

EVALUATIVE REPORT OF THE DEPARTMENT OF BIOTECHNOLOGY

1. Name of the Department: **Biotechnology**
2. Year of establishment: **2008**
3. Is the Department part of a School/Faculty of the university? **Yes**
4. Names of Programmes/ Courses offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., etc.)

S. No.	Programme	Type of Programme	Annual Intake
1	B. Sc (Biotechnology)	Regular full time	30
2	M. Sc(Biotechnology)	Regular SFS	30
3	Ph.D.(Biotechnology)	Regular full time	As per UGC norms andvacancyProfessor-08 Associate Professor-06 Assistant Professor-04

5. Interdisciplinary courses and departments involved:

B.Sc. Biotechnology (Department of English and Department of Languages)

6. Courses in collaboration with other universities, industries, foreign institutions, etc.
Ph. D programme

7. Details of programmes / courses discontinued, if any, with reasons : No

8. Annual/ Semester/Choice Based Credit System:

S. No.	Programme	Examination System
1	B. Sc (Biotechnology)	Semester
2	M. Sc (Biotechnology)	Semester
3	Ph.D. (Biotechnology)	Course work/Lab work

9. Participation of the department in the courses offered by other departments: No

10. Number of teaching posts sanctioned and filled (Professors/AssociateProfessors/Asst. Professors)

Position	Sanctioned	Filled	Actual including(CAS & MPS)
Professor	2	0	2
Associate Professors	1	1	1
Asst. Professors	6	5	6

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11. Faculty profile with name, qualification, designation and specialization (D.Sc./D.Litt./ Ph.D. /M. Phil. etc.)

Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D.	
					Awarded	In Progress
Dr. Mohammad Husain	Ph.D.	Associate Prof. and Head	Virology specially: HIV infection	17	3	06
Dr. Syed Akhtar Husain	Ph.D.	Former Prof.	Human Cytogenetics, Human Molecular Genetics	30	26	06
Dr. Mohammad Irfan Qureshi	Ph.D.	Assistant Professor	Plant Proteomics and Genomics	12	05	04
Dr. Kapil Dev	PhD	Assistant Professor	Medical Biotechnology/ Molecular Medicine	08	00	04
Dr. Meetu Gupta	Ph.D.	Assistant Professor	Environmental Biotechnology/ Ecotoxicogenomics	18	02	04
Dr. Sadaf Fatima	Ph.D.	Assistant Professor	Protein Biophysics	3	00	04
Dr. Abdur Rub	Ph.D.	Assistant Professor	Host-Pathogen Interactions	4.5	00	03

12. List of senior Visiting Fellows, faculty, adjunct faculty, emeritus professors: No

13. Percentage of classes taken by temporary faculty – programme-wise information

S. No.	Programme	Classes taken by temporary faculty
1	B. Sc (Biotechnology)	50 %
2	M. Sc (Biotechnology)	50 %
3	Ph.D. (Biotechnology)	0 %

14. Programme-wise Student Teacher Ratio: 9:1

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15. Number of academic support staff (technical) and administrative staff: sanctioned and filled:

Technical/Administrative staff	Sanctioned	Filled	Actual
Administrative staff	1	1	1
Lab attendant	4	4	4

16. Research thrust areas recognized by funding agencies:

Cancer biology, Molecular Biology of HIV-1, Genomics, Proteomics, Protein Biophysics, Plant Molecular Biology, Cell signaling and *Leishmania* infection

17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies and grants received project-wise.

a) National:

S. No.	PI	Project	Funding Agency	Amount (in Lacks)
		1.		
1	Dr. Mohammad Husain	1. Molecular characterization of Nef gene in HIV-1 infected rapid progressors and long-term nonprogressors in North Indian population 2. Investigation of anti-HIV-1 potential of some herbal plants from Indian subcontinent 3. Molecular characterization of reverse transcriptase and integrase genes of HIV-1 from Patients non-responsive to anti-retroviral therapy (ART)	UGC CCRUM CSIR	10.5 lakh 26.0 lakh 20.6 lakh
2	Dr Syed Akhtar Husain	1. Molecular analysis of p21 gene in Indian female breast cancer patients 2. Screening of anti-cancer potential of Indian medicinal plants	UGC CCRUM	10.93 lakh 30 lakh
3	Dr. Mohammad Irfan Qureshi	1. Large Scale Proteomics Analysis to Fish out N- and S-Responsive Proteins and cDNAs in Indian Mustard 2. Mapping the Stress-Induced Proteome of Arabidopsis thaliana using 2-D Electrophoresis and MALDI-TOF-MS.	UGC DST	11.5 lakh 18 lakh

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S. No.	PI	Project	Funding Agency	Amount (in Lakhs)
4	Dr. Meetu Gupta	1. Cellular /molecular mechanisms involved for arsenic detoxification and tolerance in rice and Indian mustard varieties	MoEF	24 Lakhs
		2. Molecular characterization of arsenic induced markers in Indian mustard and rice varieties	UGC	12.25 Lakhs
5	Dr. Kapil Dev	1. Immunohistochemical expression of her 2 oncogene in colorectal cancer	UGC-IRA-JMI	01 Lakh
		2. Evaluating prognostic significance of Her2/neu oncogene in colorectal cancer	UGC	10.5 Lakhs
6	Dr. Sadaf Fatima	1. Purification, characterization and crystallization of Protein protease inhibitor from <i>Leguminosae</i> family	DST	22 Lakhs
		2. UGC-BSR start up grant for newly recruited faculty	UGC	06 Lakhs
7	Dr. Abdur Rub	1. Effect of cytokine on cholesterol biosynthetic genes and <i>Leishmaniadonovani</i> infection in macrophages	DST	25 Lakhs
		2. Role of GPCRs in <i>Leishmaniadonovani</i> Infection in macrophages	UGC	06 Lakhs
		3. Role of Small G-proteins in <i>Leishmaniadonovani</i> Infection	INSA	15 Lakhs

b) International funding agencies:

No

c) Total grants received:

~ 248 Lakhs

18. Inter-institutional collaborative projects and grants received

a) All India collaboration

All India Collaboration	Faculty	Project	Agency	Amount
Jamia Hamdard, New Delhi, India	Dr. Mohammad Husain (PI)	Investigation of anti-HIV-1 potential of some herbal plants from Indian subcontinent	AYUSH-CCRUM	26.0 lakh
RML Hospital, New Delhi	Dr. Mohammad Husain (PI)	Molecular characterization of Nef gene in HIV-1 infected rapid progressors and long-term nonprogressors in North Indian population	UGC	10.5 lakh
Department of Medicine,	Dr. Mohammad Husain	Molecular characterization of reverse transcriptase and integrase	CSIR	20.6 lakh

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Maulana Azad Medical College	(PI)	genes of HIV-1 from Patients non-responsive to anti-retroviral therapy (ART)		
AIIMS, New Delhi, India	Mr. Kapil Dev (Co-PI)	Endemic fluoresis: role of oxidative stress as a causative factor for skeletal fluoresis	MoEF	22.6 lakh

b) International NO

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, etc.; total grants received. NO

20. Research facility / centre with

- state recognition: NO
- national recognition: NO
- international recognition: NO

21. Special research laboratories sponsored by / created by industry or corporate bodies. No

22. Publications: Departmental Summary(Since 2009)

S. No.	Items	~ Total No.
1	Number of papers published in peer reviewed journals (national / international)	87
2	Monographs	No
3	Chapters in Books	07
4	Edited Books	No
5	Books with ISBN with details of publishers	No
6	Number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)	No
7	Citation Index – range / average	2287
8	SNIP	62.734
9	SJR	64.72
10	Impact Factor – range / average	2.07
11	h-index	55

Faculty wise Summary

S. No.	Name of	No of Publications	Book/Book	Impact	Total	‘h’
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	Faculty	International	National	Chapters	Factor Range (average)	citations	index
1	Dr. M. Husain	26	01	01	3.5 to 14	499	11
2	Dr. Syed A. Husain*	18	00	01	1 to 14	500	15
3	Dr. M. I. Qureshi	20	04	03	2 to 3	453	08
4	Dr. Meetu Gupta	10	00	02	1 to 7	430	12
5	Mr. Kapil Dev	02	00	0	1 to 1.5	-	-
6	Dr. S. Fatima	09	00	0	1 to 3	149	7
7	Dr. Abdur Rub	04	00	0	6 to 27	58	2

* He has been transferred back to Deptt of Bioscience, his original Deptt.

23. Details of patents and income generated NO

24. Areas of consultancy and income generated NO

25. Faculty selected nationally/ internationally to visit other laboratories in India and abroad

S. No.	Name of Faculty	National/ International Visit
1	Dr. Mohammad Husain	Invited as Visiting Professor at Feinstein Institute for Medical Research, North Shore-LIJ Health System Great Neck, New York (USA)

26. Faculty serving in

- a) National committees b) International committees c) Editorial Boards d) any other (please specify)
c) Any other

Following faculty members worked as reviewers in the mentioned journals:

Dr. Mohammad Husain:

- J. of Clinical Microbiology
- Int. J of Ayurvedic Research
- Toxicology Mechanisms and Methods

Dr. Mohammad Irfan Qureshi:

- Journal of Hazardous Materials, Elsevier,
- Journal of Agronomy and Crop Science, Wiley, Berlin, Germany
- Environmental and Experimental Botany, Elsevier, The Netherlands
- Australian Journal of Agricultural Research, CSIRO, Australia
- International Journal of Environmental Studies, Taylor & Francis, United Kingdom

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- Annals of Applied Biology, Wiley, United Kingdom
- International Journal of Molecular Sciences, Basel, Switzerland
- Regulatory Toxicology and Pharmacology, San Diego, CA, USA
- Afr. Journal of Biotechnology, Academic Journals
- Photosynthetica, Springer
- Molecular Biosystems, Royal Society of Chemistry

Dr. Meetu Gupta:

- Environmental and Experimental Botany
- Journal of Hazardous Material
- Biologia Plantarum
- Journal of Experimental Botany
- African Journal of Biotechnology
- Environmental Monitoring and Assessment
- Plant Science
- Environmental Pollution

Dr. Sadaf Fatima

- BMC Complementary and Alternative Medicine

Dr. Abdur Rub:

- Plos One
- J. Bioscience

27. Faculty recharging strategies

- Faculties attend orientation programmes, refresher courses, scientific conferences/symposia/workshops/ or invitation to various

28. Student projects

- percentage of students who have done in-house projects including inter-departmental projects: **40 %**
- percentage of students doing projects in collaboration with other universities / industry / institute **60 %**

29. Awards / recognitions received at the national and international level by

Faculty

S. No.	Name	Awards/Fellowships	
		International	National
1	Dr. Mohammad Husain	02	02
2	Dr. Mohammad Irfan Qureshi	02	03
3	Dr. Meetu Gupta	01	03
4	Dr. Sadaf Fatima		01
5	Dr. Abdur Rub		01

Doctoral / post doctoral fellows

7 (Doctoral candidates received individual fellowships in form of JRF/SRF)

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S. No.	Name	Awards/Fellowships
	PhD	
1	Mr. Javed Ahmad	ICMR-SRF
2	Reeta Bagheri	ICCR
3	Affan Baig	UGC-NON-NET
4	Deepti Bhat	UGC-NON-NET
5	Mohd Arish	UGC-NON-NET
6	Atahar	ICMR-SRF
7	Salman	ICMR-SRF
8	Mohammad Misbah	CSIR-SRF
9	Mudassar Shahid	Maulana Azad
10	Gaurav Roy	ICMR-SRF
11	Poonam Gupta	ICMR-SRF
12	Pankaj Pathank	ICMR-SRF
13	Shazia Nafis Haider	ICMR-SRF
14	Tooba	UGC-NON-NET
15	Rameez	UGC-NON-NET
16	Mohsin	UGC-JRF
17	Shweta	UGC-NON-NET
18	Kalamuddin	CSIR-JRF
19	Shikha Gupta	CSIR-SRF
20	Chandana	UGC-NON-NET
21	Ehsanullah Khan	DBT-JRF
22	Afsana Parveen	DBT-JRF
	Postdoc	
23	Heena Tabassum	ICMR-RA
24	Asha Wadhwa	Kothari, UGC

Students

S. No.	Name	Awards/Exam Qualified
1	Shoaib	DBT-JRF and CSIR-JRF
2	Tanzeel	DBT-JRF and CSIR-JRF
3	Tooba	NET
4	Sachin	ICMR-JRF, DBT-JRF and NET
5	Neelima	ICMR-JRF
6	Arun	ICMR-JRF
7	Manju	ICMR-JRF
8	Uzair	ICMR-JRF
9	Nadeem	NET

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10	Aditya	ICMR-JRF
11	Mohit Misra	ICMR-JRF
12	Kamran	ICMR-JRF
13	Kushar	ICMR-JRF
14	Ayaz Shahid	ICMR-JRF and NET

30. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any. NO

31. Code of ethics for research followed by the departments
Department follows ethical committees directions of the university on Human, Animal and Biosafety

32. Student profile course-wise:

S. No.	Name of the Course (refer to question no. 4)	Applications received	Selected		Pass percentage	
			Male	Female	Male	Female
1	B.Sc. Biotechnology	1800	10/30	20/30	100%	100%
2	M.Sc. Biotechnology	1800	12/25	13/25	99%	100%
3	PhD Programme	75	5	12		

33. Diversity of students

S. No.	Name of the Course (refer to question no. 4)	% of students from the same university	% of students from other universities within the State	% of students from universities outside the State	% of students from other countries
1	B.Sc. Biotechnology	4 %	50 %	40 %	6 %
2	M.Sc. Biotechnology	2 %	50 %	46 %	2 %
3	PhD Programme	20 %	50 %	20 %	10 %

34. How many students have cleared Civil Services and Defence Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.

Civil Services:	No record available
Defence Services examinations:	No record available
NET/JRF:	14
SET:	No record available
GATE:	No record available

35. Student progression

S. No.	Student progression	Percentage against enrolled
1	UG to PG	100 %
2	PG to M.Phil.	Not Applicable
3	PG to Ph.D.	70 %
4	Ph.D. to Post-Doctoral	40 %

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S. No.	Student progression	Percentage against enrolled
5	Employed <ul style="list-style-type: none"> • Campus selection • Other than campus recruitment 	No 90 %
6	Entrepreneurs	Nil

36. Diversity of staff

S. No.	Percentage of faculty who are graduates	
1	Of the same university	0 %
2	From other universities within the State	33 %
3	From universities from other States	66 %
4	From universities outside the country	0 %

37. Number of faculty who were awarded Ph.D., D.Sc. and D.Litt. during the assessment period One

38. Present details of infrastructural facilities with regard to

- | | |
|-----------------------------------------------|-----------|
| a) Library | Available |
| b) Internet facilities for staff and students | for Both |
| c) Total number of class rooms | Four |
| d) Class rooms with ICT facility | 02 |
| e) Students' laboratories | Five |
| f) Research laboratories | Seven |

S. No.	Research Lab	Incharge
1	Molecular Virology Lab	Dr. Mohammad Husain
2	Proteomics & Bioinformatics Lab	Dr. Mohammad Irfan Qureshi
3	Ecotoxicogenomics Lab	Dr. Meetu Gupta
4	Medical Biotechnology Lab	Kapil Dev
5	Genes and Proteins Lab	Dr. Sadaf Fatima
6	Infection and Immunity Lab	Dr. Abdur Rub

39. List of doctoral, post-doctoral students and Research Associates

- | | |
|------------------------------|----------------------------------------|
| a) From the host university: | 02 (Recent Doctoral students) |
| b) From other universities: | 20 (Recent Doctoral students), 01 (RA) |

S. No	Name	Fellowships	
	PhD		
1	Mr. Javed Ahmad	Other University	ICMR-SRF
2	Reeta Bagheri	Other University	ICCR
3	Affan Baig	Other University	UGC-NON-NET
4	Deepti Bhat	Same University	UGC-NON-NET
5	Mohd Arish	Other University	UGC-NON-NET
6	Atahar	Other University	ICMR-SRF

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7	Salman	Other University	ICMR-SRF
8	Gaurav Roy	Other University	ICMR-SRF
9	Shahid	Other University	Maulana Azad
10	Pankaj Pathak	Same University	ICMR-SRF
11	Misbah	Other University	CSIR-SRF
12	Poonam	Same University	ICMR-SRF
13	ShaziaNafis	Other University	ICMR-SRF
14	Tooba	Same University	UGC-NON-NET
15	Rameez	Other University	UGC-NON-NET
16	Mohsin	Same University	UGC-JRF
17	Shweta	Same University	UGC-NON-NET
18	Kalamuddin	Other University	CSIR-JRF
19	Shikha Gupta	Other University	CSIR-SRF
20	Chandana	Same University	UGC-NON-NET
21	Ehsanullah Khan	Other University	DBT-JRF
22	Afsana Parveen	Other University	DBT-JRF
23	Rashmi Gaur	Same University	DBT-JRF
24	Shikha Gupta	Other University	CSIR-JRF
25	Shilpi Chattopadhyaya	Other University	CSIR-SRF
	Postdoc		
1	Heena Tabassum	Other University	CSIR-RA
2	Asha Wadhwa	Other University	Kothari-UGC

40. Number of post graduate students getting financial assistance from the university. No
41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology. No
42. Does the department obtain feedback from
- a. Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback? Yes, the suggestions are discussed in Departmental and BOS meeting, and the points which are agreed upon are implemented or recommended and forwarded to faculty committee.
 - b. Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback? Students feedbacks are taken in the class and appropriately they are incorporated if found to be suitable and effective for teaching and practical classes. Students, parents and visitors also use suggestion box kept in the department.
 - c. Alumni and employers on the programmes offered and how does the department utilize the feedback? No input is available on it.
43. List the distinguished alumni of the department (maximum 10)

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S. No.	Name	Institute
1	Dr. Sowbiya Muneer,	Postdoctoral Fellow, Chonam National university, Department of Animal Sciences and Biotechnology, South Korea.
2	Dr. Khalid Ul Rehman Hakeem	Postdoc Research Scientist, Universiti Putra Malaysia, Malaysia.
3	Dr. Naseem Akhtar	Post-doctoral Fellow University of South Carolina, USA
4	Dr. Shabina Rehman	Postdoc fellow in Virginia Univ., USA
5	Dr. Mohd Shahid	Assistant Professor, King Saud University, Saudi Arabia
6	Dr. Mohammad Rais	Assistant Professor, King Saud University, Saudi Arabia
7	Dr. AafaqueAlam,	Post-doctoral Fellow, Canada
8	Dr. Mohd. Anwar Ahmad	Assistant Professor, MAJ University, Rampur
9	Dr. Rashmi Gaur	School of Life Sciences, JNU
10	Dr. Gaurav Roy	Technical Officer; Medanta Hospital, Gurgaon, Haryana, India

44. Give details of student enrichment programmes (special lectures/ workshops/seminar) involving external experts.

Extension Lecture Series every year and distinguished scientist/professors are called to give seminars on their field of expertise:

S. No.	Distinguished Scientist	Address
1	Dr. MaitreyiRajala	JNU, New Delhi
2	Dr. ShahidJameel	ICGEB, New Delhi
3	Dr. A. K. Mondel	NCDC, New Delhi
4	Dr. B. C. Das	ACBR, New Delhi
5	Dr. T. K. Das	AIIMS, New Delhi
6	Dr. Asad U. Khan	AMU, Aligarh
7	Dr. Alok K. Sinha	NIPGR, New Delhi

45. List the teaching methods adopted by the faculty for different programmes.

1. Oral lectures
2. PPT/LCD presentations
3. Over head projection
4. Experimental Demonstration
5. Specimen and slides
6. Assignments

46. How does the department ensure that programme objectives are constantly met and learning

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outcomes are monitored?

- By sessional tests and semester exams
- Faculty assessment by surprise visits
- Asking students about the problems and discussion in faculty meeting

47. Highlight the participation of students and faculty in extension activities.

By making faculty and students to attend the scientific activities

48. Give details of “beyond syllabus scholarly activities” of the department.

- 1- Seminars: Students give seminars on new scientific findings
- 2- Dissertations: Students are promoted for summer training
- 3- Others: Assignments, Annual Lecture series etc
- 4- Paper presentation
- 5- 6 months project work

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details. NO

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

Different faculties are performing research on the various topics and publishing the results in peer-reviewed journals and attending the conferences.

Dr. Mohammad Husainis doing active research in field of HIV pathology. He has successfully demonstrated a correlation between kidney damage and AIDS. Further, he has discovered some active ingredients of plant origin showing anti-HIV activity.

Prof. Syed Akhtar Husain former Professor of the Deptt worked on cancer biology who had found several mutations responsible for cancerous growth and profiled polymorphism related to same in Indian population.

Dr. M. Irfan Qureshi is the first Indian researcher to receive any support (CSIR) on plant proteomics who has established full-fledged proteomic facility. He has reported important influence of oxidative stress on mechanism of artemisinin biosynthesis in *Artemisia annua* and also showed the changes in thylakoidal protein complexes and nodule proteome brought about by S and Fe deficiency and Cd stress. He has reported more than 50 proteins and 7 gene sequences with accession number.

Dr. Meetu Gupta is working on the interaction of heavy metal with plants at physiological, biochemical and molecular level with an aim leading towards phytoremediation / phytotechnology (green technology) and bio fortification. She is among the leading researchers in India working in the area of Arsenic Pollution by using important crop plants. She has reported arsenic tolerant and susceptible varieties in rice and mustard plants.

Mr. Kapil Dev is doing research in field of cancer biology and associated polymorphism. Important feature of his research includes detection of mutations such as SNPs in Indian

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population and its correlation with disease.

Dr. Sadaf Fatima is interested in protein purification and crystallization.

Dr. Abdur Rub is currently investigated *Leishmania* disrupted macrophage-membrane lipid raft and impaired p38-mitogen-activated protein kinase (p38MAPK)-mediated CD40 signaling but enhanced extracellular signal-related kinase (Erk-1/2)-mediated signalling. Activation of p38MAP kinase induces pro-inflammatory cytokines like IL-12 which inhibits the growth and survival of parasite while activation of Erk-1/2 induces IL-10 production which aggravates the infection. In addition to this he is also collaborating to study the host-pathogen interaction in other protozoans like Plasmodium, *Trypanosoma* and in bacteria such as *Mycobacterium avium* subspecies *paratuberculosis*.

51. Future plans of the department

- Ensure quality improvement along with quantitative increase in the number of programmes
- Generating Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR
- Creating central facility for instruments in the department
- Promotion of international research collaborations and consultancies
- Organize conferences/workshops/seminars and training programme
- Modernize teaching methodology by incorporating the use of LCD, Notebook, Networking, smart board etc.
- Conduct training programme for research scholars on research methodology

52. Detail any five Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Strengths:

1. Effective Teaching and Practical Methodology:

Department is furnished with all basic and advanced teaching and practical facilities. For effective teaching Audio-Visual modes have been adopted including interactive teaching boards in Smart Class Rooms. Further, department is moving to a new building with huge and dedicated floors customized as per requirement of teaching and practical classes in the area of Biotechnology. Individual and dedicated practical labs with great collection of lab ware, equipments, microscopes, slides and specimens help in imparting practical knowledge which is always a prime objective of Biotechnology.

2. Young, Dynamic, Vibrant, Diverse and Experienced Faculty Members:

The Department of Biotechnology has got a thick bunch of highly motivated and innovative faculty members from the areas of Cancer and Human Genetics, HIV/AIDS, microbiology & Immunology, Plant Molecular Biology & Biotechnology, Genomics, Proteomics & Bioinformatics, Environmental Biotechnology, Medical Biotechnology, Molecular Human Pathology & Signaling in Human Disease, and Protein Chemistry. Most of the faculty members have International exposures and are experts of their field. At the same time, teachers usually adopt innovative teaching methods for effectiveness and 'best output' which has become the 'stable performance habit' of the department as evident from number students selected through entrance examinations of National repute.

3. Advance Research in Priority Research Areas

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Each faculty member has its own dedicated research lab working on global priority research areas. At present following 07 research labs are functional with following lab objective and faculty members:

- i. Molecular Virology Lab – Dr. Mohammad Husain
- ii. Proteomics & Bioinformatics Lab – Dr. Mohammad Irfan Qureshi
- iii. Cancer Biology Lab – Dr. Kapil Dev
- iv. Ecotoxicogenomics Lab – Dr. Meetu Gupta
- v. Genes and Proteins Lab – Dr. Sadaf Fatima
- vi. Infection and Immunity Lab – Dr. Abdur Rub

Ph.D. course work with intake and research as per UGC norms. The research labs are also open to M.Sc. dissertations and also UG short-term trainees.

4. Departmental Library:

Besides the Central Library of the university, Department of Biotechnology has got its own rich Reference Library facility harboring more than 500 books from every field of biotechnology.

5. Impressive and Hi-tech Infrastructure

The department is running in centrally cooled building with assigned dedicated individual labs to each and every semester of the courses at UG and PG levels, besides research labs. Departmental Computer Facility (DCF) with online journal/books subscription & internet and scientific software, Departmental Instrumentation Facility (DIF) with all important equipment such as centrifuges, PCRs, fermenter, Real-Time PCR, ELISA Readers, Gel Docs, Microscopes, deep-freezers and laminar flow chambers.

Weaknesses:

- Limited placement of postgraduates
Due to lack of placement cell in the department there is limited placement of post-graduates student in research and development companies and if the student get any opportunity to join any biotech company the pay scale is not so impressive, this force them to purse higher education.
- Lack of feedback from the industries
There is no feedback to department from in research and development companies which results in less exposure to students about their knowledge in R & D field.
- Lack of industrial collaborations
Currently there are neither any running collaboration and nor any future planning of collaboration with any industry which also add to less exposure to students.
- Problem of University seed grant for newly appointed faculties
New faculties which are recruited faces lack of university seed grant for the establishment of research oriented labs.

Opportunities:

- Better research publications
Research publication in reputed journal with high impact factors may provide windows of opportunity to the researcher and their colleagues.

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- Consultancy generation
This will help students in providing career related solutions so that they may plan their future.
- National/Inter-national collaborations
National and inter-national collaboration may provide proper exposure to the students.
- Inviting research and development companies for student placement
Inviting R&D companies may provide better placements for the student.
- Routine update of the syllabus
Routinely update of syllabus may provide student with current knowledge.

Challenges:

- Development of infrastructure for research and teaching
This will provide a better study environment for the student as well as teachers.
- Getting departmental funding like UGC-FIST
Departmental funding like UGC-FIST will be required for the establishment of departmental library, information center and placement cells.
- Appointment of qualified and vibrant teaching faculties
Appointment of qualified and vibrant teaching staff is always a priority in providing quality education to the students
- Organizing seminars and symposia
Organizing seminars and symposia will be required for providing enough exposure to the students.
- Inviting research and development companies for student placement
Inviting R&D companies will provide campus placement of students in various R&D companies.

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Annexure – ERD II: Faculty Recharging Strategies

Faculties are recharged through refresher courses, orientation programmes, conferences, workshops and invited lectures, some of which are supported by the University in the form of travel grants and grant of duty leave

Refreshers/Orientation Programmes/Conferences/Workshop/Seminars	
Dr. Mohammad Husain	
1	Selected as Visiting Professor to perform advance research on ‘HIV-associated Nephropathogenesis’ at Division of Kidney and Hypertension, Deptt of Medicine, Feinstein Institute for Medical Research, Manhasset, New York from July 2010-June 30, 2012
2	3-week special winter professional development programme on Dec. 11, 2012 to January 01, 2013 from UGC-Academic staff college at JMI, New Delhi
3	Presented a paper on ‘Down regulation of longevity gene P66Shc A Rescues HIV-1 and opiate induced T cell apoptosis’ on April 5-10, 2011, 17 th from Annual conference of Society of NeuroImmune Pharmacology at Clear Water Beach, Florida, USA
4	Presented a paper on ‘Morphine enhances HIV-1 entry to kidney cells through a novel pathway’ on Nov.10-13, 2011 from Kidney Week 2011: American Society of Nephrology at Washington DC, USA
5	Presented a paper on ‘Phagocytic uptake of HIV-1 infected apoptotic T cell bodies facilitates HIV-1 entry into renal tubular cells’ on April 25-28, 2012 form 18 th Annual conference of Society of NeuroImmune Pharmacology at Honolulu, Hawaii, USA
6	Presented a paper on ‘Opiates Deactivate redox-sensitive Stress Response Program in T cells on April 3-6, 2013 from 19 th Annual conference of Society of NeuroImmune Pharmacology at San Juan, Puerto Rico, USA
7	Presented a paper on ‘Pattern of HIV-1 reverse transcriptase drug resistance in patients responsive or non-responsive to antiretroviral therapy’ on April 27-30, 2014 from International Conference on Emerging Frontiers and Challenges in Management and Control of STIs and HIV (ICMR) MGM Institute of Health Sciences at Navi Mumbai
8	Invited to deliver a talk on ‘Recent advances in HIV-associated nephropathogenesis: multifaceted role of Nef in HIVAN’ on January 13, 2010 from LIJ Medical Center North Shore University Hospital and LIJ Medical Center, New York
9	Invited to deliver a talk on ‘The Role of HIV-1 in Kidney: Fate of Renal Epithelial Cells on April 17, 2010 from Haryana National Conference on Medical Biotechnology ‘Vision 2020’ MD University at Rohtak,
10	Invited to deliver a talk on ‘HIV-1 Nef: What role it play in HIVAN’ on July 29, 2010 from North Shore-LIJ Health System at New York
11	Invited to deliver a talk on ‘HIV entry into renal epithelial cells’ on August 3, 2012 from 14 th refresher course in Biotechnology Academic staff college at JNU, New Delhi
12	Invited to deliver a talk on ‘Phagocytosis of apoptotic HIV-1 infected T cells promotes entry of HIV-1 in renal epithelial cells’ on Nov. 9-11, 2012 at Kottayam, Kerala

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13	Chaired scientific session, World conference on HIV and AIDS at Kottayam Kerala.
14	Invited to deliver a talk on “Anti-HIV Screening of Medicinal Plants” on Oct. 06, 2012 from Dept. of Pharmacognosy & Phytochemistry at Jamia Hamdard, New Delhi
15	Invited to deliver a talk on “Kidney epithelial Cells: A reservoir for HIV-1” on 21 May, 2013 from Faculty of Medicine JN Medical College at AMU, Aligarh
16	Invited to deliver a talk on “Pathogenesis of HIV-associated Nephropathy” on Jan., 08, 2014 from Mount Sinai Medical Center at New York
17	Invited and evaluated poster session in UGC-SAP sponsored second national seminar on “Regulatory and quality aspects of herbal drugs and botanicals from Faculty of Pharmacy at Jamia Hamdard New Delhi
18	Invited to deliver a talk on “Cell to Cell Transmission of HIV-1: Some Novel Pathways” on Nov. 17-19, 2014 from Delhi National conference on Recent Trends in Molecular Virology at JMI, New Delhi
19	Chaired scientific session, National conference on Recent Trends in Molecular Virology at JMI, New Delhi
Dr. Mohammad Irfan Qureshi	
1	Presented a paper in 6 th International conference on Biogenesis of Iron Sulphur Proteins and Regulatory Functions. 22-25 August, 2011. Girton College, University of Cambridge, U.K.
2	Delivered a lecture and Chaired a Session in e-session XIV WASET-2010, Rome, Italy
3	Successfully completed Two week hand-on training on “Multi-omics approaches to alleviate abiotic stress in post genomic Era: Methods and application in microbial research (Jan 24, 2014 – Feb 06, 2014), National Institute of Abiotic Stress Management, Maharashtra, India.
4	Successfully completed Four week Orientation Programme (89 th OP; Thursday, August 06, 2009 to Friday, September 04, 2009), Academic Staff College (ASC), Jamia Millia Islamia, New Delhi-110 025, India
5	Successfully completed Three week Refresher Course in Basic Sciences, 6-22 May’11. Academic Staff College (ASC), Jamia Millia Islamia, New Delhi-110 025, India
6	Successfully presented project updated in Group Monitoring Workshop, 11-12 Feb., 2011. Institute of Life Sciences, University of Hyderabad. Organized by DST, Govt. of India.
7	Delivered a lecture on Plant Proteomics: Tools and Applications, AMU, Aligarh, India (2013).
8	Delivered three lectures on different aspects of Proteomics and Bioinformatics in Shere Kashmir University of Agriculture, Science & Technology, Srinagar, JK, India (2013).
9	Delivered a Keynote Lecture on Environmental threats and proteomic markers in Krishna Institute of Science & Technology, Bijnor, India (30 Nov. 2013). Environmental Biotechnology: Basics & Applications
10	Delivered a lecture as Resource Person, DST, Govt. India INSPIRE Camp on Basic concepts in proteomics at Ghaziabad, India (10 Jan. 2014). Topic: Principles and Applications of Proteomics.

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11	Delivered a lecture as Resource Person in 1 st Phase of Refresher Course at Faculty of Education, Jamia Millia Islamia, New Delhi (December 2013).
12	Delivered a lecture as Resource Person in 2 nd Phase of Refresher Course at Faculty of Education, Jamia Millia Islamia, New Delhi (2014).
13	Delivered an Invited Lecture in Annual Extension Lecture Series of Department of Biosciences, Jamia Millia Islamia, New Delhi (13 March, 2014). Topic: Proteomics and Mass spectrometry: Methodologies and applications.
14	Delivered an Invited Lectures in Annual Extension Lecture Series of Department of Biotechnology, Jamia Millia Islamia, New Delhi (13 March, 2014 & year 2013). Topic: Proteomics and Mass spectrometry: Methodologies and applications.
15	Attended Antivirals for the Developing World. 10 th Annual Symposium of International Consortium on Anti-Virals (ICAV) in collaboration with International Centre for Genetic Engineering & Biotechnology (ICGEB). Feb. 07-10, 2012, New Delhi, India
16	Delivered a lecture: Introducing the Weedomics: Understanding the Tolerance Mechanisms of Weeds; Third International Conference on Parthenium (ICP-2010), Dec. 8-10, 2010; Indian Agricultural Research Institute, New Delhi-110012 & Entomological Society of India at IARI
17	Proteomic and antioxidant response of <i>Partheniumhysterophorusto</i> drought, Third International Conference on Parthenium (ICP-2010), Dec. 8-10, 2010; Indian Agricultural Research Institute, New Delhi-110012 & Entomological Society of India at IARI,
18	Research group presented papers in National Symposium on Genomics and Proteomics, 2010 (4-5 February). Desh Bandhu College, University of Delhi, New Delhi, India.
Dr. Meetu Gupta	
1	Paper presented in “12th Annual Conference of Society of Science and Environment on Interdisciplinary Approaches in Environmental Sciences. at Department of Zoology, Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, October 9-10, 2010
2	Paper presented in ‘4 th International conference on Plants and Environmental Pollution’ held by NBRI, Lucknow from 8-11 Dec, 2010
3	Attended 94 th Orientation Programme, organized by the AcademicStaffCollege, Jamia Millia Islamia, New Delhi., 28 days (July 16, 2010 to August 16, 2010)
4	Paper presented in 80 th Annual Meeting of Society of Biological Chemists, held by CIMAP, Lucknow from 12-15 th Nov 2011.
5	Attended one day workshop, “Biotikos” on 15 th March 2011 in TERI, New Delhi
6	Attended 14 days workshop on ‘Fermentation Technology’ held by Post Harvest Department, IARI, Pusa, New Delhi in December 2011
7	Participated in International Science Conference (I-ISC 2011) on ‘ Bioinformatics: An Interface between Computer Science and Biology, Organized by Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New Delhi
8	Paper presented in 81 st Annual Meeting of Society of Biological Chemists, November 9-11, 2012 at Science City Auditorium Complex, Kolkata, India.

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9	Paper presented in International Conference on “Sustainable Innovative Techniques In Civil and Environmental Engineering” (<i>SITCEE - 2013</i>) Organized by “ <i>KrishiSanskriti</i> ” On 5th & 6th June 2013, JawaharlalNehruUniversity, New Delhi
10	Paper presented in International Conference On “Various Facets of Energy Technologies and its Management for Sustainable Development” (ET & MSD-2013) 16 th and 17 th March at JNU, New Delhi.
11	Paper presented in 7 th Annual Convention of ABAP and International Conference on Plant Biotechnology, Molecular Medicine and Human health, October 18-20, 2013 at Department of Genetics, University of Delhi, South campus, New Delhi.
12	Attended 11 th International Symposium on Rice Functional Genomics (ISRF11) held during November 20 - 23, 2013 at hotel “The Grand”, New Delhi, India.
13	Attended Refresher Course as 2 nd Summer Special Programme from 16 th May 2014- 6 th June 2014 (21 days) organized by the Academic Staff College, Jamia Millia Islamia, New Delhi
14	Delivered lecture as expert during ten day refresher training programme on “Science, Social Science and Languages, organized by the Faculty of Education, Jamia Millia Islamia, New Delhi on 15 th may 2014.
15	Paper presented in National Conference on Nanotechnology and Renewable Energy (NCNRE), April 28-29, 2014, Organized by Department of Applied Science and Humanities Faculty of Engineering and Technologies Jamia Millia Islamia, New Delhi.
16	Attended UGC-SAP Sponsored National Seminar on Metal Toxicity and Oxidative Stress from 23-24 Sep, 2014, Organized by Department of Biosciences, Jamia Millia Islamia, New Delhi
17	Paper presented in International conference on “Emerging Trends in Biotechnology”, November 6-9, 2014, organized by School of Environmental Sciences, JNU, New Delhi, India
18.	Paper presented in National conference on “Waste Disposal and its Effect on Biodiversity”, November 15-16, 2014, organized by Mohammad Ali Jauhar University, Rampur.
Dr. Kapil Dev	
1	Attended 87 th Orientation Course 1 st September 2010 to 28 th September 2010 (4 week) organized by the Academic Staff College, Punjab University, Chandigarh.
2	Participated in National CME, AIIMS, 2010.
3	Attended 1 st three week special winter programme (Equivalent to Refresher Course) from 11 th December 2012 to 1 st January 2013 (3 weeks) organized by the Academic Staff College, Jamia Millia Islamia, New Delhi.
4	Participated Northern Regional Science Congress, I.S.C.A. & D.S.T., G.O.I., Delhi, 2012
5	Delivered lecture as expert during ten day refresher training programme on “Science, Social Science and Languages, organized by the Faculty of Education, Jamia Millia Islamia, New Delhi on 19 th may 2014.
6	Presented poster in “International Conference on Electron Microscopy & XXXV Annual Meeting of Electron Microscope, Society of India (EMSI), July 9-11, 2014, University Of

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	Delhi, Delhi.
7	Attended and presented poster in National Conference on Recent Trends in Molecular Virology, November 17-19, 2014, Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New Delhi.
Dr. Sadaf Fatima	
1	Orientation programme, 19 Mar, 2014 to 15 April, 2014 from UGC-Academic staff college, AMU, Aligarh.
2	Poster presentation in "National Symposium on Biophysics: Trends in Biomedical Research" (13-15 February, 2007) held at Indian National Science Academy, New Delhi.
3	Poster presentation in "National Symposium on Biophysics: Biophysics in Medicine and Biology" (15-17 November, 2007) held at Punjab University, Chandigarh.
4	Poster presentation in "International Symposium on the Predictive, Preventive and Mechanistic Mutagenesis & XXXIII EMSI Annual Meeting" (1-3 Jan, 2008) held at Aligarh Muslim University (AMU), Aligarh.
5	Attended "Mathematics in Biology" (2008) conference held at Centre for Interdisciplinary Research in Basic Sciences (CIRBSc), Jamia Millia Islamia, New Delhi.
6	Attended "International Interdisciplinary Science Conference on "Bioinformatics: An interface between Computer Science & Biology" (15-17 November, 2011) held by Centre for Interdisciplinary Research in Basic Sciences (CIRBSc), Jamia Millia Islamia, New Delhi.
7	Oral presentation in 5th World Congress on Biotechnology (Theme- Biotechnology: Meeting the needs of a changing world) held during June 25-27, 2014 at Valencia, Spain.
8	Poster presentation in Global Sustainable Biotechnology Conference from 1-5 Dec 2014, held at North Maharashtra University, Jalgaon, Maharashtra, India.
Dr. Abdur Rub	
1	Poster presentation on November 15-17, 2011 from International Interdisciplinary science Conference (I-ISC 2011) on Bioinformatics: An International between Computer Science and Biology at Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New Delhi
2	Poster presentation on December 16-18, 2013 from National conference on Recent Trends in Protein Structural Biology at Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New Delhi
3	Participated in 108 th four-week UGC sponsored orientation programme on 09 April to 09 May, 2014 and obtained grade A from Academic Staff College at Jamia Millia Islamia, New Delhi
4	Delivered a lecture : "Orchestration of membrane receptor signalling by lipids and its significance in host pathogen interaction" on 13 May, 2014 (4 th 3-Week refresher Course in Basic Sciences) from UGC-Academic Staff College at Jamia Millia Islamia, New Delhi
5	Delivered a lecture : "Role of lipids raft in CD40 signalling in Macrophages" on 17 May, 2014 from Faculty of Education at Jamia Millia Islamia, New Delhi

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Annexure – ERD III: List of Doctoral, Post-Doctoral Students & Research Associates etc.

There are number of PhDs and Postdocs in the department who used to attend several Conferences/Workshop/Seminars and other enrichment programmes.

Ph.D./Postdoctoral candidate under Dr. Mohammad Husain		
S. No.	Name of PhD/ Postdoctoral Candidate	Conference/Workshop/Symposia attended
1	Gaurav Roy	<ol style="list-style-type: none"> 1. Role of TGF-β1 -509C/T polymorphism in Hepatitis B Virus associated Hepatocellular Carcinoma in Indian population. February 6-9, 2011. 30th Annual convention of Indian Association for cancer Research & International Symposium, Indian institute of chemical Biology (CSIR), Kolkata. 2. Association of TGF-β1 promoter polymorphisms in Hepatitis B Virus mediated Hepatocellular Carcinoma in Indian population. 3rd International conference of Corcinogenesis, Nov. 19-21, 2012, Dr Ram Manohar Lohia Hospital, Post Graduate Institute Medical Education and Research, New Delhi. 3. Expression of TGF-β1 protein in patients presenting with Hepatitis B virus associated Hepatocellular carcinoma. National conference on Recent Trends in Molecular Virology, Nov., 17-19, 2014, JMI, New Delhi
2	Poonam Gupta	<ol style="list-style-type: none"> 1. Analysis of HIV-1 <i>nef</i> from patients presenting with rapid progression and delayed progression to AIDS. Journal of Antivirals & Antirerovirals, Journal of AIDS & Clinical Research, OMICS Group, Sept. 5-7, 2011, Baltimore, USA 2. Computational Analysis of <i>vpu</i> in HIV-1 Rapid progressors from India. December 16-18, 2011. 4th National Conference of AIDS Society of India, ASICON, SGPGI, Lucknow.
3	Shazia Haider	Gene Regulatory Network In Sporadic Breast Cancer – A Preliminary Study. March 3-5, 2012. 37 th Annual Conference of Indian Society of Human Genetics, Punjab University, Chandigarh.
4	Mohammad Misbah	<ol style="list-style-type: none"> 1. Genotypic Characterization of Reverse transcriptase gene in newly confirmed HIV-infected patients. November 9-11, 2012. World conference on HIV and AIDS – 2012, WCHA, Kottayam, Kerala. 2. Molecular Characterization of Integrase gene in newly diagnosed HIV. November 23-25, 2012. 5th National Conference of AIDS Society of India, ASICON, Bangalore.
5	Mudassar Shahid	1. Inhibition of HIV-1 reverse transcriptase, toxicological and phyto-

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		<p>chemical profile of sacred basil, Tulsi extracts. November 9-11, 2012. World conference on HIV and AIDS – 2012, WCHA, Kottayam, Kerala.</p> <p>2. Effect of Indian ethano medicine <i>Menthapiperita</i> in inhibition of HIV-1 replication in human T-lymphocytes. Novmber 23-25,2012. 5th National Conference of AIDS Society of India, ASICON, Bangalore.</p>
6	Uma Sharma	Genetic variability in nef gene sequences in infants born to HIV-1 positive mothers. National conference on Recent Trends in Molecular Virology, Nov., 17-19, 2014, JMI, New Delhi
PhD/Postdoc Students Under Dr. Mohammad IrfanQureshi		
1	Rita Bagheri	<ol style="list-style-type: none"> 1. National seminar on plant biotechnology challenges and opportunities in 21st century, 03th-04th March, 2014, JamiaHamdard proteomic investigations to study the role of sulfur in mitigating cadmium stress in spinach (<i>Spinaciaoleracea</i>). 2. International congress on Agriculture, Food Engineering Sciences- Sustainable Approaches 29 & 30 March. 2014, Jawaharlal Nehru University 3. International congress on Agriculture, Food Engineering Sciences- Sustainable Approaches 29 & 30 March. 2014, Jawaharlal Nehru University 4. National seminar on environmental pollution, consequences and management 30th Nov. to 1st Dec. 2013, Krishna college of science & information technology, Bijnor, India 5. UGC-SAP sponsored 2nd national seminar, Regulatory and Quality aspects of herbal drugs and botanicals February. 2014, Department of pharmacognosy & phytochemistry, Jamia Hamdard, New Delhi, India 6. National seminar on plant sciences: new technologies, Conservation and environment 23 to 24, February, 2013, Department of Botany, Aligarh Muslim University, Aligarh, India. 7. International symposium on proteomics beyond IDs. and 4th annual meeting of proteomics society (INDIA) 8. 6th International Conference on Fe-S Protein Biogenesis and Regulation 22- 25 August, 2011, Girton College Cambridge, U.K. 9. National Symposium on Current Trends in Biochemical, Biomedical and Environmental Sciences Department of Biochemistry, Faculty of Life Sciences, Aligarh Muslim University, Aligarh, India, 22 Fabuary, 2011

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	<ol style="list-style-type: none">10. National seminar on metal toxicity and oxidative stress 23-24 September, 2014. Jamia Millia Islamia, New Delhi, India.11. [2 days] 3rd Bioinformatics seminar cum hands-on training on Computational Protein structure prediction 28-29, November, 2011, Jamia Hamdard university, New Delhi, India12. [2 days] workshop on Application of mass and NMR techniques 28th to 29th January, 2013, CSIR-Central drug institute, Lucknow, India13. [1 day] workshop on Art of Academic writing 2, February, 2014, Iran Culture center, New Delhi, India14. [1 day] Science Academics lecture workshop on Nanoscience and Nanotechnology March 1-2, 2013, Jamia Milia Islamia, New Delhi,15. Biopharmaceutical conference, 2013, Leveraging opportunities in Biopharmaceuticals, 'Challenges and way-out' 20, November, 2013, Federation house, TansenMarg, New Delhi16. National convention on BIOPHARMA 12, july, 2010, supported by department of pharmaceuticals, Government of India and Fedration of Indian chamber of commerce and industry, held at Federation house, Tansen Marg, New Delhi17. Enviro lecture Series 19, September, 2010, organised by North East center for environmental education and research, Imphal (NECEER) in association with department of biotechnology, jamia Millia Islamia, New Delhi, 19, September, 2010.18. 3rd International conference on parthenium December 8-10, 2010, organised by India agricultural research institute and suported by byenlomological society of India, New Delhi, India19. Participation in International Interdisciplinary Science Conference (I-ISC, 2012), on Protein folding and diseases December 8-10, 2012, organised by center for interdisciplinary research in basic sciences, Jamia Millia Islamia, New Delhi, India20. International Interdisciplinary Science Conference 2010 on Nanobiotechnology; Interface between physics and Biology 2010, Jamia Millia Islamia , New Delhi , India.21. International Environmental and Human Health November 28-29, 2012, organised by National Environmental Science Academy in association with department of Botany, Jamia Hamdard New Delhi, India22. National Syposium on Current Trends in Genomics and Proteomics, February 4-5, 2010, organised by department of
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		<p>Biochemistry, Deshbandhu college, university of Delhi, Kalkaji, New Delhi, India.</p> <p>23. National Conference on Nanotechnology and renewable energy Apr 29, 2014, organised by the department of applied sciences and human faculty of engineering and technology, Jamia Millia Islamia, New Delhi, India</p>
2	Mohd Affan Baig	<ol style="list-style-type: none"> 1. Participated in 1st Plant Proteomics Workshop/Training Programme. Organized by Department of Botany, University of Delhi and International Plant Proteomics Organization (INPPO), Sponsored by GE Healthcare and Bio Rad, 26-30 December 2013. 2. Presented poster in National Seminar on plant sciences: New Technologies, Conservation and Environment. Organized by Department of Botany, Aligarh Muslim University in February 2013. 3. Participated in Dynamics Day Delhi. Organized by Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia in November 2012
PhD/Postdoc Students Under Dr. Meetu Gupta		
1	Shikha Gupta	<ol style="list-style-type: none"> 1. Poster presented in '4th International conference on Plants and Environmental Pollution' held by NBRI, Lucknow from 8-11 Dec, 2010 2. Poster presented in International Conference on "Sustainable Innovative Techniques In Civil and Environmental Engineering" (<i>SITCEE - 2013</i>) Organized by "Krishi Sanskriti" On 5th & 6th June 2013, Jawaharlal Nehru University, New Delhi . 3. Attended International conference on "Emerging Trends in Biotechnology", November 6-9, 2014, organized by School of Environmental Sciences, JNU, New Delhi, India
2	Chandana Pandey	<ol style="list-style-type: none"> 1. Poster presented in 7th Annual Convention of ABAP and International Conference on Plant Biotechnology, Molecular Medicine and Human health, October 18-20, 2013 at Department of Genetics, University of Delhi, South campus, New Delhi. 2. Attended National Conference on Nanotechnology and Renewable Energy (NCNRE), April 28-29, 2014, Organized by Department of Applied Science and Humanities Faculty of Engineering and Technologies Jamia Millia Islamia, New Delhi. 3. Poster presented in 81st Annual Meeting of Society of Biological Chemists, November 9-11, 2012 at Science City Auditorium Complex, Kolkata, India. 4. Poster presented in International conference on "Emerging Trends

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		<p>in Biotechnology”, November 6-9, 2014, organized by School of Environmental Sciences, JNU, New Delhi, India</p> <p>5. Attended National conference on “Waste Disposal and its Effect on Biodiversity”, November 15-16, 2014, organized by Mohammad Ali Jauhar University, Rampur.</p>
3	Ehasanullah Khan	<p>1. Poster presented in National Conference on Nanotechnology and Renewable Energy (NCNRE), April 28-29, 2014, Organized by Department of Applied Science and Humanities Faculty of Engineering and Technologies Jamia Millia Islamia, New Delhi.</p> <p>2. Attended National conference on “Waste Disposal and its Effect on Biodiversity”, November 15-16, 2014, organized by Mohammad Ali Jauhar University, Rampur.</p>
PhD/Postdoc Students Under Dr. Kapil Dev		
1	Deepti Bhatt	<p>1. Attended and presented poster in 7th annual convention of ABAP & International Conference on Plant Biotechnology, Molecular Medicine & Human Health, October 18-20, 2013, Department of Genetics, University of Delhi, South Campus, New Delhi.</p> <p>2. Attended and presented poster in “ International Conference on Electron Microscopy & XXXV Annual Meeting of Electron Microscope, Society of India (EMSI), July 9-11, 2014, University Of Delhi, Delhi.</p> <p>3. Attended and presented poster in National Conference on Recent Trends in Molecular Virology, November 17-19, 2014, Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New Delhi.</p>
	Rameez Hasan	<p>1. Attended and presented poster in International Conference on "Bioproducts and the OMICS Revolution", March 16-17, 2013, Department of Biotechnology, (JIIT), NOIDA.</p>
PhD/Postdoc Students Under Dr. Sadaf Fatima		
1	Tooba Naz Shamsi,	<p>1. Presented poster in "National Seminar on Trends and Advances in Plant Sciences" (21-22 September, 2013) held at Aligarh Muslim University, Aligarh, Uttar Pradesh.</p> <p>2. Presented poster in "National Conference on Recent Trends in Protein Structural Biology" (16-18 December, 2013) held at Centre for Interdisciplinary Research in Basic Sciences (CIRBSc), Jamia Millia Islamia, New Delhi.</p> <p>3. Presented poster in “3rd Global Sustainable Biotech Congress (GSBC) – 2014” (1-5 December, 2014) held at North Maharashtra University, Jalgaon, Maharashtra.</p>

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2	Romana Parveen,	1. Presented poster in "3rd Global Sustainable Biotech Congress (GSBC) - 2014" (1-5 December, 2014) held at North Maharashtra University, Jalgaon, Maharashtra.
3.	Shweta Agarwal,	1. Participated and presented a poster in 20 th ISCB International Conference on "Chemistry and Medicinal Plants in Translational Medicine for Health Care" (1-4 ^h March, 2014) held at Department of Chemistry, University of Delhi, Delhi, India. 2. Participated and presented a poster in 1 st International Conference on "Emerging Trends of Nanotechnology in Drug Discovery" (26-27 May, 2014) held at Department of Biochemistry, South Campus and Sri Venkateswara College, University of Delhi, Delhi, India.
PhD/Postdoc Students Under Dr. Abdur Rub		
1	Mohd Arish,	1. Attended National Symposium on "Immunology Day Celebration", 27 th April, 2013 at AIIMS, New Delhi. 2. Attended National Conference on "Recent Trends in Protein Structural Biology-2013 at Jamia Millia Islamia, New Delhi. 3. Done FACST TM training at BD JH FACST TM Academy at Jamia Hamdard, New Delhi (April, 2013).
2	Atahar Husein	1. Attended regional seminar on "Intellectual Property Protection and Management" organized by NRDC, New Delhi
3.	Mohammad Kashif	1. Workshop On Bioinformatics Infrastructure and Frontiers 2012, Organized By JMI, New Delhi 2. "8th Dynamic Day Delhi" , 2012, Organised By CIRBS, JMI, New Delhi 3. 6 th Bioinformatics Seminar cum Hands-on Training 2014 on Bioinformatics and Biologicals, November 27-28, 2014, Jamia Hamdard, New Delhi.
4.	Mohd Kalamuddin	

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Annexure – ERD IV: Details of Student Enrichment Programmes Organized by the Department

We used to organize several Enrichment Programmes/Conferences/Workshops/Seminars/ Extension Activities for recharging Graduate, Postgraduate, PhDs and Postdocs to recharge them on regular basis. These Programmes also recharges the faculty members.

S. No.	Name	Enrichment Programmes/Conferences /Workshops/Seminars Organized by the Department
1.	Extension Lecture Series – 2010.	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 28/03/2010.
2.	Poaster & Photography Competition.	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 28/03/2010.
3.	Orientation Programme for M.Sc. & B.Sc. courses	Organized by Department of Biotechnology, Jamia Millia Islamia, New Delhi in August 2010.
4.	Operon Festival	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 30/10/2010.
5.	Cultural Function	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 31/10/2010.
6.	Extension Lecture Series – 2011.	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 13/03/2011.
7.	Orientation Programme for M.Sc. & B.Sc. courses	Organized by Department of Biotechnology, Jamia Millia Islamia, New Delhi in August 2011.
8.	Cultural Function	Organized by Department of Biotechnology, Jamia Millia Islamia, New Delhi in August 2011.
9.	TALIMI MELA	Organized Teams for “Talimi Mela”, Department of Biotechnology, Jamia Millia Islamia, New Delhi in October 2011.
10.	Biotalk Lecture	Topic “Transgenic Crops” Organized by Department of Biotechnology, Jamia Millia Islamia, New Delhi in Feburary 2012
11.	Extension Lecture Series – 2012.	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 10/03/2012.
12.	One Day Interaction Programme	Two Representatives to CBI for Interaction Programme organized by CBI, Govt. of India in March 2012.
13.	Orientation Programme for M.Sc. & B.Sc. courses	Organized by Department of Biotechnology, Jamia Millia Islamia, New Delhi in August 2012.
14.	Extension Lecture Series – 2013.	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on

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		06/03/2013.
15.	Cultural Function	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 21/09/2013.
16.	Cultural Function	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 29/03/2014.
17.	Extension Lecture Series – 2014.	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 26/03/2014.
18.	Orientation Programme for M.Sc. & B.Sc. courses	Organized by Department of Biotechnology, Jamia Millia Islamia, New Delhi in August 2014.
19.	Cultural Function	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 20/09/2014.
20.	BIOTALK on EBOLA	Organized by Department of Biotechnology, Jamia Millia Islamia, New Delhi on 20/10/2014.
21.	Panel Discussion & Quiz	Organized by Department of Biotechnology, Jamia Millia Islamia, New Delhi on 20/10/2014.

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Annexure – ERD V: Participation of Students and Faculty in Extension Activities Organized by the Department

We used to organize several Enrichment Programmes/Conferences/Workshops/Seminars/ Extension Activities for recharging Graduate, Postgraduate, PhDs and Postdocs to recharge them on regular basis. These Programmes also recharges the faculty members.

S. No.	Name	Enrichment Programmes/Conferences /Workshops/Seminars Organized by the Department
1.	Poaster & Photography Competition.	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 28/03/2010.
2.	Operon Festival	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 30/10/2010.
3.	Cultural Function	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 31/10/2010.
4.	Cultural Function	Organized by Department of Biotechnology, Jamia Millia Islamia, New Delhi in August 2011.
5.	TALIMI MELA	Organized Teams for “Talimi Mela”, Department of Biotechnology, Jamia Millia Islamia, New Delhi in October 2011.
6.	Cultural Function	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 21/09/2013.
7.	Cultural Function	Organized by Subject Association, Department of Biotechnology, Jamia Millia Islamia, New Delhi on 29/03/2014.