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Madhusudan Chakraborty and Avijit Gangopadhyay

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Ram Nath Kovind

Amalgamation of Learning and Education
– **Convocation**

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#Let'sBeatCoronaTogether

COVID19 - The 21st Century Pandemic: How can the Universities help?

Madhusudan Chakraborty* and Avijit Gangopadhyay**

COVID19 has been pounding the world for over the past 16 plus months. The World Health Organization (WHO) announced the breakout of a Mysterious Coronavirus-Related Pneumonia in Wuhan China on 9 January, 2020. There were 59 cases till then and travel precautions were already at the forefront of experts' concerns. In just two days between 21 and 23 January, 17 people died and an additional 300 were infected. That was when the Chinese scientists confirmed that the virus was transmitted through humans. China made the unprecedented move not only to close off Wuhan and its population of 11 million, but also placed a restricted access protocol on Huanggang, 30 miles to the east, where residents were not allowed to leave without special permission. Thus, upto 18 million people were under strict lockdown. With a worldwide death toll of more than 200 and an exponential jump to more than 9800 cases, the WHO finally declared a public health emergency on 31 January, 2020 for just the sixth time. Human-to-human transmission quickly spread and could be found in the United States, Germany, Japan, Vietnam, and Taiwan. See Links for details are available at the end of the article.

It took another month of widespread infection of the virus around the globe for the WHO to declare COVID-19 a Pandemic and the date was 11 March, 2020. While declaring COVID-19 a pandemic, the Director General of WHO said in a briefing in Geneva that the agency is "deeply concerned by the alarming levels of spread and severity" of the outbreak. He also expressed concern about "the alarming levels of inaction."

The stories thereafter covering deaths, lockdowns, masking, sanitizing, social distancing, shortage of food, working from home, shutting down schools, colleges and universities for semesters and so on are well known. The governments across the world had spelt out the COVID protocols to be followed by one and all. By 28 May, 2020 the COVID19 deaths passed the 100,000 mark and by 10 June, 2020 the number of confirmed cases rose to 2 million in the US. By October 2020, the global cases crossed 40 million and the global death figure reached 1.1 million.

The experiences of the past have taught us about the nature of the disease, possible mutations of the virus resulting in spread of

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the virus in multiple strains and the way to control it including vaccination. It was clear that the only way out of this situation (as we learnt from other pandemic and pandemic-like situations from Spanish flu in 1918, SARS in 2008, Swine flu in 2009, and Ebola epidemics in Africa in 2015) is developing a vaccine and having people vaccinated as soon as possible. Major pharmaceutical companies of the world remained engaged in finding the vaccines for quite some time and varieties of the same are now available. Vaccines are now being administered all over the world. Yet, we all are still fighting COVID-19 as the virus keeps coming back with a vengeance as the people are failing to break the chain.

Vaccine Development in the World

In anticipation of a global pandemic, vaccines were under development for the last twenty years or more. Soon after the china outbreak in December 2019, the virus formula was identified and named as the Coronavirus SARS-CoV-2, the virus that causes COVID19 (the '19' came as it first appeared in 2019). It infects animals and birds and is closely related to the viruses causing the earlier SARS (Severe Acute Respiratory Syndrome) and MERS (Middle East Respiratory Syndrome) outbreaks. Multiple pharmaceutical enterprises had started testing more than 300 candidate vaccines in the labs and on 21st July, 2020 the vaccines from Astra Zeneca and CanSino Biologics showed promising results. By November 2020, three major vaccines that got approval for emergency use in the US and in the EU/UK are Pfizer, Moderna and Astra Zeneca. Additionally the vaccines developed and manufactured in Russia (Sputnik-V), India (Co-Vaxin, Covishield) and China (Sinovac) were administered in those countries and made available globally to some extent.

The Scenario in India and the Preparedness

Until the end of May 2020, the death figure on account of COVID-19 in India was limited to about 5000, which peaked to 150,000 by the end of December 2020. This was much less compared to the deaths in other countries and it was thought that the pandemic situation has been overcome by India. Alas, this was only the first wave. The experts predicted that the second wave of COVID-19 could strike India in the near future and recommended not to lift the guards. Unfortunately, that did not happen and the country is facing huge challenges managing the threats to lives of its citizens.

With the onslaught of the second wave of COVID-19 India is now battling a national crisis. The country is at war with the second wave and the experts are warning us to be ready for the third wave. The consequent disruption of normal life, the economic activities in particular are threatening every citizen of this country. Although the problem is global, India needs to introspect whether it is doing enough to contain COVID-19.

Dissatisfactions arise in every sphere of life whenever the supply lags the demand and the healthcare system in India is no exception. It is, however, not possible to put a robust healthcare system in place to meet all calamities including the pandemic. A robust healthcare system could also fail if the rate of spread of infections goes beyond control. Even the most developed countries in the world could not escape the onslaught of COVID-19. In fact, the healthcare system has so far been developing as more of a business rather than service to mankind all over the world. Medical tourism had become a buzzword in recent times and India was the destination of many from different parts of the world.

In order to combat the assault of COVID-19, India has committed all the forces at its command. The healthcare system is getting upgraded albeit slowly while the doctors, the nurses and the medical assistants are working day and night to save precious lives risking their own. The frontline soldiers also include many others like the decision makers, the law keepers, the volunteers of many non-governmental organizations (NGOs), dedicated youths forming volunteer forces in different regions of the country, philanthropic individuals and organizations, the media personnel, the crematorium assistants and most importantly those working day and night tirelessly to keep the supply chain intact in all spheres of life. The tasks ahead are to provide medical assistance to a greater number of COVID patients than the healthcare system could actually accommodate, raise the recovery level as high as possible, detect infections in as many people as possible and arrest the spread of the virus and simultaneously vaccinate more and more people in record time. Although the battle looks like a marathon race, the country has to convert the same into a series of sprints.

The situation in the country is rather complex. Enforcing the COVID protocols has been very difficult simply by the advisory circulars of the

government, mass communication through the media and the efforts of the law keepers alone. The government has been forced to choose the option of strict lockdown as the citizens are not behaving responsibly surprisingly, irrespective of their level of education. The measure is rather harsh as the same adversely affects the livelihood of most of the people. It would, however, be possible to reduce the length of lockdown or undo it provided the people learn faster to contain the virus by following the advisory. Further, quicker pace of vaccination of all the citizens is the need of the hour.

Although the vaccination programme has commenced since early March 2021, the pace of administering the jab needs to be accelerated to defeat the rate of spread of the deadly virus. Despite initial hesitation, people are now rushing to the vaccination centers. Unfortunately many have to be turned back or made to wait longer much to their frustrations. Faster pace of vaccination demands that India manufactures as well as imports more and more vaccines in a time bound manner to meet all of its commitments. At the same time management strategies should be revisited not only for quicker distribution but also for augmented storage of the same across the country.

Administering the vaccine is basically a number game in view of the large population in India. The same cannot be achieved with the current level of workforce engaged in fighting COVID-19. As it is, the doctors, the nurses and medical assistants are getting burnt out treating the infected patients round the clock. The vaccination programme will eat into these human resources threatening the rate of recovery. The country needs additional manpower to help in the distribution and administration of the vaccine as early as possible. This is where the universities could extend a helping hand to the country by raising trained volunteer force from amongst the huge students' community at their command. In fact, the government has already roped in the senior medical and nursing students to join the COVID warriors with a view to save as many lives as possible, if not all. It is well known that the students in many other countries like China, US, UK and other European countries have come forward to fight as the frontline soldiers. Even many students in India under the National Service Scheme (NSS) have joined the battle. It however, appears that the Indian universities are yet to be proactive in these endeavours.

The Need of this Hour

In addition to the creation of a buffer stock of vaccines by way of manufacturing to the fullest capacity in India and also through procurement from abroad, there is an immediate need for mobilizing people power for vaccinations. There is also the need for time, patience and volunteers. An example of vaccinating a city/town with 1 million is worth understanding what this logistical challenge is. Let us see how. India has a population of 1.3 billion or 1300 million or 1300 times 10 lakhs population. The major population centers include Delhi (30M), Mumbai (20M), Kolkata (15M), Bangalore (12M), Chennai (11M), Hyderabad (10M), Pune (8M), Ahmedabad (8M) and many others in the 2-5M range. Let us take an example of any one population center of 1M people (10 lakhs). Imagine we set up 100 units for applying vaccines assuming vaccines are available by proper transportation and storage facilities are adequate.

Each unit will be responsible for administering 500 shots a day with 10 volunteers (2 security personnel, 3 nurses and 2 desk persons in two shifts included). If we can have 100 such units administering 500 shots/day, that will cover 50,000 shots in a day. That will take 20 days to cover 10 lakh people. That means 3 weeks without weekends. Then it will be the time to administer the second shot, which means another 3 weeks. If we start this on a particular day immediately, we would be able to achieve our target by one and half month from the day. We will need another 2 weeks for the immunity to kick in. Thus, the vaccinated people would be safer with in 2 to 3 month. If we start this immediately and continue without break for weekends, holidays and time lost due to upcoming monsoon in June-July-August, we should be able to vaccinate the total population of 1 million (10 lakhs) of the center by 15th August, 2021, if everything goes smoothly.

India has a population of 1.3 Billion (13,000 lakhs). Vaccines are not yet available to be administered in every corner of the country. Once the vaccines are available and a system as above is in place with enough volunteers it will take some time for the country to reach a healthy status. A preliminary estimate of that time can be obtained by accommodating for availability of vaccine and weather related delays and transportation and infrastructure related challenges. This time is about 6 months to a year or more depending on the

availability of vaccines and rate of vaccination. An additional factor is for people to stick to COVID protocols (mask, distancing as much as possible and blended work style, and avoid unnecessary travels).

Of course, the above is a very simple model that could be made more realistic and accurate with multiple parameters; but we think the dimension and enormity of the challenge ahead is clear from the above example. Also, the cities with 100 lakhs or more population have a different challenge than rural villages and other suburban towns. But the above idea could work with appropriate adaptation for different centers.

Role that the Indian Universities Can Play

Currently the universities are offering online education and the students are advised to remain confined at home. But the practice could not continue indefinitely. Sooner or later the universities will have to adopt the process of blended learning (combination of online and offline learning) with the help of available educational technologies and connectivity. After all COVID-19 virus is not going to go away. Neither is it going to stop the human-to-human transmission. It would be futile to wait for the return of the pre-COVID ambience. Rather the people have to learn to live with the new normal. The country could expect the universities to come forward and be proactive not only in joining the battle against COVID-19 but also in evolving a new culture for the society.

While safety is a must, could we not rely on our youngsters for service to the mankind in this crisis? Most of these students are adults and would turn out to be global citizens tomorrow. Moreover, the future belongs to them. Perhaps many of them have already come forward on their own to join volunteers in different groups in this hour of need. Should we not prepare them not only for the current challenges but also for the ones that might strike in the near and distant future?

In the opinion of the present authors the universities should design and organize programmes for training at least the senior students who could join the country in its struggle to defeat the pandemic. They could extend a helping hand to the COVID-19 warriors in their endeavours to manage the current situation including mass vaccination. The trained volunteer force comprising of students

other than nurses should be able to administer the jab to accelerate the vaccination programme. In the process the students could earn additional credits and certificates they could be proud of.

The universities are now required to redesign and refurbish the infrastructure to accommodate learning in attendance wherever necessary in addition to improving connectivity and acquiring new technologies. Further enhancements to the design of new academic courses, training and new academic programmes with regards to disaster management including pandemic is the call of the hour. The new generation has to learn to live in a new culture that would evolve with the battle with the COVID-19 in the near and distant future. The inadequacy of the existing economic model that governs the world has been exposed and the new model would come out of the universities only.

Looking at the Future (Benefits)

Unfortunately, in the era of Climate Change, it is expected that there will be more pandemics or similar situations which will significantly affect a large portion of population. In his recent book 'How to avoid a climate disaster', Bill Gates has given a sober example of this situation. Let us consider this with a simple metric – 'Loss of life.' Loss of life is relative to the population. We may use death rate (Mortality rate) which is defined as the number of deaths per 100,000 people in a year. Using data from Spanish Flu and from COVID-19 pandemic and averaging out over the century, one can estimate the amount by which a global pandemic increases the global mortality rate. This is determined to be about 14 deaths per 100,000 people each year. This is the rate at which we are losing people unnecessarily; forget about the long-term effects of COVID-19 and loss of economic development.

In his Book, Bill Gates asks: "How does this (mortality rate increase during COVID) compare to climate change?" By 2100, as the temperature increases at increasing rate, IPCC climate model estimate is for 75 more deaths – or FIVE times that of COVID-19. Should we not be prepared to combat both Climate Change impact and COVID-19? Can we not take lessons from COVID-19 and prepare ourselves for the future impact of climate change which is imminent? And this is where the universities can help with their young students

(contd. on pg. 25)

Pattern & Trends of Research: Unlocking the 100 year Excellence of Jamia Millia Islamia

Tariq Ashraf*

Jamia Millia Islamia, (JMI) a Public Central University has been established in 1920, originally at Aligarh in United Provinces which in 1925 initially moved to Karol Bagh, Delhi and later built up its campus in Jamia Nagar. In 1988, it became A Central University by the Act of Parliament. In October 2020, University completed its 100th year of foundation which provided an opportunity both to celebrate and also review its achievements.

The university recognizes that teaching and research are complementary activities that can advance its long-term interest. It has Natural Sciences, Social Sciences, Engineering & Technology, Education, Humanities & Languages, Architecture & Ekistics, Fine Arts, Law and Dentistry Faculties. Also, it has a well-known AJK Mass Communication Research Centre. JMI has over thirty research centres that have given it an edge in terms of critical research in various areas. Some of these are Centre for Peace and Conflict Resolution; Academy of International Studies; Centre for Culture, Media and Governance; Centre for Dalit and Minorities Studies; Centre for Nano sciences and Nano technology; FTK Centre for Information Technology; Centre for Management Studies; Dr. K. R. Narayanan Centre for Dalit & Minority Studies; Centre for West Asian Studies; Centre for Physiotherapy & Rehabilitation Sciences; Centre for Theoretical Physics and Centre for Inter-disciplinary Research in Basic Sciences.

University Profile & Ranking

University has consistently improved its ranking during last decade. In the National Institutional Ranking Framework (NIRF) 2020, JMI figures among top 10 universities of the nation. It has secured 16th position in the overall ranking amongst 3771 institutes that includes premiere technical and non-technical institutions of India. JMI has been listed among 60-1-800 by the prestigious Times Higher Education World University Ranking 2020 out of 1527 global

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universities. It has been placed amongst 751—800 by QS ranking, 538 by Round University Ranking and 192 by THE-Asia and QS BRICS ranking for the year 2020. In yet another important development, Jamia Milia Islamia secured the first position among all the central universities in the country in the ranking that was released in 2020 by the Ministry of Education with a score of 90 per cent.

Pattern of Research & Citations: The Conceptual Framework

Research is used to establish or confirm facts, reaffirm the results of previous work, solve new or existing problems, support theorems, or develop new theorems. It must provide a new theoretical framework that enable reassessment and refinement of current practices and thinking. Bibliometric studies have become more and more good tool to evaluate the scientific power of research institutions and countries. This quantitative analysis will be used as indicator of productivity to judge the research horizontally for different disciplines and vertically between different faculties of the University.

The study aims to understand the pattern of the research & citations of the University since its inception or availability of data using Scopus citation analysis database. As per Scopus, citation data with regard to JMI is available since 1971 onwards only.

Objectives

The main objectives of the study are:

- To study the research output of the University
- To study the citation pattern of research output.
- To study the publication pattern of the University
- To study the authorship pattern and author productivity.
- To study the subject/areas of research
- To identify strong and weak disciplines
- To identify new and potentially significant research areas.
- To identify research trends
- To identify the pockets of excellence/expertise

Methodology & Scope

The data for study has been collected from Scopus Citation Analysis Database from year 1971 till 28th February, 2021 and analysed using following parameters.

- Research Output of the University
- Publication pattern of the University
- Authorship pattern and author productivity.
- Subject/areas of research
- Strong and weak disciplines
- New and potentially significant research areas
- Collaboration Pattern
- Funding Pattern

Launched in November 2004. Scopus is a source neutral abstract and citation database curated by independent subject matter experts. With over 25,100 titles from more than 5,000 international publishers, Scopus delivers the most comprehensive overview of the world's research output in the fields of science, technology, medicine, social science, and arts and humanities.

Scopus coverage includes:

- Over 23,452 peer-reviewed journals (including 5,500 full open access journals)
- 294 trade publications
- Over 852 book series
- Over 9.8 million conference papers from over 120,000 worldwide events “Articles-in-Press” from over 5,500 journals
- More than 210,000 books with 20,000 added Over 77.8 million records
- Over 71.2 million records post-1969 with references
- Over 6.6 million records pre-1970, with the oldest record dating back to 1788 Patents:
- More than 44 million patent records from five patent offices

Scopus currently has over 76.8 million core records as per following details:

- 51.3 million records post-1995 with references
- 25.3 million records pre-1996, with the oldest record dating back to 1788

- Approximately 3 million new records are added each year (5,500/day)
- All documents going back to 1970 contain cited references, which has been achieved in two ways: (1) by adding pre 1996 cited references to existing articles, and (2) by adding article back files, going back to Volume1/issue1 and including their cited references going back to 1970.
- The journal content is obtained from the archives of 60 major publishers. These major publishers include: Springer Nature, Wiley Blackwell, Taylor & Francis, IEEE, American Physical Science and Elsevier.

Overview of the Literature

A literature review is a body of text that aims to review the critical points of current knowledge including substantive findings as well as theoretical and methodological contributions to a particular topic. Literature reviews are secondary sources, and as such, do not report any new or original experimental work. A literature review usually precedes a research proposal and results section. Its ultimate goal is to bring the reader up to date with current literature on a topic and forms the basis for another goal, such as future research that may be needed in the area.

A short review of relevant literature is presented below:

Peters et. al. (1988) used the literature of Chemical Engineering to monitor scientific productivity or “research performance”. They found bibliometric analysis to be a valuable tool. Their methodology seemed designed to reinforce rather than examine preconceived notions, however. They suggested that a citation analyses was not useful to the same extent in all sub-fields of chemical engineering since some scientists with “high reputations” turned out to be “bibliometrically invisible”. Twenty-one “significant” journals of oceanography were examined by Garfield. (1988) Here too, a concern was raised over sub-fields within the discipline. For the purpose of this study, oceanography meant chemical and physical oceanography. Marine biology was excluded. Garfield's intent here was to prioritize journal titles worldwide using the citation patterns of titles from this “core” list.

The work by Spies (1991) reviewed fourteen “major” journals of exploration geophysics for

“effectiveness”. This paper presented a basic tenet of citation analysis as follows: the references that an author cites are a roughly valid indicator of influence, hence value, to his work. A measure of cost effectiveness was also incorporated into this study as subscription costs and citation rates were compared between commercial publications and those produced by professional societies.

Uzuner, al. (1993) studied the citation rates of 572 Turkish physics publications that appeared in the source journals listed in the Science Citation Index. This analysis was global in scope, as is commonly the case with citation studies. They examined impact factor, immediacy index, citation frequency, and the nationality of the publishing house. The question which these normal parameters and this normal scope raise for librarians is - “How is this relevant to the local collection for which I have a responsibility to build based upon the research and curriculum program ongoing at my institution”?

Rousseau (1988) presented a citation distribution of mathematics journals, wherein he proposes that a four-year impact factor would be more suited to mathematics than the more or less typical two-year impact factor used in Science Citation Index. Once again, the question of relevancy presents itself.

Gopalakrishnan, S., Ambuja, R. & Seetharama, S. (2002) studied the nature and pattern of citations of Information Scientists in Seminar proceeding of Indian origin. The study reveals that the trend of citations has changed over time and web citations would replace other citations in future. Yogendra Singh and Gupta, B.M. (2005) studied the quantitative profile of a research and teaching institute, with a view to get idea about its major research contributions performance and impact in different fields of S & T. A number of quantitative and qualitative indicators have been used for studying the relative performance of institute across various subjects. They concluded that the three subjects, namely mathematics, biology and clinical medicine, although contributing smaller number of papers, secured first three ranks in terms of average normalized impact factor per paper. They have also done fairly in terms of percentage of collaborative papers, with the exception of clinical medicine. These three fields have performed the best in terms of publication effectiveness index.

Biradar, B.S. (2006) studied the articles published in Indian Journal of Environmental Protection published in the years 1994, 1999 and 2004. The study found that team research is preferred in the field of environmental science rather than solo research. The degree of collaboration varies from year to year and is found to be 0.78 to 0.95. The overall degree of collaboration is calculated and found to be 0.85. The study also found that on an average 11.595 references are referred to by each article. Major contribution is made by universities (31.622%) followed by colleges (24.054%). It is also observed that the proportion of single authored papers have decreased from 20.290% in the year 1994 to 4.762% in 2004.

Garg, K.C., Dutt, B. & Suresh Kumar (2006) analyzed 11067 papers published by Indian scientists and indexed by Science Citation Index (SCI) for the year 1997. The study indicated that academic institutions are the major contributors to the scientific publications output. Major contribution came from 29 institutions, which contributed about 45% of the total Indian scientific output, 46% of all high quality papers published by India and 48% of the total impact. It was observed from study that about two-third of the total papers had appeared in low and medium Normalized Impact Factor journals.

Pillai, K.G. Sudhier (2007) studied the authorship trend and the degree of collaboration of journal articles and books cited by the physicists of Indian Institute of Science, Bangalore in their doctoral theses during 1999-2003. The study found that team research is preferred in the field of physics rather than solo research. The average number of authors per journal articles was 3 and for books it was 1.69. The degree of collaboration in different years was calculated and the average value of it for journals was 0.08 and 0.44 for books. The authorship collaboration is more in journal articles than in books. The study concluded that authorship pattern, the degree of collaboration and the average number of authors were different in journal and in books.

Raut, T.K., Sahu, S.B. & Ganguly, S. (2008) highlight the distribution of various forms of various forms of publication, authorship trends, most frequently cited periodicals and geographical distribution of the literature in the area of strategic

management. It is found that researchers use journal more frequently than other form of documents and authorship pattern concentrated mainly on single and joint authors in books where as in journals. Study found that the most important journals in the field of strategic management are the Strategic management journal, Academy of Management Journal, Administrative Science Quarterly etc. which are useful to the researchers.

Kumbar, Mallinath, Gupta, B.M. & Dhawan, S.M. (2008) Studied the growth, contribution and impact of research carried out by the scientists of University of Mysore in science and technology between 1996 to 2006. They analyzed the strong and weak areas of university research, their growth rate and impact in terms of average citations received and studied the output and impact of research under different existing subject departments of the university. Study found that the international collaborative research activity in the university was still very small, accounting for just 14% share. The collaborative research in the university was also confined to selected countries. It was the largest with USA (51%) followed by Germany (23%), and Japan (10%), Canada (6%), least were with South Korea (5%) and Denmark (4%).

Surendra Kumar and S.Kumar (2008) analyzed 8093 citations given in the Journal of Oilseed Research (JOR) published during twelve years (1993-2004). Out of 8093 citations, 5642 were in main articles and 2551 in short communication of the JOR. The study covered the authorship patterns of citations alongwith calculation of collaboration coefficient. Study concluded that 20 core periodicals covered more than 50% references and also indicated that collaborative research was prevalent in oil seed research.

Bhat, Veena R. and Sampath Kumar, B.T. (2008) studied the citation analysis of research articles from scholarly electronic journals in the field of library and information science published during the years 2000 to 2006. The study found that 81.49% of articles published during the period had web references, Out of 25,730 references, 56.54% of references are print journal references and 43.52% of them were web references. Adarsh Bala and Gupta, B.M. (2009) analyzed sixteen years (1992-2007) research

activities of the Government Medical College & Hospital, Chandigarh (GMCH), covered in Scopus international multidisciplinary bibliographical database. The study found that GMCH stands at 9th rank in research output, 13th in average citation per paper and 12th in h-index among the top 15 medical colleges of the country.

Zafrunnisha, N. and Pullareddy, V. (2009) present a study of the authorship pattern and collaborative research in the field of Psychology. Data collected from 141 Ph.D. theses submitted to three universities during the period 1963-2003 are used as source material for the study. Total of 22,565 citations appended to these theses, among them 14,374 journal citations came out and were utilized for the study. Multi-authored papers predominate with 52.87% of the total cited papers. The degree of collaboration in Psychology is 0.53. It is observed that USA ranks first by producing 42.28% of cited journals. India got second rank with 21.38% of total cited journals, followed by UK (15.44%) and Canada (1.75%).

Garg, K.C. and Kumar, S. (2010) investigated the pattern of citations of the articles published in 46 Indian Science Journals indexed by SCIE in the year 2006 and cited during 2006 to 2009. The proportion of cited papers and the rate of citation varied for domestic, foreign and collaborative papers, as well as among disciplines and publishers. Study reveals that collaborative papers had the highest rate of citation per paper. The Indian Journal of Medical Research published by Indian Council of Medical Research, New Delhi had the highest citation impact. Highest number of papers was cited in the discipline of medicine.

Kumbar et al. (2008) researched on the growth and impact of research output of University of Mysore in which they analyzed the growth rate of the publications, the contribution of the authors of the University in different national and International journals and the weak and strong research areas of the University on the basis of their research output. The study concluded that the research activity. of University of Mysore in Science and Technology grew at an average rate of 23% per annum.

Tripathi and Kumar (2015) did a quantitative analysis of research output of Jawaharlal Nehru

University. They analyzed the decadal growth of the publications of the University along with the type of publication and the main research areas in which the authors have produced their work. They found that the most yielding decade in terms of research output in the University was 2001-2010. The total period of the study was four decades i.e. from 1971-2010. Gautam and Mishra (2015) carried out a scientometric study of the scholarly research trend of Banaras Hindu University. They researched about the top periodicals, major research areas and the annual growth rate of the publications of the University. Conclusion showed that the research productivity of Banaras Hindu University is increasing at the average rate of 104.1 publications per year. Current Science was the top journal preferred by scientists of BHU and Biological Science was the dominating research area.

Siwach and Kumar (2015) attempted to study the bibliometric Analysis of Research Publications of Maharshi Dayanand University (2000-2013), where they analyzed the subject-wise distribution of papers, most preferred journals for publication and the year-wise research productivity of the University.

Gupta, Kshitij and Verma (2010) mapped the Indian computer science research output from 1999–2008. The study revealed that India produced a global publication share of 1.72% in that period. The top 35 most productive Indian and foreign Journals contributing to Indian computer science output together contributed 27.10% share in the cumulative publication output of Indian in computer science. Computer software remained the most productive research area with the productivity of 30.43%.

The current study is has been undertaken in the light of above literature review and associated findings.

Research Output of Jamia Millia Islamia:

The total research output for Jamia Millia Islamia as on 28th February, 2021 is 9698 documents.

The output is analysed as below using different categories and parameters.

It can be seen from Table 1 that research output of JMI has shown consistent improvement since 1971. It was in year 2014 that number of papers

Table-1: Total Research Output

S. No.	Year	No. of Articles
1.	2021	292
2.	2020	1298
3.	2019	1151
4.	2018	966
5.	2017	728
6.	2016	688
7.	2015	557
8.	2014	544
9.	2013	431
10.	2012	499
11.	2011	398
12.	2010	360
13.	2009	290
14.	2008	226
15.	2007	209
16.	2006	185
17.	2005	158
18.	2004	104
19.	2003	86
20.	2002	70
21.	2001	56
22.	2000	56
23.	1999	48
24.	1998	61
25.	1997	54
26.	1996	48
27.	1995	19
28.	1994	19
29.	1993	15
30.	1992	21
31.	1991	16
32.	1990	7
33.	1989	11
34.	1988	9
35.	1987	6
36.	1986	3
37.	1985	3
38.	1984	3
39.	1983	1
40.	1982	0
41.	1981	0
42.	1980	4
43.	1979	1
44.	1978	0
45.	1977	2
46.	1976	0
47.	1975	0
48.	1974	0
49.	1973	1
50.	1972	1
51.	1971	1
Total	9698	[February 28/201]

published crossed 500 and in year 2020 it reached 1298, constituting 13 percent of over all output.

This has largely been impact of increasing research facilities and liberal funding opportunities.

Table-2: Year-Wise Citations

	Year	No. of Citations
1	<2006	3621
2	2006	1112
3	2007	1497
4	2008	1990
5	2009	2639
6	2010	3017
7	2011	4042
8	2012	4847
9	2013	5733
10	2014	6620
11	2015	8008
12	2016	9725
13	2017	11385
14	2018	14505
15	2019	18902
16	2020	24759
17	2021	6665
	Total	1, 29,067

The total number of citations which have been generated since 1971 is 1,29, 067. The average citation per paper comes to more than 13. It can also be observed from table that on year to year basis, the number of citations has steadily gone up in absolute terms. The highest number of citations i.e 24759, has taken place in year 2020 constituting 19.18 percent of total citations.

h-Index of University

h-index of Jamia Millia Islamia is 117 (Of the 9698 documents considered for the h-index, 117 have been cited at least 117 times.

Total number of journals in which 9698 papers have been published is 157 which comes to 61 papers each on an average. If we analyse top journals where most of the papers have been published, it can be observed that International Journal of Biological Macromolecules is the top most journal with 116 research papers, followed by Advances In Intelligent Systems and Computing and AJP Conference Proceedings with 94 and 95 papers each. Top 25 journals carry 1349 papers which constitutes 13.9 percent of total research output.. The topmost journal, International Journal Of Biological Macromolecules carried 116 papers covering 1.19 percent of total output.

Fig. 1: Year-Wise Citations

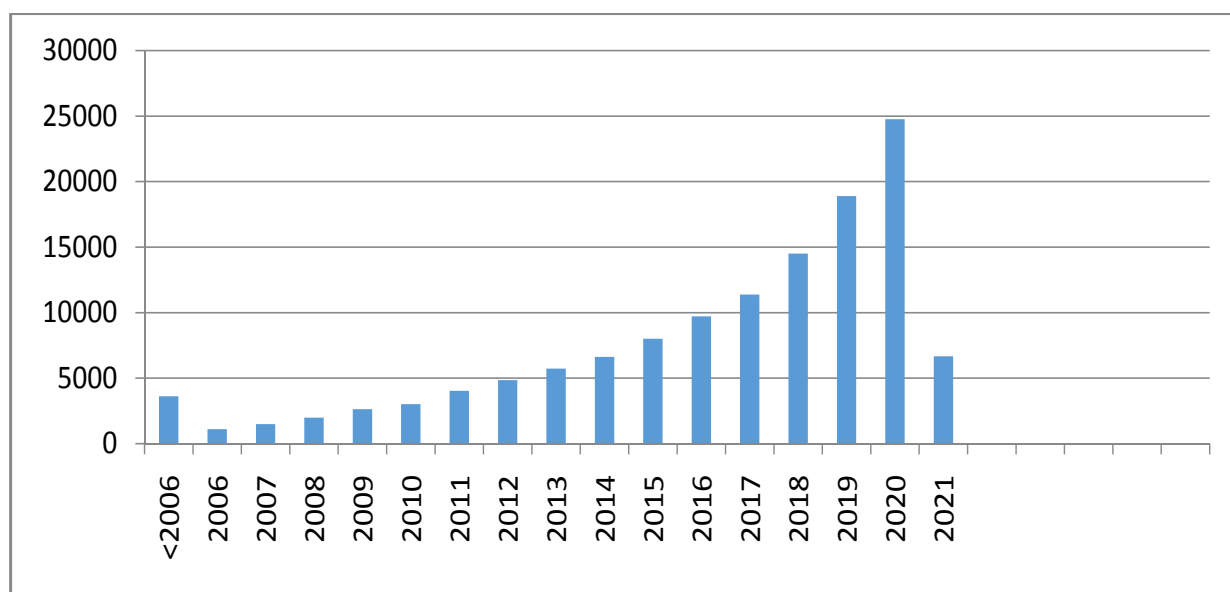


Table-3: Top 25 Journals

S. No.	Journal	No. of Journals
1.	International Journal of Biological Macromolecules	116
2.	Advances In Intelligent Systems And Computing	95
3.	AJP Conference Proceedings	94
4.	Journal Of Molecular Liquids	76
5.	Physical Review D Particles Fields Gravitation And Cosmology	76
6.	European Journal of Medicinal Chemistry	69
7.	Rsc Advances	63
8.	Journal of Biomolecular Structure And Dynamics	59
9.	Economic And Political Weekly	57
10.	Plos One	49
11.	Spectrochimica Acta Part A Molecular And Biomolecular Spectroscopy	47
12.	Advanced Science Letters	46
13.	Lecture Notes In Civil Engineering	45
14.	Journal Of Applied Polymer Science	44
15.	Materials Research Express	41
16.	Physical Review D	41
17.	ACS Omega	38
18.	Journal Of Molecular Structure	38
19.	Lecture Notes In Electrical Engineering	38
20.	Physica B Condensed Matter	38
21.	Scientific Reports	38
22.	Communications In Computer And Information Science	36
23.	European Physical Journal C	36
24.	Progress In Organic Coatings	35
25.	Journal of Alloys And Compounds	34
	Total	1349

Table-4: Open Access Journals

All Open Access	2,131
Gold	945
Hybrid Gold	118
Bronze	477
Green	1,345

It can be seen from table 4 that almost 20 percent papers have been published in open access journals in almost all categories. Highest number of open access journals have been published in green category of open access which are freely available.

CiteScore is a simple way of measuring the citation impact of sources, such as journals in which research papers have been published, CiteScore

establishes the quality of journals in terms of number of citations. As per 2019 data for top 10 Journals, European Journal of Medicinal Chemistry has highest Citescore of 8.3 followed by Journal of Molecular Liquids with 8.1 CiteScore.

The total number of authors who have contributed total research output of 9698 papers since year 1971 is 2770. While analysing data for top authors, it has been found that top 6 authors have contributed more than 200 research publications each amounting to 1426 and constituting 14.70 percent of total output.

Total number of authors contributing more than 100 papers is 17. Top 25 authors have contributed 3553 papers in all which constitutes 36.6 percent of

Table-5: Cite Score of Top 10 Journals

Source	2011	2012	2013	2014	2015	2016	2017	2018	2019
Advances in Intelligent Systems and Computing	0.2	0.2	0.3	0.4	0.6	0.7	0.8	0.8	0.9
International Journal of Biological Macromolecules	3.5	3.5	3.9	4.4	4.7	5.1	5.5	6	6.9
Journal of Molecular Liquids	2.6	2.5	2.8	3	3.5	4.1	5.4	6.7	8.1
AIP Conference Proceedings	0.3	0.4	0.4	0.4	0.6	0.4	0.4	0.5	0.6
Physical Review D - Particles, Fields, Gravitation and Cosmology	8.4	8.3	8.6	8.3	8.3				
RSC Advances	0.1	0.9	2.2	2.7	3.5	4.1	5.5	6.5	6.5
Journal of Biomolecular Structure and Dynamics	8.9	8.1	6.2	3.9	3.5	3.8	4.4	4.7	4.5
European Journal of Medicinal Chemistry	5.1	6.6	6.7	5.7	6	7	7.7	7.7	8.3
PLoS ONE	4.5	4.1	4.4	5.1	5.6	5.9	5.7	5.4	5.2
Economic and Political Weekly	0.6	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.6

Table-6: Top 25 Authors

S. No.	Authors	No. of Articles
1.	Husain, M.	264
2.	Hassan, M.I.	255
3.	Ahmad, F.	253
4.	Ali, I.	240
5.	Zulfequar, M.	214
6.	Ahmad, S.	200
7.	Haleem, A.	186
8.	Islam, A.	161
9.	Khan, Z.	147
10.	Ali, A.	126
11.	Ashraf, S.M.	122
12.	Azam, A.	122
13.	Riaz, U.	122
14.	Siddiquee, A.N.	110
15.	Khan, Z.H.	105
16.	Ansari, A.Q.	102
17.	Doja, M.N.	101
18.	Husain, S.A.	99
19.	Islam, T.	99
20.	Khan, Z.A.	95
21.	Patel, R.	91
22.	Ansari, S.G.	89
23.	Islam, S.S.	89
24.	Ahmad, T.	83
25.	Loan, S.A.	78
	Total	3553

Table-7: Top 25 Subjects

S. No.	Subjects	No. of Articles
1.	Engineering	2690
2.	Physics and Astronomy	2006
3.	Materials Science	1824
4.	Chemistry	1705
5.	Computer Science	1555
6.	Biochemistry, Genetics and Molecular Biology	1475
7.	Mathematics	881
8.	Medicine	863
9.	Energy	803
10.	Chemical Engineering	775
11.	Social Sciences	638
12.	Environmental Science	604
13.	Pharmacology, Toxicology and Pharmaceutics	540
14.	Agricultural and Biological Sciences	410
15.	Business, Management and Accounting	277
16.	Economics, Econometrics and Finance	269
17.	Immunology and Microbiology	265
18.	Earth and Planetary Sciences	232
19.	Multidisciplinary	203
20.	Arts and Humanities	158
21.	Decision Sciences	130
22.	Dentistry	125
23.	Health Professions	88
24.	Psychology	65
25.	Neuroscience	49

Table-8: Top Funding Agencies

S. No.	Funding Agencies	No. of Articles
1.	University Grants Commission	522
2.	University Grants Committee	287
3.	Indian Council of Medical Research	273
4.	Department of Science and Technology, Government of Kerala	240
5.	Bangladesh Council of Scientific and Industrial Research	206
6.	Department of Science and Technology, Ministry of Science and Technology, India	187
7.	Science and Engineering Research Board	182
8.	Council of Scientific and Industrial Research, India	171
9.	Deanship of Scientific Research, King Saud University	115
10.	King Saud University	103
11.	Department of Biotechnology, Government of West Bengal	97
12.	Department of Science and Technology, Government of West Bengal	46
13.	King Abdulaziz University	46
14.	Deanship of Scientific Research, King Faisal University	43
15.	Indian National Science Academy	38
16.	Defence Research and Development Organisation	37
17.	Department of Biotechnology, Ministry of Science and Technology, India	37
18.	Ministry of Electronics and Information technology	34
19.	Council for Scientific and Industrial Research, South Africa	33
20.	King Khalid University	30
21.	National Natural Science Foundation of China	27
22.	Council of Scientific and Industrial Research	26
23.	Iran National Science Foundation	26
24.	National Research Foundation of Korea	26
25.	Japan Society for the Promotion of Science	25
	Total	2930

Funding is an important issue for research and its generous availability is essential for producing quality research. An analysis of funding data of Jamia Millia Islamia reveals total 167 funding agencies have been involved in providing research funds to total number 3854 papers which constitutes a whopping 39.74 percent of total research output.

The largest source of research funding is University Grants Commission, including University Grants Committee with 809 research papers which constitutes 8.34 percent of total 9698 papers and 20.99 of total 3854 public funded paper, followed by ICMR and DST. Universities of Saudi Arabia like King Saud University, King Abdul Aziz

University, King Khalid University have also been good source of funding with total papers being 179 papers, constituting 4.6 percent of total number of 3854 public funded papers.

In terms of analysis of top 25 funders, it can be seen that total number of paper comes to 2930 constituting 76.02 percent of 3854 papers funded in all.

Collaboration in research is an important process and most of the research takes places in collaboration with peers and professional friends across the countries. The number of total collaborating countries for entire JMI research output is 113 which covers

Fig. 4: Top Funding Agencies

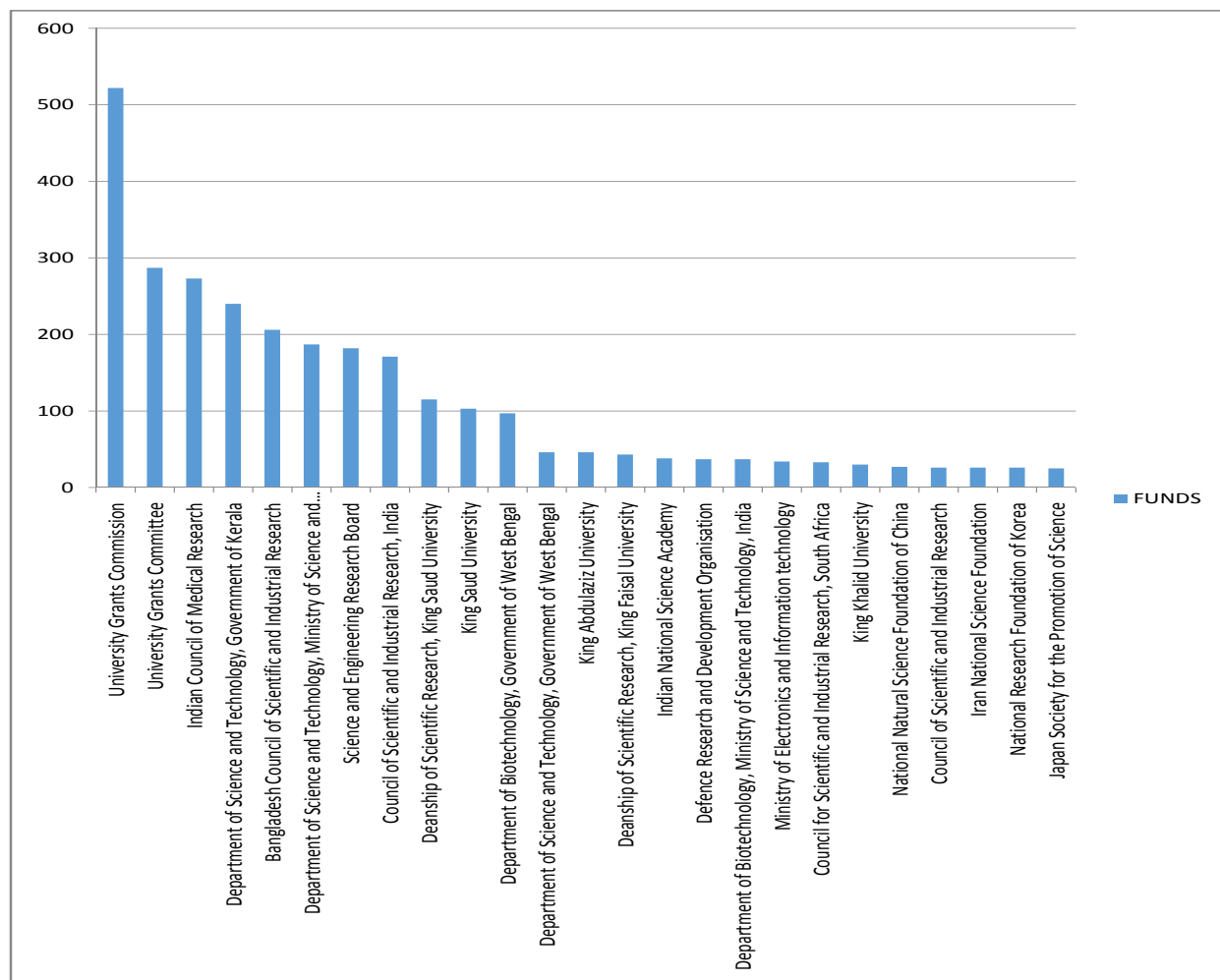
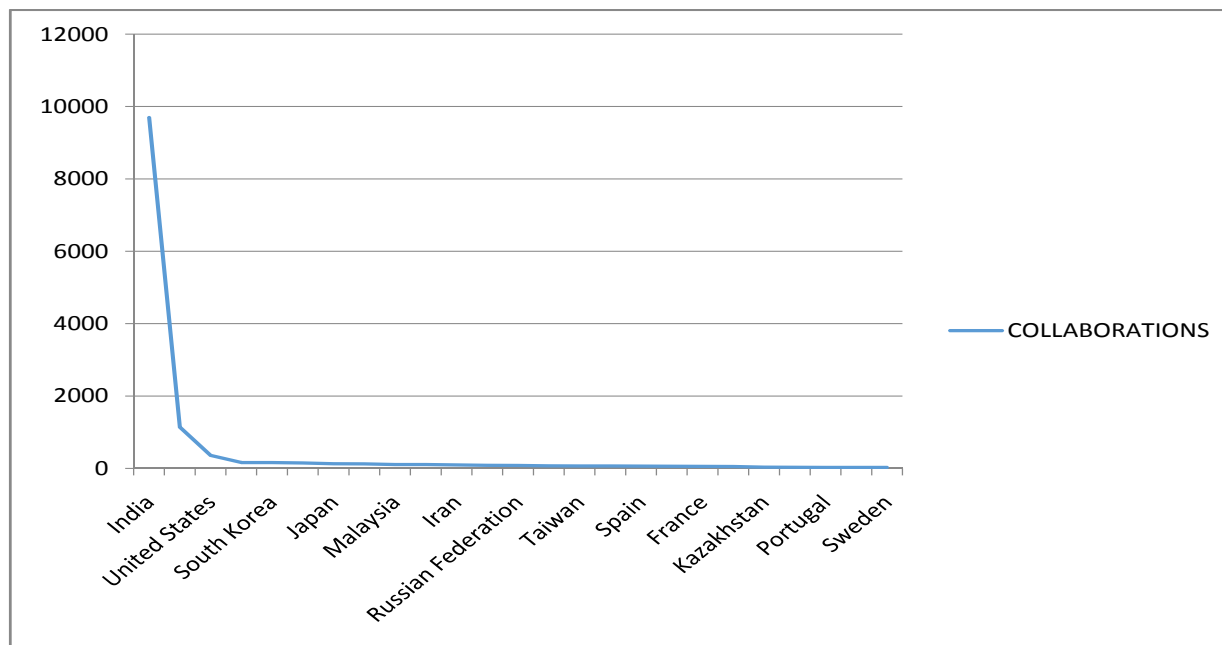


Table-9: Top 25 Collaborating Countries

S. No.	Collaborating Countries	Collaborations
1.	India	9694
2.	Saudi Arabia	1141
3.	United States	357
4.	South Africa	160
5.	South Korea	160
6.	Egypt	152
7.	Japan	130
8.	China	124
9.	Malaysia	106
10.	United Kingdom	106
11.	Iran	95
12.	Germany	85

13.	Russian Federation	83
14.	Canada	70
15.	Taiwan	67
16.	Australia	66
17.	Spain	62
18.	Iraq	60
19.	France	55
20.	Italy	53
21.	Kazakhstan	35
22.	United Arab Emirates	31
23.	Portugal	28
24.	Greece	27
25.	Sweden	27
26.		

Fig. 5: Top 25 Collaborating Countries



a large part of the globe. Saudi Arabia with 1141 collaborating authors constitutes the highest number with constituting 11.76 percent of total 9698 research papers. Significantly, Saudi Arabia is followed by USA with 357 papers authored in collaboration. In yet another significant and interesting Israel and Pakistan have also been found as collaborating authors with 25 and 23 papers respectively, constituting 0.25 ^ 0.23 percent of total research output.

In terms of analysis of institutional affiliation of collaborating authors, Aligarh Muslim University emerges at the top with 492 papers (5.07 %) followed

by King Saud University and University of Delhi as 433 and 406 papers published in collaboration constituting 4.46 & 4.18 percent respectively. Total number collaborating institutions are 168 with Baba Ghulam Shah Badshah University at the bottom with 13 papers.

If we analyse the types of documents, articles constitutes the largest section with 7962, (82 percent, followed by conference papers with 1451, (14.96 %) Review with 523 (5.3 %) and Book Chapter with 438 numbers (4.51 %). The number of retracted papers is only 5 which is almost negligible.

Fig. 5: Top 25 Collaborating Institutions

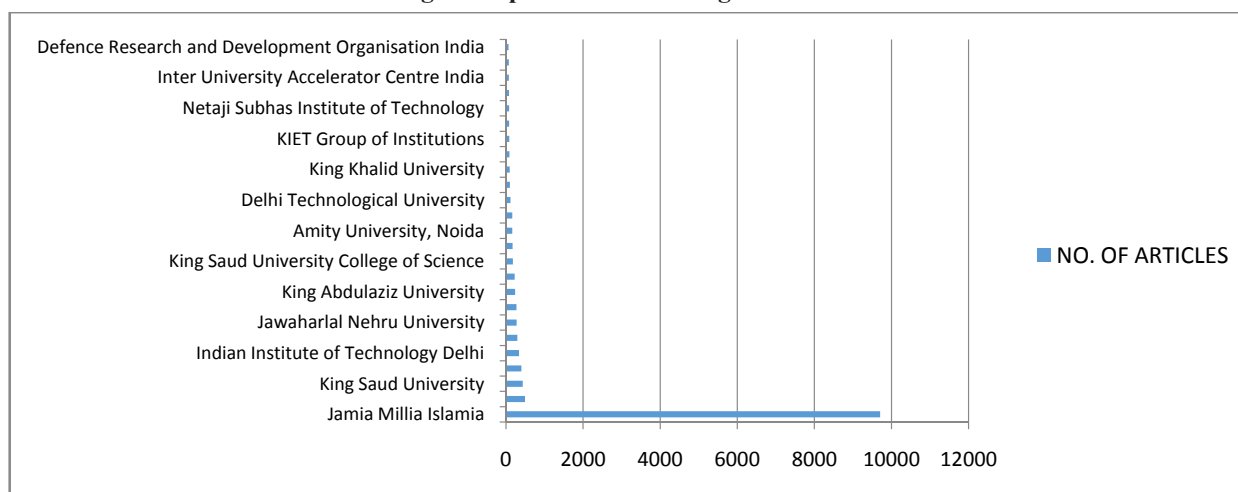


Table-10: Top 25 Collaborating Institutions

S. No.	Institutions	No. of Articles
1.	Jamia Millia Islamia	9706
2.	Aligarh Muslim University	492
3.	King Saud University	433
4.	University of Delhi	401
5.	Indian Institute of Technology Delhi	336
6.	Centre for Theoretical Physics, New Delhi	295
7.	Jawaharlal Nehru University	275
8.	National Physical Laboratory India	273
9.	King Abdulaziz University	236
10.	Jamia Hamdard	224
11.	King Saud University College of Science	177
12.	Council of Scientific and Industrial Research India	169
13.	Amity University, Noida	163
14.	All India Institute of Medical Sciences, New Delhi	162
15.	Delhi Technological University	117
16.	Taibah University	100
17.	King Khalid University	96
18.	Indian Institute of Technology Roorkee	90
19.	KIET Group of Institutions	85
20.	King Saud University College of Pharmacy	80
21.	Netaji Subhas Institute of Technology	80
22.	Jazan University	79
23.	Inter University Accelerator Centre India	74
24.	University of KwaZulu-Natal	74
25.	Defence Research and Development Organisation India	65

Findings:

Data analysis and interpretation of output of last 100 years of Jamia Millia Islamia has yielded following important findings:

- With total number of publications being 9698

Table-11: Document Types

S. No.	Document Types	No. of Articles
1.	Article	7062
2.	Conference Paper	1451
3.	Review	523
4.	Book Chapter	438
5.	Letter	60
6.	Editorial	49
7.	Book	48
8.	Erratum	30
9.	Note	24
10.	Short Survey	9
11.	Data Paper	5
12.	Retracted	5
13.	Undefined	2

as on February 28, 2021, research output of JMI has shown consistent improvement since 1971. During last 6-7 years, the research output has shown phenomenal increase. It was in year 2014 that number of papers published crossed 500 and in year 2020 it reached 1298, constituting 13 percent of overall output.

- The total number of citations which have been generated since 1971 is 1,29,067. The average citation per paper comes to more than 13. It can also be observed from table that on year to year basis, the number of citations has steadily gone up in absolute terms. The highest number of citations i.e 24759 has taken place in year 2020 constituting 19.18 percent of total citations.
- h-index of Jamia Millia Islamia is 117 (Of the 9698 documents considered for the h-index, 117 have been cited at least 117 times.)
- Total number of journals in which 9698 papers have been published is 157 which comes to 61 papers each on an average. International Journal of Biological Macromolecules is the top most journal with 116 research papers, followed by Advances In Intelligent Systems and Computing and AJP Conference Proceedings with 94 and 95 papers each. Top 25 journals carry 1349 papers which constitutes 13.9 percent of total research output. The topmost journal, International Journal of Biological Macromolecules carried 116 papers covering 1.19 percent of total output.

- Twenty percent papers have been published in open access journals in almost all categories. Highest number of open access journals have been published in green category of open access which are freely available.
- The total number of authors who have contributed total research output of 9698 papers since year 1971 is 2770. While analysing data for top authors, it has been found that top 6 authors have contributed more than 200 research publications each amounting to 1426 and constituting 1470 percent of total output.
- Total number of authors contributing more than 100 papers is 17. Top 25 authors have contributed 3553 papers in all which constitutes 36.6 percent of total output. This indicates that there is substantial concentration of excellence in few pockets.
- With 2690 papers, Engineering is highest contributor, constituting 14.4 percent, followed by Physics and Astronomy with total number of papers being 2006 constituting 10.7 percent. Data further reveals that top 6 subjects have contributed 11249 Papers constituting percent of total 9698 papers since inception. Out of total 35 subjects, The least number of i.e. 16, have been published in the veterinary science. A large percentage of paper amounting to 22 has been contributed by “other” subjects.
- An analysis of funding data of Jamia Millia Islamia reveals that a total number of 167 funding agencies have been involved in providing research funds to total number of 3854 papers which constitutes a whopping 39.74 percent of total research output. It indicates availability of strong funding opportunities.
- The largest source of research funding is University Grants Commission, including University Grants Committee with 809 research papers which constitutes 8.34 percent of total 9698 papers and 20.99 of total 3854 public funded papers, followed by ICMR and DST.
- Universities of Saudi Arabia like King Saud University, King Abdul Aziz University, King Khalid University have also been good source of funding with total papers being 179 papers, constituting 4.6 percent of total number of 3854 public funded papers. This must be considered as a unique feature of institutional-level collaboration.
- The number of total collaborating countries for entire JMI research output is 113 which covers a large part of the globe. Saudi Arabia with 1141 collaborating authors constitutes the highest number with constituting 11.76 percent of total 9698 research papers. Significantly, Saudi Arabia is followed by USA with 357 papers authored in collaboration. In yet another significant and interesting Israel and Pakistan have also been found as collaborating authors with 25 and 23 papers respectively, constituting 0.25 & 0.23 percent of total research output.
- In terms of analysis of institutional affiliation of collaborating authors, Aligarh Muslim University emerges at the top with 492 papers (5.07 %) followed by King Saud University and University of Delhi as 433 and 406 papers published in collaboration constituting 4.46 & 4.18 percent respectively. Total number collaborating institutions are 168 with Baba Ghulam Shah Badshah University at the bottom with 13 papers.
- An analyse the types of documents, articles constitutes the largest section with 7962, (82 percent, followed by conference papers with 1451, (14.96 %) Review with 523 (5.3 %) and Book Chapter with 438 numbers (4.51 %). The number of retracted papers is only 5 which is almost negligible.

Conclusion:

On the basis of above data analysis and findings, it can be concluded that research profile of Jamia Millia Islamia has improved substantially during last 5 years and is reflected in the improved national and international ranking.

Though, its two contemporary institutions, both Aligarh Muslim University with 21,312 papers and University of Delhi with 52,566 papers are way ahead in terms of research output but this difference can be normalized if we take into account fact that JMI became Central University in year 1988 only and research activities matured quite late. In terms of requisite funding & support.

Yet another inference which can be drawn from above analysis is that a large amount of research excellence is restricted to few areas and remaining faculties and departments have to strengthen their research contribution reasonably in coming years.

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Reflections of Societal Concerns during COVID-19 Pandemic: A Case Study of Sagar City, Madhya Pradesh

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Social work can be traced back to the birth of human civilization, involved with disaster relief at the time of occurrence of disaster, natural calamities or war since it concerns with the physical environment of the people. The environment includes the physical, biological and social factors influencing the welfare of individuals, groups and populations. Social work begins voluntarily by a group or individual in the informal manner which over the time becomes converted into formalised organization in the society. Non-Government Organizations (NGOs), Charitable Trusts and Social Service organizations gained prominence with emergence of welfare state which are also partially aided and controlled by the government since these are involved by the government in welfare programmes. The role of these organizations in developmental initiative was emphasized by the several committees and commissions like Balwant Rai Mehta Committee (1957) recommended for more emphasis on NGOs for developmental efforts in rural areas. Dhebar Commission (1961) also opined to assign important developmental work to non-official organisations. In 1973, Report of the Committee on Panchayat Raj Institutions appreciated the role of voluntary organizations for rural and inferior areas development. The NGOs have effective network at regional and local level and have proximity with the local culture, they can deliver services in local units, can reach to the poorest and vulnerable section of the society and can provide better perspectives for formulation and implementation of welfare policies and programmes.

COVID-19 or corona virus disease is an infectious disease caused by newly discovered corona virus which was first traced in Wuhan city of China in December 2019 and it has now become a challenge for whole world. World Health Organization (WHO) has declared it a pandemic since it had become the reason for death of lakhs of people over the globe. In India, the first case of COVID-19 was traced in

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January 2020 and the number of total confirmed cases of COVID-19 and total deaths due to this disease had reached to 5,66,840 and 16,893 respectively in the country till 30th June 2020. The government immediately became concerned with the alarming situation and asked for 14 hours janta curfew on 22 March 2020 which was continued for two more days and complete lockdown was implemented on 24 March 2020 which has been extended in many phases as per the requirement. The disease is infectious and rapidly transmitting from one person to other and making a chain of infection which can only be broken by social distancing (physical distance among people), forcing the government to impose lockdown. Various problems emerged due to lockdown like supply of goods for daily need, financial deficit due to unavailability of work especially for daily wage earners and fear from the disease etc. The anxiety of food insecurity, livelihood insecurity and health insecurity was dominating over their mental horizon. Government personnel and medical staffs are playing their role in handling the situation but people cooperation is also necessary to achieve the goal. To seek people's cooperation it is necessary to secure their food and livelihood and assurance of their secure health (USAID, 2011). Social workers can play an important role in making people aware with the situation, to seek their cooperation by convincing them, to ensure the availability of basic things and to cooperate with the administrative, legal, social and medical personnel to overcome with the situation since it has the proximity with locale and the people. Taking into account it has been tried to assess the efforts of social organizations in Sagar city of Madhya Pradesh.

Objective and Method

The paper attempts to study as how the social workers handled the situations arising due to COVID-19 outbreak and subsequent lockdown in Sagar city of Madhya Pradesh? What were the possibilities to increase their involvement in handling the situation? What were their observations about the

situation and what possible steps might have been taken to overcome with the situations? And what may be the roadmap for post-covid scenario? For this, a total of 10 social work organizations/trust/institutions were interviewed telephonically with the use of structured schedule containing fifteen questions as given in the Table 1.

Conclusive Discussion

The pandemic covid-19 has become a problem for whole world and it has raised a question on the meaning of development that what is actual

development?, whose development it is?, and what type of development is this? At what cost can development be done? Such questions have to be reinterpreted. Corona virus, whether created by man or naturally evolved, is undoubtedly a threat for the human existence. It is harming the mankind and also threatening human for smooth survival which is impacting mankind socially, economically, emotionally and psychologically. It has created health insecurity among people on one hand and implementation of lockdown/curfew has brought livelihood and food insecurity on the other.

Table 1: Responses of NGOs/Social Organizations/Institutions

S.No	Efforts/ Observation/ View/ Plans etc.	Social Work Organisation/Trust/Institutions									
		Arya Samaj	Bhartiya Shikshan Mandal	Gayatri Trust	Sagar Fight Corona	Sewa Bharti	Shriram Sewa Samiti	Seetaram Rasoi	Subharambh Foundation	Swami Vivekanand Vishwavidyalaya Sagar	Vichar Sanstha
1	Year of Establishment	1906	1959	2001	2015-16	2002	1997	2003	2019	2012	2003
2	No. of Members/ Volunteers	22	630-840	25	200	100	170	70	10	6250	250
3	Thrust Area	Social Development	Indianization of Education.	Human Welfare	Helping affected people	To help the subjugated people	Serving people	Meal for old-age persons	Research projects	Nourishment of the students' brain for the sake of society, nation and earth	Human welfare and ideological development
4	Efforts while COVID-19	Distribution of cooked food packets and ration	Helping 50 identified affected families.	Distribution of food, ration, mask and sanitizer.	Distribution of cooked food and ration kits. Keep watch on black marketing.	Awareness campaign and distribution of sanitizer, mask and basic goods.	Coordination and cooperation with Sarokar Samiti.	Distribution of cooked food.	Distribution of ration kits.	Providing shelter for quarantine and arrangements in the shelter.	Distribution of ration kits, mask and sanitizer
5	Financial Aid	Self generated	Palak Parivar & members donation	Members & people donation	Donation from people	Donation from members	Public donation	Donation by the people	Donation from public	Self-generated	Self-generated
6	Source of Inspiration	Values of organization	Desire for Social Works	Ideology of the Trust	Personal ideology for humanity	Through parental socialization	Humanity	Drive for serving the society	Social work	Social service	Sanstha ideology
7	Cooperation from administration	Permission	Permission	Permission	None	Permission	Permission	Permission	None	Permission	Permission
8	Cooperation from Individual	Donation & physical help	Donation	Donation of food, ration and other essentials.	Donated food and ration kits.	Goods and money donation	Donation of cooked food, ration kits and cash.	People bore expenditure in cooking food.	Donation of cash and ration	Physical help	Donation
9	Awareness Programme	No	Counselling	Counselling	Counselling	Campaign	Counselling	No	Campaign	Awareness rally	No
10	Problems of Citizens	Unemployment for daily wage earners.	Financial crisis for poor	Fear for covid-19	Psychological pressure	Fear for situation	Scarcity in supply of ration	Financial crisis	Financial crisis	Unemployment and poor supply of basic needs	Problem of basic need supply
11	Suggestions	Affected people should be helped.	Daily wage earners should be helped financially.	People fear should be removed	People should cooperate with the administration	Public should cooperate with the administration	Need to strengthen the government policy	Affected people should be helped.	People should follow the precautions	People should follow the social distancing and lockdown	Administration should work with NGOs
12	Difficulties in Work	None	None	None	None	Communication with affected people	Scarcity of resource	None	Public disobey of social distancing	None	No
13	Social Responsibility of Individual	Follow social distancing	Help poor	Show humanity towards needy.	Help affected people	Cooperation with administration	Helping affected people	Helping affected people	Cooperation with administration and social organizations	Mutual cooperation among people	Follow the guidelines of administration
14	Post-Crisis Plan	Relief work	Relief Work	Huge yagya	No	Awareness campaign	As per requirement	Feeding hungry people	Social Work	Relief work	No
15	Remark	Situation is result of over exploitation of nature	People should cooperate with the administration in every aspects.	All the organization should work under one umbrella	We should balance the nature.	There should be mutual cooperation between administration and civil society.	People cooperation is necessary to fight with Corona	We should accommodate ourselves with the situation.	None	All charitable organizations and NGOs should work with mutual communication	People should perform their social responsibility

Enactment of Janta Curfew in Sagar city and subsequently complete lockdown has drastically changed the life of common people. The problem among people can be traced by categorizing people in four categories. Firstly, upper class people those having enough economic savings and secure livelihood and thus can survive without any problem in this situation. Secondly those people whose livelihood is secured but supply of food materials or ration is hindered so they are struggling for regular supply of ration. Thirdly, the labour class or daily wage earners those are hand to mouth meaning they have to earn daily to procure food for their family. In total lockdown situation, they are facing livelihood insecurity which is culminating into food insecurity. Fourthly, unemployed persons like beggars, saints and such people who depend on other people for their food. In such a difficult situation, their food providers are unable to deliver food to them.

Social organizations and NGOs came forward in such difficult situation and played important role in helping people. Food packets, ration, face mask and sanitizer etc. were provided and distributed by social organizations and NGOs. Awareness programs were also carried out to make people aware with Covid-19 so that they can be calm at this testing time and can cooperate with the administration. Social distancing was maintained among the citizen. The quantum of the social work performed by of social organization and NGOs in this difficult situation is both latent and manifest as propounded by R.K. Merton (1949). The manifest function is that all necessary services are being delivered to the door of the people and with regular supply of basic needs people are not going panic. This prevented them from being deviant implying that this is a latent function of their work. Basic need theory also suggests that fundamental need of everyone should be fulfilled for social development.

The role played by social organizations and NGOs at the time of Covid-19 pandemic suggested that:

- Social consciousness and community feeling can be made strong in the society through social organization and NGOs.
- Organization or individual indulged in social work can be a role model for the society.

- Everyone requires help at the time of emergency so help should be extended without any prejudice.
- Problem is expected in post-pandemic period so role of social organizations and NGOs should be strengthened.
- All organizations should be united in a single platform for social work to increase the level of success.

Social organization and NGOs are playing their vital role at the time of crisis so these organizations should be strengthened. According to Crisis Management Theory, there are three stages of crisis management- pre-crisis, during crisis and post-crisis response. Role of NGOs and other social organizations is important in all the stages. Members of these organization should be trained in management of crisis so that they can plan and act well at any emergency. Youth of the society can be motivated to indulge in social work so that pools of good social workers can be created for future.

Socialization or social learning of the people should focus on hygienic, physical distance and social responsibility. Traditional practices and dietary system aimed at enhancing the immunity should become new normal to handle Covid-19 like situations. If traditional life-style with customization to suit the present situation is embraced by the famous personalities, it can be popularized in very short time because elite culture becomes popular culture.

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(contd. from pg. 6)

and young minds. We should think about creating a task force preparation exercise that can be repeated over and over again at the time of need now, and in the future.

Government and People – people Can Act Faster!

The question naturally comes is why should the government not do this? Well, if anything, history tells us that government machineries are generally slow to react (if willing and able). The recent Intergovernmental Panel on Climate Change (IPCC) report captures this response reaction and possible remedies to climate change (which is applicable for COVID response very well). Harmonizing local, regional and global governance structures could provide an over arching policy framework for action and adaptation (Carlisle & Gruby, 2019; Hamilton & Lubell, 2019; Mewhirter et al., 2018). This polycentric governance idea (multiple centers of decision making with some autonomy) can play a very positive role for combating the effect of COVID and for vaccination in a rapid pace for the whole country.

And, this is where the local universities and schools can play a big role in the next 2 years. They can mobilize student volunteers and teachers for effective vaccination and providing health guidance (masking, social distancing at the same time being productive). They can help train

students and teachers just to do the vaccination in a very short time (nothing major – not a full-fledged nurse). So, it is good to have people trained and a process defined as soon as possible which will benefit the local population and they don't need to depend on the government machinery except for provision of vaccine, funding and the benefit of global connection.

Be self-sufficient from a local community perspective. Universities can help locally and globally; NGOs and others can help too.

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Amalgamation of Learning and Education

Ram Nath Kovind, Hon'ble President of India delivered the Convocation Address at the 16th Annual Convocation of Thiruvalluvar University, Vellore on March 10, 2021. He said, "It is a matter of great satisfaction that India's higher education system has expanded to reach out to serve the rural and marginalised sections. In the process, it has become the third largest education system in the world. However, there is no room for complacency, and we have to catch up for the lost time if we aspire to scale greater heights." Excerpts

I feel happy to be with you all in the 16th annual convocation of the Thiruvalluvar University.] It has always been my pleasure to come amid young scholars like you all. My heartiest congratulations to all students being awarded degrees today.

This university is named after one of the greatest saint-poets and thinkers who is revered for his eternal messages for the welfare of entire humanity. Let us salute the memory of Thiruvalluvar. Let us also resolve to imbibe his noble teachings. Let his kural be integral parts of your education and life.

I feel proud to stand on this soil that witnessed one of the first challenges to the might of the East India Company. The Vellore Sepoy uprising of 1806 was one of the precursors to our Independence movement. It is my great privilege to be the chief guest of the 16th annual convocation of the Thiruvalluvar University.

Each time I visit Tamil Nadu, I find myself connected to the great tradition of excellence achieved here. As fertile in agriculture as in Literature, Tamil Nadu is a unique place where one of the earliest engineering marvels, the Grand Anicut, one of the most ancient dams and irrigation systems in the world exists. The dam constructed by the great Cholas on Kaveri River in Thanjavur, is a testimony to the engineering excellence in our society during those ancient times. Knowledge and scientific temper appear to be intrinsic traits of people in this region. That is why great mathematicians and scientists like S. Ramanujan, the Nobel Laureates C.V. Raman and S. Chandrashekar came from this region. The list of luminaries from this region is endless.

It is worth mentioning that the only Indian Governor General, C. Rajgopalachari and two of my illustrious predecessors R. Venkataraman and Dr. A.P.J. Abdul Kalam are great sons of this soil.

Dear Students, The wise words of Thiruvalluvar serve as your motto: which means, "The learned alone have eyes on face, whereas the ignorant have two sores of disgrace."

In a short span of about two decades since it was established, your university has emerged as one of the prestigious universities in the country. It has blossomed into a premier institution, imparting quality education to students, many of whom are from economically and educationally backward regions. This also includes women who come from socially challenged sections.

I am happy to know that 65 percent of the students in this university are women. Our daughters and sisters are breaking barriers and achieving success in all fields. This is clear from the fact that today out of 66 students conferred with gold medals for academic excellence, 55 of them are women students. Similarly, doctorate degree has been conferred upon 217 scholars today of which 100 are women candidates. Out of the 10 students who came on the stage to receive their medals and degrees, I observed that nine were girls i.e. 90 percent of medals given today. This reflects bright future of India. When the women of our country are educated, it not only secures their own future but also of the entire country. I am sure that under the mentorship of Vice Chancellor Dr. Thamarai Selvi Somasundaram, this university will achieve greater heights.

It is a matter of great satisfaction that India's higher education system has expanded to reach out to serve the rural and marginalised sections. In the process, it has become the third largest education system in the world. However, there is no room for complacency, and we have to catch up for the lost time if we aspire to scale greater heights.

India had a rich system of education prior to the

British rule. Gandhiji described it as a “beautiful tree” that was cut down by what the British rulers called reforms. We are yet to fully recover from those drastic changes and recover our legacy.

Ladies and gentlemen, The National Education Policy 2020 is a well-planned and decisive step in that direction. It has a holistic vision of transforming the way children and youth will be educated to make learning a part of personal development while also serving the needs of society. To this end, it brings together the best of our ancient heritage and the best of the modern learning. It gives emphasis on moral education and awareness of Indian culture. A student coming out of such a system will have a higher degree of self-confidence and will also be better equipped to meet the challenges of the future.

Moreover, the new policy also takes into account what is needed to build a prosperous and self-reliant nation. For this, the higher education system must enable equity, expertise and empowerment. The National Education Policy seeks to achieve these objectives. As Sir C.V. Raman had put it, higher education institutions should lead the nation towards knowledge expansion and economic growth. That precisely is the thrust of the new policy.

Dear Students, It’s a proud moment in your life today. You are receiving your hard-earned degrees. My congratulations to you all – and also to your parents and teachers who have made this journey possible for you. Indeed, it is an auspicious beginning of your life in society. Hereafter you have to climb up the ladder of success in your life on the strength of your own choices, efforts and wisdom. Your education will open up plenty of opportunities for you. Many of you will pursue higher studies. Learning is, of course, a life-long process. The more we learn, the more we realise the extent of our ignorance. There is a Tamil saying which puts it beautifully:

Our learning is akin to a hand full of sand while that we need to learn is as wide as the world.

Also, please remember that educational qualifications alone will not make you a good son or daughter, or a good neighbour. Your good deeds will fetch you a good name in the society. You should keep in mind an important difference: What we learn from books is learning, while what we learn from life is wisdom.

Your choices in the career ahead should be guided by your skills and aptitude. I will also urge you to keep our Motherland in mind. You should strive to contribute to the growth and development of our nation as a token of gratitude not only to your alma-mater but also to our Motherland. I am confident that you will excel as duty-conscious citizens of India.

We all have the solemn responsibility to do our part in making India shine on the world stage. More importantly, we also have the opportunity to do so. Our country is in a unique position to offer crucial lessons to the world in how to live together peacefully and how to nurture nature. As India achieves more economic growth and more equity, the world is eagerly turning to us to learn more. Each of you has the capacity to write the next chapter in this India saga. All that is needed is the right aspiration. When you find yourself confused in that regard, Gandhiji’s advice will brighten your path. He had said: “Emphasis laid on the principle of spending every minute of one’s life usefully is the best education for citizenship.”

Ladies and Gentlemen, On this occasion, I also convey my appreciation to all the family members of the students present here. I also appreciate the faculty members and non-teaching staff of the university, for their important role and major contribution in shaping these young minds to attain excellence in their respective fields.

I wish all of you a bright future. My best wishes are with you in all your future endeavours.

Thank you,
Jai Hind!

Capacity Building Workshop on Accreditation

A seven-day Online Capacity Building Workshop on 'Accreditation: Different Aspects and Key Points' was organised by the Internal Quality Assurance Cell, Hindu Kanya College, Kapurthala, Punjab, recently. During Inaugural Function, in his Keynote Address, Prof. MM Goel, former Vice Chancellor, Professor and a known Needonomist from Kurukshetra expressed that all have to develop the power of observation as art by devoting time on what, why, when, where for whom to work without worries and take small but significant steps instead of big-bang approach for NAAC accreditation. The SWOT analysis of an institution with best practices adopted can help to know the performance level, said Prof. Goel. We need to change our perception in the society as teachers called national assets on two days only including Teachers' Day and National Education Day and opined that continuous introspection on the role of teachers in the society throughout the year, believed Prof. Goel. He stressed on the use of Google form for data collection for feedback from the stakeholders including students and teachers with alertness, awakening, and awareness of the misuses of artificial intelligence. Dr B Anirudhan, Principal, Nehru Arts and Science College, Coimbatore, Tamil Nadu spoke on the Scope of Curricular Aspects in Accreditation and how to score maximum in this by affiliated colleges. Dr Anirudhan cited the need of bringing transparency and clarity in handling the curriculum aspects of the colleges. "It is the sole criteria which can help to score 90% weightage to most of the colleges. NAAC only expect proper documentation of the claims made by colleges and uploading of relevant information on the websites," he said. Dr Anirudhan also cited the importance of Energy Audit, Green Audit and Hygiene Audit for colleges. It can certainly acclaim applauds and good scores from assessors, he said. He also cited the need of daily updates on college's website. He also encouraged teachers to offer value added courses relating to their subject to students in consultation with market experts.

Prof. Ujjwal K Chowdhury, Pro-Vice Chancellor, ADMAS University, Kolkata stated that pandemic has created many learning opportunities for teaching community of the country. "The days of traditional teaching methods are over now. In future, it is going

to be digitised teaching or blending teaching and for that teachers have to be verse with technology and various software applications," he said. He also gave tips and techniques to all participants to make their teaching more effective and innovative. Making emotional as well as professional connect with the students, who are more or less not worried about their future, is the biggest challenge for all teaches, he added. Prof Chowdhury also put light on the different techniques of evaluation, that can be used by educational institutions to adjudge and check students. He expressed concern over non-seriousness of different governments in allocating budget for education. "It is on their least priority and a common man should raise this issue with their leaders at different platforms," he said. Dr B K Virk, Principal, MR Government College, Fazilka stated the need and importance of SWOT (Strengths, Weaknesses, Opportunities and Threats) Analysis for every institution. Addressing the gathering he said, strengths and weaknesses are internal to any organisation but threats and opportunities are external. Every institution should invest in conducting effective SWOT analysis to survive in the market. Dr. Singh cited the examples of Nokia and Motorola, who were once market leaders in mobile phone market. After the arrival of smartphones, these brands failed to survive, he said, adding that, effective and unbiased SWOT analysis can help institutions to cope up with the market changes. Dr. Virk also suggested that SWOT analysis should be a regular feature for organisations and managements should take the help of expertise from the markets to make it more effective and purposeful. He also discussed the methodology, key-factors to be kept in mind while doing SWOT analysis and dos and don'ts with all participants.

Dr Ajay Lakhanpal, Former Principal, PSR Government College, Baijnath, Kangra, Himachal Pradesh highlighted the need and importance of budgetary provisions for research and extension in colleges. It shows research culture of the college, he said "Colleges should come forward with incentives to promote research and extension activities. Whatever colleges do in extension activities, should be community oriented and must have benefits for society," he said. Dr Lakhanpal also suggested colleges to note down

every small effort for records and try to bring improvements in these efforts with pass of time. He also answered queries raised by participants relating to research, innovation and extension activities.

Prof. Yogender Verma, Pro-Vice Chancellor, Central University of Himachal Pradesh, in his address, cited the need of sustainable quality and how it can be achieved. "Only quality can bring distinctiveness to any educational institute for achieving quality, one has to put on consistent efforts," he said. Prof. Verma put light on different issues relating to seventh criteria of NAAC Self Study Report for affiliated colleges and highlighted the keypoints which can help to bring good weightage. He also appealed all colleges to adopt for Green Auditing, Energy Auditing, Rain-Water harvesting, E-Waste Management and generating energy through alternative resources. NAAC has chalked out parameters so intelligently that nobody can fake the data and activities now, he said adding that, one has to generate proper evidences to substantiate their claims.

On the concluding day, Principal of Hindu Kanya College, the host college, Dr Archana Garg, said that all colleges are required to setup effective support services and systems for benefits of the students. "These are the real backbone of colleges and if maintained and documented effectively, can attract more students as well as good score from ranking agencies," she said. In her address, Dr. Garg suggested the colleges to make their services related systems more transparent and accessible through portals. If done so, students can be benefitted in large numbers from these services, she further said, "Every college should have proper track of all those who have been educated from the college. Constant touch with them can help effective and beneficial contribution from alumni for working and finance of college." Dr. Garg also gave tips on different key points relating to Criteria-5 of the Self Study Report to be submitted by colleges to NAAC for accreditation. Proceedings of each day of the workshop, started with a different musical prayer, prepared by students, faculty members and alumni member. Through each prayer, it was prayed to keep people healthy, safe and cheerful in the stressful times of pandemic. The event was coordinated by Dr. Kulwinder Kaur and Dr. Anupam Sabharwal and Er. Inderjit Balcompered the event.

Bio Prayag: Workshop Cum Lecture Series

A three-day Workshop Cum Lecture Series on 'Innovations in Biotechnology: Transforming Societies and Journey towards AtmaNirbhar Bharat' is being organised by the Department of Biotechnology, Motilal Nehru National Institute of Technology Allahabad, Uttar Pradesh on September 24-26, 2021. The event will include various eminent speakers from academics, industry, startups, govt. agencies including entrepreneurs and other areas across the world to share their thoughts on the diverse array of disciplines/domains.

The BioPrayag Lecture Series is being initiated as an avenue to invite experienced, accomplished, eminent and distinguished people to provide new perspectives, opportunities and encourage thought-provoking discussions and sow the seeds for reflective thinking through inspiring stories of leadership, dedication and success. Bio Prayag also provides platform for other opportunities for participants to meet, work, learn and engage with professionals in the field. The lecture series aims to provide a platform for an effective science & technology communication, outreach, create awareness, offer training, much-needed skills and educate various stakeholders on current and relevant topics. The topics of the event are:

- Innovation, Startups, Intellectual Property Rights and Technology Transfer.
- Agriculture, Energy & Environmental Technologies and Sustainable solutions: A Biotechnological viewpoint
- Bioinformatics, AI & Big Data.
- Bioresources and Sustainable Development, Microbial products, Bioprocess and Product Development.
- Nanotechnology, Genome Engineering technologies and other tools.

For further details, contact Convenor, Prof. Shivesh Sharma, Department of Biotechnology, Motilal Nehru National Institute of Technology Allahabad, Prayagraj, Allahabad-211004 (UP), Phone: 0532-2271232, E-mail: bioprayag@gmail.com. For updates, log on to: www.bioprayag.in.

Online Short Term Course on GIS

A five-day Online Short Term Course on 'Geographic Information System for Architecture, Engineering and Construction' is being organised by the Department of Civil Engineering National

Institute of Technology, Hamirpur, Himachal Pradesh during May 31- June 04, 2021. The primary aim of this e-STC is to enhance technical and professional competency of the participant in the field of GIS. Apart from theory classes on the basics of GIS, the course has been planned to cover the applications of GIS in the field of architecture, engineering and construction. The faculty members, scientists, research scholars, PG and UG students and industrial personnel may participate in the course.

A Geographic Information System is a multicomponent environment used to create, manage, visualize and analyze data and its spatial counterpart. It's important to note that most datasets encounter in our lifetime may be assigned a spatial location whether on the earth's surface or within some arbitrary coordinate system. Hence, in essence, any dataset may be represented in a GIS. Many GIS software are available – both commercial and open source. Among the widely used GIS software, two most popular software are ArcGIS and QGIS. ArcGIS was developed by Environmental Systems and Research Institute (ESRI). ArcGIS desktop environment encompasses a suite of applications which include ArcMap, ArcCatalog, ArcScene and ArcGlobe. Very capable open source (free) GIS software is QGIS. It encompasses most of the functionality included in ArcGIS. QGIS is a wonderful choice given its multiplatform support. Built into the current versions of QGIS are functions from open source software: GRASS. GRASS has been around since the 1980's and has many advanced GIS data manipulation functions however, its use is not as intuitive as that of QGIS or ArcGIS (hence the preferred QGIS alternative). Main focus of the course will be on application of GIS in the area of architecture, engineering, construction, and planning decision making. There will be hands-on training on popular GIS software- QGIS and ArcGIS during the afternoon sessions. The Topics of the Course are:

- Coordinate Systems.
- Vector and Raster Data Models.
- Attribute and Spatial Data Input and Management.
- Application of GIS in Planning and Decision Making.
- Application of GIS in Engineering and Construction.
- Hands-on Training on QGIS.
- Hands-on Training on ArcGIS.

For further details, contact Coordinators, Dr. Sunil Sharma/Dr. V K Bansal/ Dr. Neetu Kapoor, Department of Civil Engineering National Institute of Technology, Hamirpur Himachal Pradesh-177005, Mobile:+91-9459117100/+91-9418023387/+91-9418217161, E-mail: sunils@nith.ac.in/ vkb@nith.ac.in/neetu@nith.ac.in. For updates, log on to:<https://nith.ac.in/>

Online Faculty Development Programme

A ten-day Online Faculty Development Programme on 'Metaheuristic Techniques for Engineering Applications' is being organised by Kakatiya Institute of Technology and Science, Warangal in association with E & ICT Academy, NIT Warangal during June 21-31, 2021. The programme is sponsored by Ministry of Electronics and Information Technology, Govt of India. The Faculty of Engineering Colleges, MCA Colleges and other allied disciplines in India may participate in the programme. The Industry personnel working in the concerned /allied discipline may also attend the event. The Faculty Development Programme is devoted to address the need to enhance the knowledge about the latest development pertaining to Metaheuristic Techniques for Engineering Applications. The Major Contents of the programme are :

- Introduction to Metaheuristic Approach.
- Genetic Algorithm.
- Differential Evolution Algorithm.
- Particle Swarm Optimization Algorithm.
- Ant Colony Optimization.
- Teaching Learning Algorithm.
- Rao Algorithm.
- Jaya Algorithm.
- Simulated Annealing Algorithm.
- Fuzzy Logic.
- Neural Networks.
- Hybrid Intelligent Systems.
- Constraint Optimization Technique \
- Case Studies on Metaheuristic Approach.

For further details, contact Coordinators S Naga Raju, Associate Professor OR Dr. Manjubala Bisi, Assistant Professor, Department of CSE, Kakatiya Institute of Technology & Science, Warangal– 501015, Telangana, Phone No: 9885566578,9502940360. For updates, log on to: <https://nitw.ac.in/eict> □

THESES OF THE MONTH

SCIENCE & TECHNOLOGY

A List of doctoral theses accepted by Indian Universities
(Notifications received in AIU during the month of March-April, 2021)

BIOLOGICAL SCIENCES

Biotechnology

1. Shere, Priti Hanmantrao. **Biogenic synthesis and evaluation of potential metal nanoparticles for targeted drug delivery in liver cancer.** Department of Biotechnology, Swami Ramanand Teerth Marathwada University, Nanded.

Botany

1. Dar, Saleem. **Understanding the comparative flavor differentiation in natural mango (*Mangifera indica L.*) populations and alphonso (cv.).** (Dr. Ashok P. Giri), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

Life Sciences

1. Acharya, Nirbhik. **Characterization of the nature and role of the dry molten globule-like intermediate states during protein folding and misfolding reactions.** (Dr. Santosh Kumar Jha), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

2. Anand, Ajay. **Studies of antidysglycemic activities of traditional plant based food and their phytometabolomic analysis.** (Dr. Ashok Kumar Tiwari), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

3. Boral, Debjyoti. **A detailed structural study of microbial membrane-intrinsic prenyltransferase and acyltransferase belonging to two dynamic superfamilies.** (Dr. V. Koteswara Rao), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

4. Chirmade, Tejas. **Molecular insights into high alpha-linolenic acid accumulation in *Linum usitatissimum*.** (Dr. Narendra Kadoo), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

5. Gheware, Atish Prabhakar. **Exploring the molecular mechanism of dosha's perturbation in a diseased state: An ayurgenomics approach.** (Dr. Bhavana Prasher), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

6. Gohill, Kushal. **Genetic and genomic diversity, adaptation mechanisms and resistomic aspects of human-associated microorganisms.** (Dr. Mahesh Dharne), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

7. Kasodekar, Amol. **The differential response of congeneric evergreen and deciduous tree species to annual climate cycle.** (Dr. Narendra Kadoo), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

8. Maru, Parag. **Decoding the GET pathway components and tail-anchoring of proteins in *Toxoplasma gondii*.** (Dr. Dhanasekaran Shanmugam), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

9. Mathur, Monika. **Exploring plant-pathogen interaction in chickpea during fusarium wilt.** (Dr. Narendra Kadoo), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

10. Mishra, Sarita. **Delivery of glycosaminoglycans to skin using topical route and its applications.** (Dr. Munia Ganguli), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

11. Nandi, Abik. **Studies on cadmium mediated adversities on male germline stem cells homeostasis using *Drosophila melanogaster* as an in vivo model.** (Dr. D Kar Chowdhuri), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

12. Rai, Pragya. **Study of indigenous preparations used for gender selection during pregnancy: Evaluation of harmful effects.** (Dr. Sutapa B Neogi), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

13. Sharma, Shalu. **Telomere repeat binding factor2 (TRF2) mediated transcriptional regulation of human telomerase (hTERT-human telomerase reverse transcriptase).** (Dr. Shantanu Chowdhury), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

14. Sharma, Smriti. **Identification of small molecule inhibitors against latent tuberculosis.** (Dr. Inshad Ali Khan), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

15. Uppin, Vinayak. **Omega-3 fatty acids and zerumbone in modulation of dyslipidemia induced brain inflammation and cognitive impairment.** (Dr. Ramaprasad TR), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

EARTH SYSTEM SCIENCES

Geology

1. Ghodke, Sachin Shriram. **Nature of Mesoproterozoic upper mantle: Evidences from mafic dykes of Prakasam Alkaline Province, Eastern Ghats Belt, India.** (Dr. K Vijaykumar), Department of Geology, Swami Ramanand Teerth Marathwada University, Nanded.

ENGINEERING SCIENCES

Computer Science & Engineering

1. Barman, Barnali. **Hyperspectral image analysis: A rough set approach.** (Dr. Swarnajyoti Patra), Department of Computer Science & Engineering, Tezpur University, Tezpur.

2. Bhusare, Sangita Amanrao. **To design, implement and test advanced cryptographic algorithm for enhancing security.** (Dr. S B Thorat), Department of Computer Science, Swami Ramanand Teerth Marathwada University, Nanded.

3. Sanam, Nagendram. **An improve framework to handle dynamic data transmission and secure energy consumption in Manets.** (Dr. Kolasani

Ramachand H Rao), Department of Computer Science and Engineering, Acharya Nagarjuna University, Nagarjuna Nagar.

4. Shaik, Khaja Mohiddin. **A unique technical relevance lightweight cloud forensic framework for detection, protection and analyzing cyber attacks in cloud environment.** (Dr. Yalavarthi Suresh Babu), Department of Computer Science and Engineering, Acharya Nagarjuna University, Nagarjuna Nagar.

Electronics & Communication Engineering

1. Singadkar, Ganesh Sudhakar. **Automated lung field segmentation in CT scan images.** (Dr. S N Talbar), Department of Electronics & Telecommunication Engineering, Swami Ramanand Teerth Marathwada University, Nanded.

Energy Study

1. Gohain, Minakshi. **Synthesis and application of bio-based heterogeneous catalyst for biofuel production.** (Dr. Dhanapati Deka), Department of Energy Study, Tezpur University, Tezpur.

Food Engineering & Technology

1. Chakraborty, Sourav. **Process development for instant controlled pressure drop assisted parboiling of paddy.** (Prof. M K Hazarika), Department of Food Engineering and Technology, Tezpur University, Tezpur.

Material Science & Engineering

1. Aarti Kumari. **Hydrometallurgical processing of spent NdFeB magnet for recovery of rare earths.** (Dr. S.K. Sahu), Faculty of Engineering Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

2. Christopher, Nithya. **Synthesis, characterization and property evaluation of rare earth free permanent magnet materials.** (Dr. Nidhi Singh), Faculty of Engineering Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

3. Surendra Kumar. **Failure analysis of AA 5052 alloy in stretch flanging process by FE simulation and experimental validation.** (Dr. S K Panthi), Faculty of Engineering Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

4. Yadav, Bishnu Nand. **Microstructure and compressive deformation behavior of Aluminium-**

Alloy Sic-MWCNTs hybrid composite foam prepared through stir casting technique. (Dr. D.P. Mondal), Faculty of Engineering Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

MATHEMATICAL SCIENCES

Mathematics

1. Ali, Mohammad Mustaq. **Fixed and coupled fixed points of maps in various spaces.** (Prof. K Panduranga Rao), Department of Mathematics, Acharya Nagarjuna University, Nagarjuna Nagar.

Statistics

1. Thatkar, Pandurang Vithal. **Application of statistical techniques and artificial neural network for projection of population of India.** (Dr. D D Pawar), Department of Statistics, Swami Ramanand Teerth Marathwada University, Nanded.

MEDICAL SCIENCES

Pharmaceutical Sciences

1. Banu, Ahemadi. **Studies on the effect of fruits extracts and its formulation against high fat diet induced obesity and cognitive impairment in rats.** (Prof. A prameela Rani), Department of Pharmacy, Acharya Nagarjuna University, Nagarjuna Nagar.

2. Chenchu Lakshmi, K N V. **Synthesis and evaluation of fused heterocyclic compounds as chemotherapeutics agents.** (Dr. Rama Rao Nadendla), Department of Pharmacy, Acharya Nagarjuna University, Nagarjuna Nagar.

3. Nirojini, P Sharmila. **Pharmacovigilance study and drug safety analysis in a South Indian tertiary care teaching hospital.** (Prof. Rama Rao Nadendla), Department of Pharmacy, Acharya Nagarjuna University, Nagarjuna Nagar.

PHYSICAL SCIENCES

Chemistry

1. Abhiman, Babar Dattatraya. **Transition metal (Pd, Co & Cu) catalyzed synthesis of 3-aryl imidazo[1,2-a]pyridine using direct and decarboxylative arylation.** (Dr. Haridas B. Rode), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

2. Aswathy T. V. **Metal oxide based catalysts for the gas phase dehydrogenation of representative saturated and unsaturated C4 hydrocarbons.** (Dr. T. Raja), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

3. Babasaheb, Nagode Savita. **Visible-Light-Photoredox catalyzed synthesis of privileged heterocycles/carbocycles.** (Dr. Namrata Rastogi), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

4. Challa, Prathap. **Catalytic industrial chemical transformations by the Aid of CO2.** (Dr. B. David Raju), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

5. Deepake, Siddharth. **β , γ -butenolides in dual role: As vinylogous nucleophile for michael initiated synthesis of indanol derivatives and as organocatalyst for the α -CH₂ oxygenation of cyclic amines/ethers.** (Dr. Utpal Das), Department of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

6. Dey, Ananta. **Role of noncovalent interactions in Proton Coupled Electron Transfer (PCET) and designing supramolecular assemblies.** (Dr. Amitava Das), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

7. Dheerendra Singh. **Investigation on the valorization of lignin: Base catalyzed lignin depolymerization to aromatic monomers and their further functionalization and defunctionalization using heterogeneous catalysts.** (Dr. Paresh L. Dhepe), Department of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

8. Ghosh, Tuhin. **Environmentally benign smart hyperbranched polyurethane nanocomposites for advanced applications.** (Dr. Niranjana Karak), Department of Chemical Sciences, Tezpur University, Tezpur.

9. Karuppusamy, S. **Functionalization strategies to restructure the cellulose surface for versatile applications.** (Dr. M. Anbu Kulandainathan), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

10. Naidu, E Appala. **Design and synthesis of dithienopyrrole and benzodithiophene based**

novel organic materials for organic solar cells applications. (Dr. B.V. Subba Reddy), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

11. Pandya, Rajan. **Chemo catalytic pathways for value addition of bioglycerol.** (Dr. C.V. Rode), Department of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

12. Pranav K.G. **Development of three-dimensional carbon morphologies and their surface modification for electrochemical energy applications.** (Dr. Sreekumar Kurungot), Department of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

13. Sharathna, P. **Bioprospecting of some selected medicinal plants from Western Ghats of Kerala.** (Dr. K.V. Radhakrishnan), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

14. Singha, Krishnadipti. **Development of efficient heterogeneous photocatalysts for organic redox reactions.** (Dr. Asit Baran Panda), Department of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

15. Srivastava, Ankita. **Development of podophyllotoxin congeners as cancer chemotherapeutics through fragment based drug discovery approach.** (Dr. Arvind Singh Negi), Department of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

16. Velgula, Krishna. **Design and development of terpyridine based hybrid materials for biosensing and therapeutic applications.** (Dr. Bishwajit Ganguly), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

17. Vernekar, Dnyanesh. **Reactivity of metal oxyhydroxides for organic tandem conversions.** (Dr. Chandrashekhar V. Rode), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

Physics

1. Dutta, Rituraj. **Ion transport in ionic liquid incorporated metal-organic frameworks**

based composite polymer. (Prof. Ashok Kumar and Prof Jayanta Kumar Sarma), Department of Physics, Tezpur University, Tezpur.

2. Rajaguru. **Study on reactive densification of Zr-C and Zr-C-B ultra-high temperature ceramics at moderate pressure and temperature.** (Dr. L. Rangaraj), Faculty of Physical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

3. Shaik, Johny Bash. **Fabrication of DMS materials doped with transition metal ions ZnS nanocrystals: Application to spintronic and LED devices.** (Prof. R V S S N Ravikumar), Department of Physics, Acharya Nagarjuna University, Nagarjuna Nagar.

4. Shimna, K. **Detection and characterisation of ionospheric perturbations induced by tsunami, strike-slip and thrust earthquakes.** (Dr. M.S.M. Vijayan), Faculty of Physical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

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Applications are invited online from the eligible candidates for the following statutory posts on the establishment of the Gondwana University.

Sr. No.	Name of the Post	Number of Post	Category
01	Registrar	01	Unreserved
02	Finance & Accounts Officer	01	Unreserved

The link for submission of online applications for the above post(s), prescribed fees, required educational qualifications, experience and the conditions etc. will be available on the University website www.unigug.ac.in under the **Recruitment** link from **12/05/2021**

Online application submission period will be from 12/05/2021 to 11/06/2021 (upto 5.00 pm)

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Date: 11/05/2021

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Registrar(I/C)



Dr. Babasaheb Ambedkar Marathwada University

Aurangabad – 431 004 (Maharashtra State)

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2.	Estt/Ro/02/2021	Director of Innovation, Incubation and Linkages	01	Isolated
3.	Estt/Ro/03/2021	Director of Students' Development	01	Isolated

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- i) Last date for **online** submission of forms: **14-06-2021**.
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Date : 12-05-2021

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