching coaching centres can help find institutes that offer ample practice opportunities. **Doubt Clearing and Personalized Attention:** GATE coaching centres often have experienced faculty members who can provide personalized attention to students and help them clear their doubts. Researching coaching centres can help identify institutes that offer doubt-clearing sessions and individualized support. **Peer learning and Competitive Environment:** Joining a coaching centre provides an opportunity to interact with like-minded peers who are also preparing for the GATE exam. This fosters a competitive environment, encourages discussion, and enhances learning. Researching coaching centres can help find institutes that facilitate peer learning through group discussions, study circles, or online forums. Here we use TOPSIS (Technique for Order of Preference by Similarity to Ideal Solution) In this research. Institute 1, Institute 2, Institute 3, Institute 4, Institute 5 and Institute 6. Student intake, Number of classes, Faculty quality, Nationwide presence and Fees. From the result it is seen that Institute 4 is got the first rank where as is the Institute 3 is having the lowest rank. there are several well-known GATE coaching centres in India that provide comprehensive preparation for the GATE exam. These coaching centres offer a range of services, including expert faculty, study materials, mock tests, doubt-clearing sessions, and a competitive learning environment. Researching and selecting the right coaching centre can significantly enhance your chances of success in the GATE exam.

**Key Words:** Student intake, Number of classes, Faculty quality, Nationwide presence Fees

### 1. INTRODUCTION

In India, questions with multiple options are present in many significant exams. About a million applicants take the Graduate Aptitude Test in Engineering (GATE), which is used to evaluate applicants for earn degrees technical fields. Programmes. Some hiring managers also use GATE to evaluate applicants. GATE is offered in a number of engineering specialties, including civil, mechanical, electricity, and aviation. In GATE 2015, there were more than 170000 applicants for the field of mechanical engineering, compared to 3970 for the field of

aerospace engineering. Following preliminary exploratory research (Kingston and Dorans, 1982; Kingston et al. 1985), the concept of item response theory (IRT) has been applied to massive amounts exams like the GRE and GMAT; however, IRT models have not yet been implemented to the GATE. A thorough discussion of Item Response Theory may be found in, e.g., Demars (2010) and Ostini and Nering (2006) (1). College tests for admission are frequently referred to as the main screening processes for elite universities and high-profile jobs. In India, the IIT-JEE exam's exclusive nature is caused by two factors: first, the enormous gap among the number of IIT applicants and the theamount of seats accessible; and, second, the system for ranking, which produces a very small difference in marks that translates into a rank and determines a student's fate. Because of this, a student's relative rank rather than his or her high grade determines whether or not they qualify for admission to a prestigious institution of higher education. (2).



FIGURE 1.Gate Coaching Centers

The enigma of JEE, a test that consisted of plainly worded questions and intricate remedies with intriguing harmony, was the gatekeeper to the IITs for students. This journey was prolonged by the curriculum, though many people eventually found it to be tiresome. The laboratory tools couldn't keep up with theoretical insights, which were only limited by one's imagination. A grubby, impoverished, and constricting society was the perfect contrast to the abstraction world of imposed spheres in endless space with three dimensions, quantum oscillators that are or Bessel's formulas. (5). The GATE syllabus constitutes the de facto definition of what constitutes an engineer in India in the lack of any advice from the AICTE or the National Bureau of Accreditation (NBA). This is clear from the function that GATE is currently playing in providing fresh graduates with new opportunities, including admission to prestigious M Tech programmes and job recruitment, particularly into PSUs. Additionally, a significant number of engineering graduates had been taking the GATE exam even before this. For instance, in 2010, there were approximately 4 lakh students taking the GATE exam; by 2013, that number had increased to 9.8 lakh. Thus, GATE should be included in AICTE processes as it is already a significant certification test for technicians in India. (6). The Graduate Aptitude Test in Engineering (GATE) is used to determine admission to post-graduate programmes. Contrary to freshman year enrolment, enrolment processes for multiple departments and IITs vary. The GATE is used for the screening. In accordance with GATE results, certain colleges offer immediate entry. Others conduct a test and talk to after using GATE as a filter. For most educational programmes, the degree of selection is also between two and three percent. (7). There are centres for instruction for the Staff Selection Commission (SSC), GATE, CAT, financial services, and public service exams, among other competitive tests. Due to the growing number of prospective students implementing these exams, the coaching industry has enormous potential going forward. Since disadvantaged pupils are unlikely to receive equal chances for admission to these prestigious institutions, the need for private tutoring to get into IITs and other organisations has intensified debate over the equity of such testing. (8). the majority of science students aspire to be accepted into IITs, and this drives them to seek coaching from privately run organisations. As a result, private coaching institutions have proliferated in almost all big and small cities. One such example is Kota, a small city in Rajasthan that has become a major coaching centre for candidates in engineering and medicine. In Kota alone, it has been estimated to have was a coaching market worth Rs 300 crore from 2012 to 2013, in which 1.5 lakh students received training for the fierce competition to pass the IIT-JEE. As a consequence, India now has a sizable coaching business that caters to students seeking admission to the IITs and other top engineering colleges. The connected The chambers of Industry and Commerce state that In 2008, the coaching market was estimated to be worth Rs 10,000 crore. six lakh students annually enrol in engineering coaching programmes, with each student paying an average of Rs. 1.7 lakh (TOI, 2008). These

projections were only intended to help students get ready for acceptance to engineering schools like the IIT. Additionally, there are educational institutions for the GATE, CAT, and other competitive exams like the Finance, Staff Selection Commission (SSC), and government examinations. Due to the growing number of candidates for these competitive tests, the coaching sector is very large and has a very bright future (9). Additionally, the earlier examination format has been replaced with a "multiple choice" format, and coaching initiatives for this admissions test have become so important that the entire educational system has been corrupted. The JEE utilised to test an applicant's inherent merit, but nowadays passing the JEE depends too much on coaching. Once they are accepted into an IIT, more than half of pupils lose interest in their studies as a result of the process' intense pressure (10). The majority of QBS in IIT(M) went to IIT-JEE coaching facilities where they learned how to easily pass the exam. Most QBS appeared to view assessments and tests as merely a testing tool as well as a difficult obstacle for which they were prepared. (11). It was necessary to take the Graduate Aptitude Test in Engineering (GATE), a scientific, subject-specific exam that many thought was challenging, in order to be admitted as a doctoral candidate at one of the IITs. The individual then underwent a process of interviewing at every one of the institutions where he had been able to qualify due to his GATE performance (13). The candidates taking the exam have a wide range of educational experiences, with some coming from prestigious institutions of higher learning and others from places with significantly lower educational requirements. Second, a lot of these applicants study diligently for the test, which often includes taking lessons from GATE coaching organisations. Third, the short duration of the exam suggests that taking tests method (including the two options of study subjects and inquiries to effort) impacts achievement, and numerous applicants prepare in advance to attempt certain kinds of queries but not others. The likelihood of getting an accurate answer after attempting a question could be strongly associated with ability, whereas a candidate's choice to not attempt a question might be poorly associated with their capacity because many applicants are guided by training programmes (14). It is discovered that the respondents think highly of the organisation. Considering the information at hand, It is known that 87.50% of pupils are happy with the services that Gate Academy has promised them. The data also shows that the majority of respondents (15) are persuaded to recommend others enrol in The Gate Academy. Assuming they completed either the Graduate Admissions Examination (GATE) or another national level test is regarded as eligible for acceptance. Every year, the initial and second semesters of PhD programs—the institutes' year of study is divided into two semesters, with the first beginning in July and the second in January—are advertised in the top magazines in April to the initial term and in the month of October for the following semester. (16) It is discovered that the respondents think highly of the organisation. Considering the information at hand, unwanted by the private coaching product. Yet, the rule itself states that better testing design of questions will remove the need for instruction, but it is unclear how effective these actions will be in that regard. We all know that the private coaching structure has had a negative impact on that nation's competent and technical schools. It is discovered that the respondents think highly of the organisation. Considering the information at hand, Given that approximately one third of people on earth still live in poverty, how will a private school system guarantee that all have the same opportunity? The only people who can afford customised lessons are the wealthy. The educational system is so deeply ingrained in society that it is practically required to gain admission to the best organisations. Aspirants enrol in fake schools that are set up by private educational institutions rather than attending a regular school. Indirectly, the teaching and learning processes in the educational system are completely undermined by this private instructing system (18). Aim for 100 top colleges and 1000 top instructors for each course. Use GATE scores broken down by question to identify areas of good and bad performance. By broad-basing, work towards getting the eventual acceptance ratios for IITs to about 1 in 7 (20).

## 2. MATERIALS AND METHODS

A straightforward and effective multiple criterion method to find remedies from a limited number of substitutes is TOPSIS (technique for order preference by similarity to solution), which was first introduced by Hwang and Yoon. The correlations between criteria, the uncertainty in determining the weights solely through objective or subjective techniques, and the possibility of different possibilities closed to ideal highlight and nadir point simultaneously are some major drawbacks of the conventional TOPSIS model (26). The multiple-criteria decision-support technique known as TOPSIS is the one that is most comparable to the Euclidean space-based positive perfect remedy. The relative communities of a substitute to the optimistic ideal answer yield the TOPSIS method's ideal solution. The TOPSIS method's goal is to find a good solution by ranking options according to how valuable they are in terms of their proximity to one another. Multiple research investigations have developed methodologies for making decisions to address problems quantitatively based on the benefits possessed by every approach, such as [27]. The most commonly employed MAGDM methods are Topsis and AHP. Multiple Criteria Decision Making (MCDM) techniques have been the subject of numerous studies, and

they have been widely used in a variety of fields, including agriculture, the armed forces, society, leadership, and the field of economics (28). The Fuzzy-TOPSIS technique aids the person making the choice in assessing the overall score, evaluations of performance, and placing for every possibility before choosing the best one while taking multiple factors into consideration at once. Few studies were done to evaluate the achievement and benchmark educational facilities, according to the literature, and not one researcher has used fuzzy-AHP combined with fuzzy-TOPSIS to assess coaching establish performance. (29). The Topsis technique is one of several offset multiple-criteria decision-making techniques that specifies the distance between the best (ideal) as well as worst (anti-ideal) alternatives to rank substitutes in descending order. Flexible method: Hwang & Yoon introduced this approach in 1981. It involves selecting "ideal" and "anti-ideal" and "P" corresponding to a formula, measuring the spread of every possibility from the optimal choice, and then assigning the best rate to the smallest distance. The technique uses 'n' indices to evaluate' options. This approach is based on the idea that the chosen option should be the closest to the ideal solution. This technique uses a six-step algorithm. (30).



**FIGURE 2.**Coaching Institute

One approach for resolving the Multi attribute Choice Making (MADM) problem is the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) approach. The foundation of the TOPSIS approach is the idea that the most effective a substitute is the one that is both the furthest away from the ideal outcome in the negative and the closest to the optimistic ideal solution. The TOPSIS method has a number of benefits, including an easy-to-understand concept, quick computation, and the capacity to calculate the relative effectiveness of decision-making options in a straightforward mathematical form. (31). The individual making the choice has the option to give every characteristic of the six substitutes a weight vector, which is determined by the approach known as AHP, using TOPSIS. The person making the choice can obtain an accurate placing of substitutes by following some straightforward steps. The player substitutes are ranked in accordance with how close they are to the ideal solution, just like in Table 2. The personal choosing cases are more likely to benefit from TOPSIS. The top option is thought to be the most reliable one due to the possibility made by the inherently subjective which allows and containing structure of TOPSIS. (32). because it allows compromises between different criteria, this approach offers an improved version of modelling in which a poor result for a particular factor can be harmonious by an excellent outcome for a different criterion. The steps in the TOPSIS method for choosing the best obviously of action from a list of workable alternatives when there are several competing options (33). In his study of the TOPSIS method for assessing NCAA basketball coaches using predefined standards, Xu's research is one example of how the TOPSIS method is frequently used as a making choices method. The findings demonstrated that the TOPSIS method could evaluate in light of both beneficial and detrimental ideal values. (34). both the gap to the optimistic ideal scenario and the discrepancy to the adverse ideal solution are taken into account simultaneously by TOPSIS. By calculating how close a different option is to the perfect solution, TOPSIS produces the best possible result. Options will be ranked by TOPSIS according to their position in relation to the preferred ideal solution and their priority value. The individuals in charge then use the rank as a guide to select the best wanted solution. Numerous applications of TOPSIS have been found, including monetary investment selection, business performance evaluations, particular to an industry examination, OS choice, client assessment, and the development of robots. (35). Two widely used thorough assessment techniques, TOPSIS and RSR, don't have any particular demands for the information that they use. Currently, company performance administration, health decision-making, and health care management are primarily the TOPSIS fields that are relatively commonly utilised (36). It is advised to rank the teams using

TOPSIS, one of the multiple-criterion decision-making (MCDM) techniques, if the criteria for weighting are specified. In this study, the views of experts like athletes in football, soccer coaches, athletic experts, and learners in physical education were utilised to establish the significance weights. (37). The primary goal of this study was to determine whether using the EFQM and BSC models in tandem or separately had a greater impact. In this regard, SepehrKaramadan Company (SK Company) carried out an evaluation of performance while carrying out BSC and EFQM, and the outcomes were analysed using the TOPSIS method. The models were picked because they are both embraced and recognised as instruments for implementation in many nations, including those in North America, Europe, and Asia. Thus, the use of these instruments in this research ensured the validity of the results. (38). An IVIF-TOPSIS assessment was used to address the lack of precise information regarding all risks and the subjective nature of the experts' opinions during the decision-making process. According to the results, Moroccan MFIs must implement certain remedial actions to lower the risks associated with mission drift, image, liquidity, loan layout, and fraud, accordingly (42). In order to minimise the gap among lecturers' competencies and the appropriate module the need levels, fair choices regarding hiring must be made. In this contributions, linguistic evaluations of got and required competency resources created by an organisation of appraisers are aggregated using a 2-tuple language depiction model. The resulting aggregated objective evaluations are therefore used as inputs of the TOPSIS method (44).

### **Student intake**

Student intake refers to the process of admitting students into an educational institution or program. It involves the selection and enrolment of students who meet the admission criteria and requirements set by the institution. The student intake process typically starts with the release of application forms or an online application portal. Prospective students are required to submit their applications, which may include personal information, academic records, essays, recommendation letters, and other supporting documents.

### **Number of classes**

The number of classes in an educational institution can vary depending on several factors, including the institution's size, educational level (e.g., primary, secondary, higher education), curriculum structure, and scheduling preferences. In primary and secondary schools, the number of classes is often determined by the number of students and the desired class sizes. Typically, there is one class per grade level, and the number of classes increases as the student population grows. For example, a primary school might have one class for each grade from 1 to 6, resulting in a total of six classes.

### **Faculty quality**

Faculty quality refers to the level of expertise, qualifications, and teaching effectiveness of the faculty members at an educational institution. It plays a crucial role in the overall educational experience and academic outcomes of students. Faculty quality can be assessed based on various factors, including: Academic Qualifications: Faculty members with advanced degrees, such as Ph.D. or equivalent, in their respective fields are generally considered to have a higher level of academic qualification. Additionally, their research background and publications can also reflect their expertise and knowledge in their subject area.

### **Nationwide presence**

Nationwide presence refers to the geographic reach and representation of an organization, institution, or service across a country. When an entity has nationwide presence, it means it has established its operations, branches, or service points in various locations throughout the entire country, rather than being limited to a specific region or locality. In the context of educational institutions, having a nationwide presence means that the institution has campuses, branches, or affiliated centres in multiple locations across the country. This allows the institution to reach a broader student population and offer educational opportunities to individuals from different regions.

### **Fees**

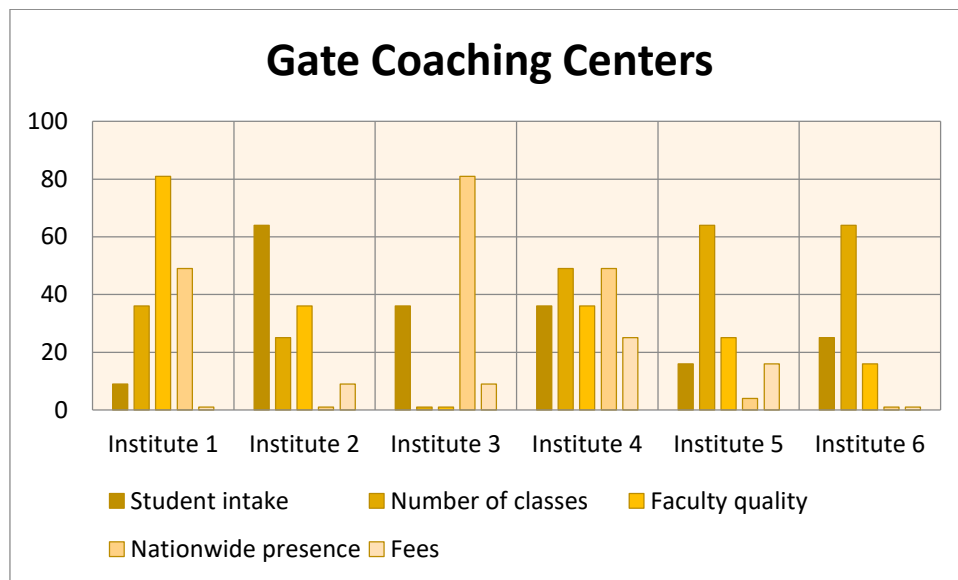
Fees in the context of education refer to the amount of money charged by educational institutions for their services, including tuition, enrolment fees, and other associated costs. The specific fees and their structure can vary widely depending on the type of institution (e.g., public or private), the level of education (e.g., primary, secondary, and higher education), the program or course of study, and the location. Here are some common types of fees that educational institutions may charge: Tuition Fees: Tuition fees are the primary fees charged by educational institutions for instruction and educational services. They are usually paid on a semester or academic year basis and vary depending on factors such as the level of education, program of study, and residency status

### 3. RESULT AND DISCUSSION

**TABLE 1.** Gate Coaching Centers

	Student intake	Number of classes	Faculty quality	Nationwide presence	Fees
Institute 1	9	36	81	49	1
Institute 2	64	25	36	1	9
Institute 3	36	1	1	81	9
Institute 4	36	49	36	49	25
Institute 5	16	64	25	4	16
Institute 6	25	64	16	1	1

Table 1 shows the Gate coaching centres Alternate Parameters: Institute 1, Institute 2, Institute 3, Institute 4, Institute 5, and Institute 6. Evaluation Parameters: Student intake, Number of classes, Faculty quality, Nationwide presence, Fees.



**FIGURE 1.** Gate Coaching Centers

Figure 1 shows the the Reliability it is seen that Virtualised is showing the highest value for Optimise is showing the lowest value. The Responsiveness it is seen that Share is showing the highest value for Exchange is showing the lowest value. The Agility it is seen that Loop is showing the highest value for Regenerate is showing the lowest value. The Costs it is seen that Optimise is showing the highest value for Regenerate is showing the lowest value. The Active management efficiency it is seen that Virtualise; Exchange is showing the highest value for Regenerate is showing the lowest value.

$$X_{n1} = \frac{x_1}{\sqrt{(x_1)^2+(x_2)^2+(x_3)^2\dots}} \quad (1).$$

**TABLE 2.**Normalised

Normalized				
Student intake	Number of classes	Faculty quality	Nationwide presence	Fees
0.2199707	0.4399413	0.659912	0.5132649	0.0733236
0.5865885	0.3666178	0.4399413	0.0733236	0.2199707
0.4399413	0.0733236	0.0733236	0.659912	0.2199707
0.4399413	0.5132649	0.4399413	0.5132649	0.3666178
0.2932942	0.5865885	0.3666178	0.1466471	0.2932942
0.3666178	0.5865885	0.2932942	0.0733236	0.0733236



The table you provided appears to represent a set of normalized values for different factors related to student intake in an educational context. Each row in the table corresponds to a specific scenario or case, while each column represents a different factor.

Let's break down each column and its corresponding factor:

1. Student Intake: This column represents the normalized values for student intake. It indicates the number of students enrolled in a particular scenario, with values ranging from approximately 0.22 to 0.59. A higher value suggests a larger number of students.
2. Number of Classes: This column represents the normalized values for the number of classes. It indicates the quantity or size of classes in each scenario, with values ranging from approximately 0.07 to 0.59. A higher value implies a larger number of classes.
3. Faculty Quality: This column represents the normalized values for faculty quality. It indicates the level of faculty expertise or qualification in each scenario, with values ranging from approximately 0.07 to 0.66. A higher value suggests better faculty quality.
4. Nationwide Presence: This column represents the normalized values for nationwide presence. It indicates the extent to which an educational institution has a presence or reach across the country, with values ranging from approximately 0.07 to 0.66. A higher value implies a stronger nationwide presence.
5. Fees: This column represents the normalized values for fees. It indicates the amount of money charged as fees in each scenario, with values ranging from approximately 0.07 to 0.37. A higher value suggests higher fees.

These normalized values allow for a fairer comparison between different scenarios by scaling the factors within a consistent range (usually 0 to 1). By doing so, it becomes easier to identify patterns, trends, or relationships between the factors and their impact on student intake.

It's worth noting that without further information or context, it's challenging to draw specific conclusions or provide a more detailed explanation. If you have any specific questions or if there's additional information you would like to provide, feel free to ask for further analysis.

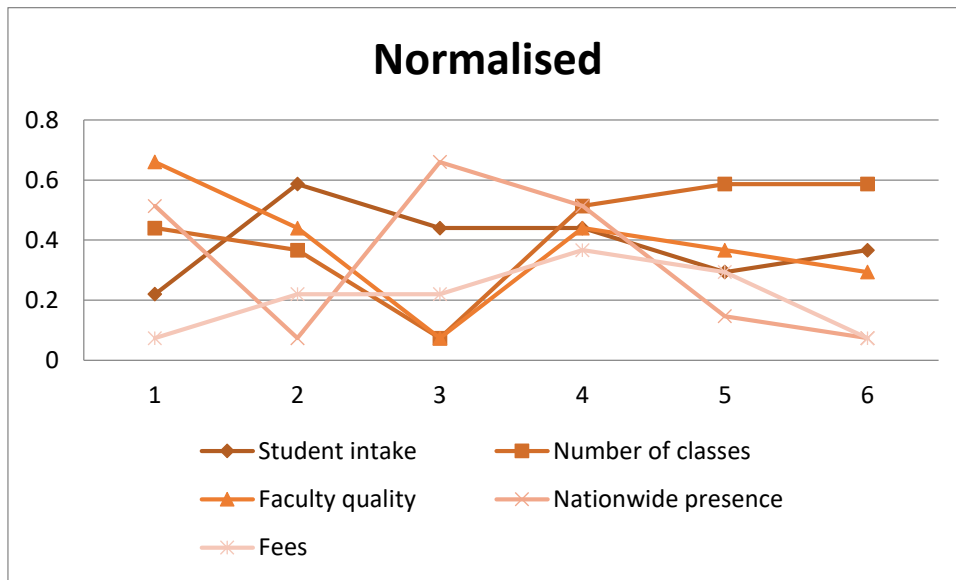


FIGURE 2. Normalized

TABLE 3. Weight

Weight				
0.20	0.20	0.20	0.20	0.20
0.20	0.20	0.20	0.20	0.20
0.20	0.20	0.20	0.20	0.20
0.20	0.20	0.20	0.20	0.20
0.20	0.20	0.20	0.20	0.20
0.20	0.20	0.20	0.20	0.20

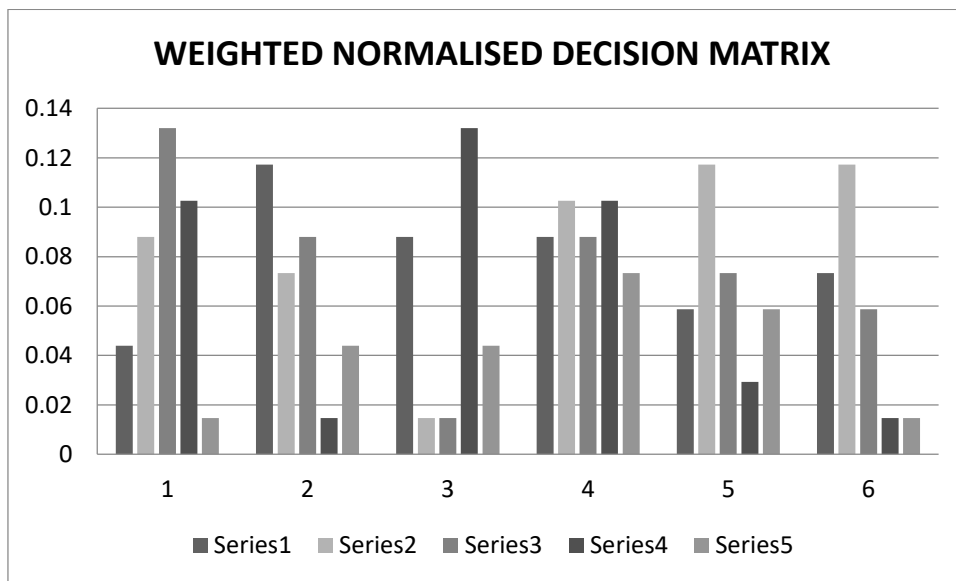
Table 4 Weight shows the informational set for the weight all same value 0.25.

$$X_{wnormal1} = X_{n1} \times w_1$$

**TABLE 4.**Weighted Normalized Decision Matrix  
Weighted Normalized Decision Matrix

0.0439941	0.0879883	0.1319824	0.102653	0.0146647
0.1173177	0.0733236	0.0879883	0.0146647	0.0439941
0.0879883	0.0146647	0.0146647	0.1319824	0.0439941
0.0879883	0.102653	0.0879883	0.102653	0.0733236
0.0586588	0.1173177	0.0733236	0.0293294	0.0586588
0.0733236	0.1173177	0.0586588	0.0146647	0.0146647

Here in table 4 we use weighted normalized decision matrix .method for the topic. Gate coaching centers in indicator get the desired result. From the following data.



**FIGURE 4.** Weighted Normalized Decision Matrix

**TABLE 5.**Positive Matrix  
Positive Matrix

0.1173177	0.1173177	0.1319824	0.1319824	0.0733236
0.1173177	0.1173177	0.1319824	0.1319824	0.0733236
0.1173177	0.1173177	0.1319824	0.1319824	0.0733236
0.1173177	0.1173177	0.1319824	0.1319824	0.0733236
0.1173177	0.1173177	0.1319824	0.1319824	0.0733236
0.1173177	0.1173177	0.1319824	0.1319824	0.0733236

Table 6 Positive Matrix shows the informational set for the value.



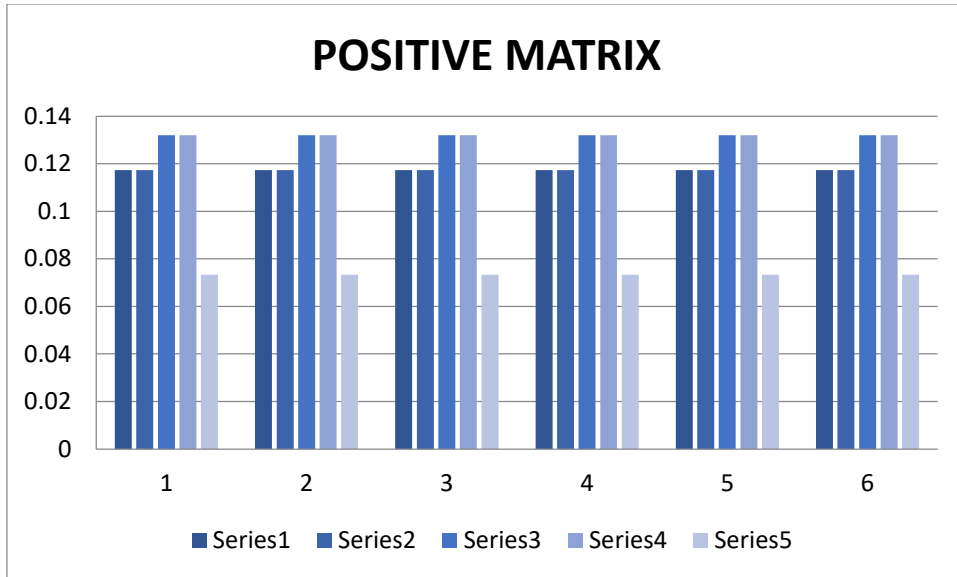


FIGURE 5. Positive Matrix

TABLE 6. Negative Matrix

Negative Matrix				
0.0439941	0.0146647	0.0146647	0.0146647	0.0146647
0.0439941	0.0146647	0.0146647	0.0146647	0.0146647
0.0439941	0.0146647	0.0146647	0.0146647	0.0146647
0.0439941	0.0146647	0.0146647	0.0146647	0.0146647
0.0439941	0.0146647	0.0146647	0.0146647	0.0146647
0.0439941	0.0146647	0.0146647	0.0146647	0.0146647

Table 6 Negative matrix shows the informational set for the value

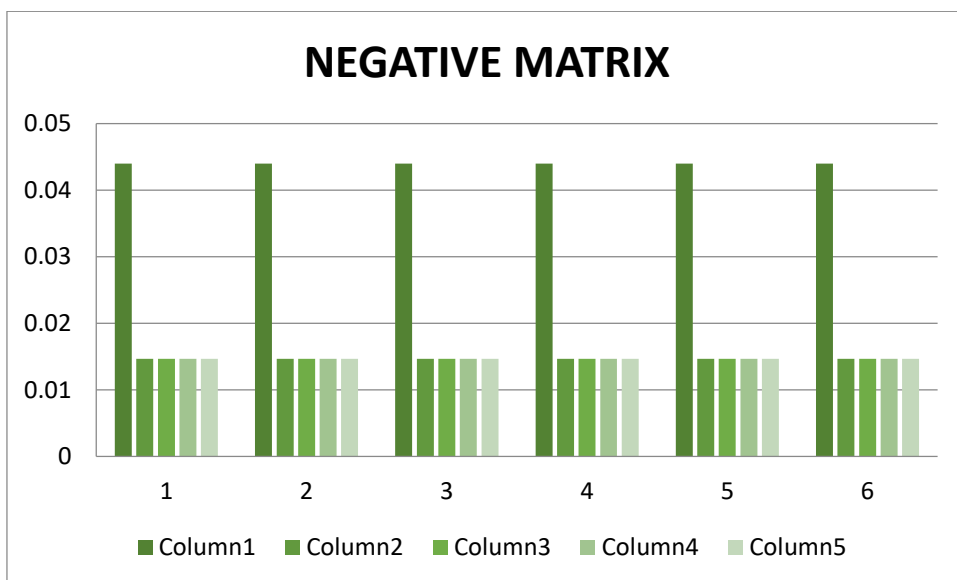
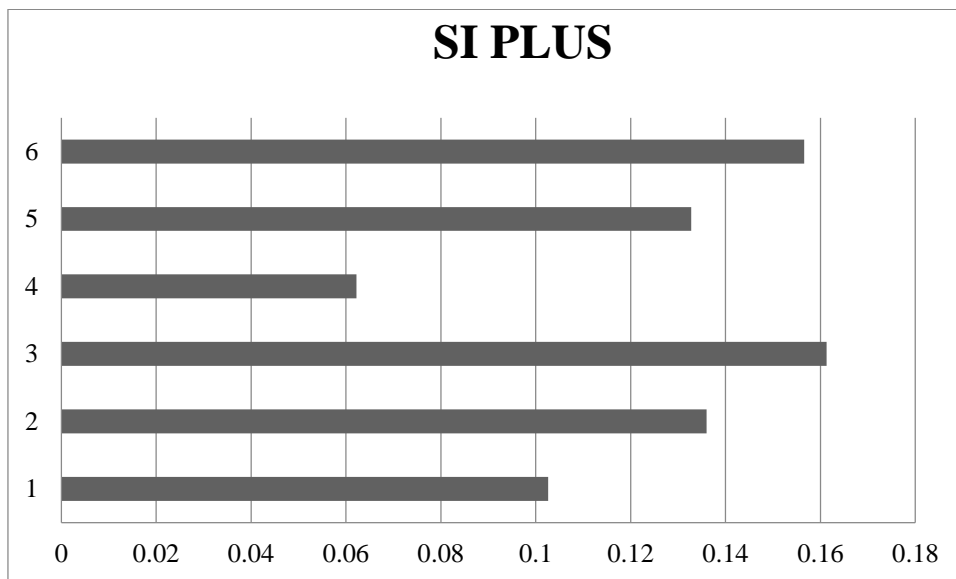


FIGURE 6. Negative Matrix

**TABLE 8.**Si plus, Si negative and Ci Rank value

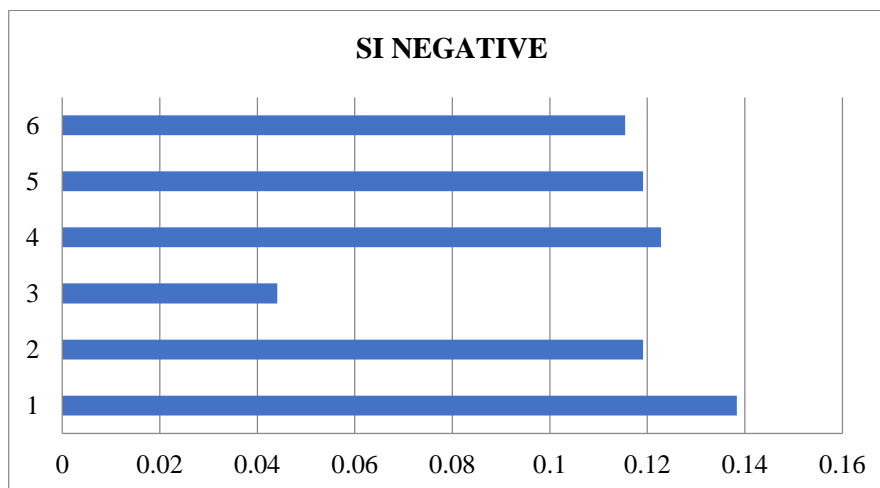
	Si plus	Si negative	Ci	Rank
Institute 1	0.102653	0.1383466	0.5740533	2
Institute 2	0.1359949	0.1191367	0.4669616	4
Institute 3	0.1613118	0.0441285	0.2147996	6
Institute 4	0.0622171	0.1228023	0.6637266	1
Institute 5	0.1327946	0.1191384	0.4728972	3
Institute 6	0.1565763	0.1154701	0.42445	5

Table 8 shows theBased on the given data, it appears to be a table with four columns: "Si plus," "Si negative," "Ci," and "Rank." Each row represents a set of values for these columns. Here's an explanation of each column:"Si plus": This column represents the value of the variable "Si plus" for each row. The specific values in this column are 0.102653, 0.1359949, 0.1613118, 0.0622171, 0.1327946, and 0.1565763."Si negative": This column represents the value of the variable "Si negative" for each row. The specific values in this column are 0.1383466, 0.1191367, 0.0441285, 0.1228023, 0.1191384, and 0.1154701."Ci": This column represents the value of the variable "Ci" for each row. The specific values in this column are 0.5740533, 0.4669616, 0.2147996, 0.6637266, 0.4728972, and 0.42445."Rank": This column represents the rank of each row based on certain criteria. The specific ranks in this column are 2, 4, 6, 1, 3, and 5.It's difficult to provide a more specific explanation without additional context or information about the criteria used to determine the ranks.



**FIGURE 7.** Si plus

FIGURE 7. SI PLUS shows the Institute 1 (0.102653), Institute 2 (0.1359949), Institute 3 (0.1613118), Institute 4 (0.0622171), Institute 5 (0.1327946), and Institute 6 (0.1565763)



**FIGURE 8.** Si negative

FIGURE 8. Si negative shows the Institute 1 (0.1383466), Institute 2 (0.1191367), Institute 3 (0.0441285), Institute 4 (0.1228023), Institute 5 (0.1191384), Institute 6 (0.1154701).

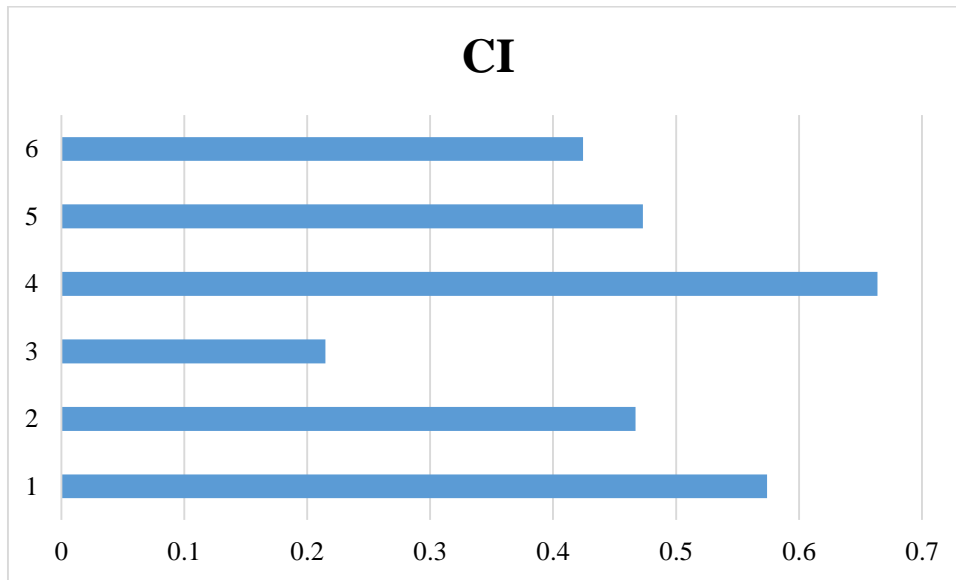


FIGURE 9.CI

FIGURE 9. Ci negative shows the Institute 1 (0.5740533), Institute 2 (0.4669616), Institute 3 (0.2147996), Institute 4 (0.6637266), Institute 5 (0.4728972), Institute 6 (0.42445).

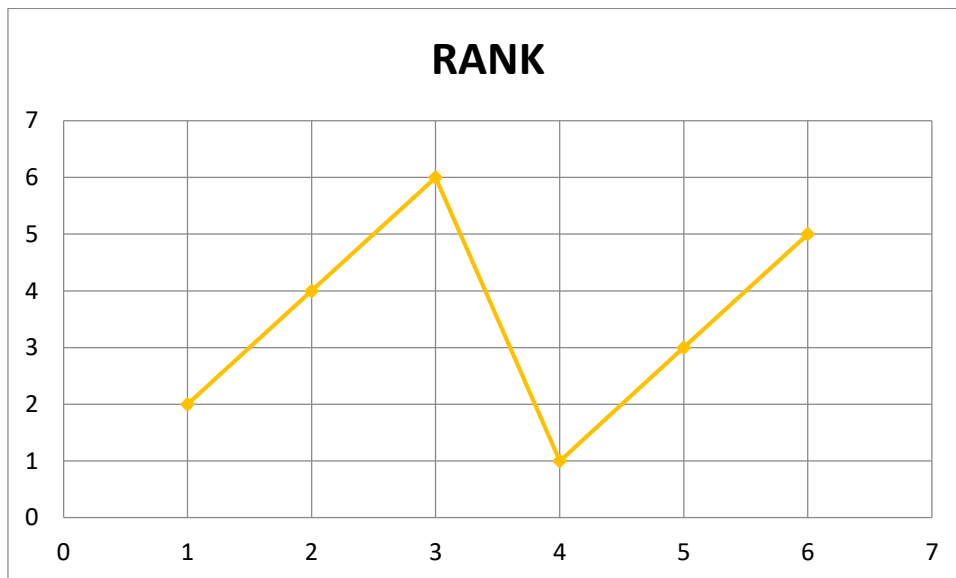


FIGURE 10.Rank

$$X_{si+1} = \sqrt{((X_{wn1} - X_{p1})^2 + (Y_{wn1} - Y_{p1})^2 + (Z_{wn1} - Z_{p1})^2)} \quad (3)$$

$$X_{si-1} = \sqrt{((X_{wn1} - X_{n1})^2 + (Y_{wn1} - Y_{n1})^2 + (Z_{wn1} - Z_{n1})^2)} \quad (4)$$

$$X_{ci1} = \frac{X_{si-1}}{(X_{si+1}) + (X_{s(i-1)})} \quad (5)$$

## 4. CONCLUSION

In conclusion, there are several well-known GATE coaching centres in India that provide comprehensive preparation for the GATE exam. These coaching centres offer a range of services, including expert faculty, study materials, mock tests, doubt-clearing sessions, and a competitive learning environment. Researching and selecting the right coaching centre can significantly enhance your chances of success in the GATE exam. However, it's important to note that individual preferences and requirements may vary, so it's advisable to thoroughly research and consider factors such as location, fee structure, teaching methodology, and reviews from past students before making a decision. Ultimately, with dedication, hard work, and the guidance of a reliable coaching centre, you can improve your preparation and increase your chances of achieving a high score in the GATE exam.

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