Combined Entrance Examination conducted by Jawaharlal Nehru University for admission to M.Tech. Biotechnology Programme

www.jnu.ac.in

PROSPECTUS

ACADEMIC SESSION 2011-12

Check List

Before submitting/posting the completed application form please check/note that:-

☞ **PLEASE REFOLD THE APPLICATION FORM ONLY WHERE IT WAS ORIGINALLY FOLDED. DO NOT STAPLE, PIN OR STITCH ANY DOCUMENTS WITH THE APPLICATION FORM. SEND THE BANK DRAFT IN THE ENVELOPE PROVIDED. KEEP THEM LOOSE ALONG WITH THE APPLICATION FORM INSIDE THE ENVELOPE.**

☞ **Please fill the form in your own handwriting.**

☞ You have noted down your Application Form Number for future correspondence or retained a photocopy of the filled in Application Form;

☞ Your Application Form is complete in all respects;

☞ You have pasted recent (not more than two months old) passport size photograph in the Application Form.

☞ **You have passed the qualifying examination in 2009 or thereafter or you are appearing in 2011. In other words, those who have passed the qualifying examination PRIOR to 2009 are NOT eligible to apply;**

☞ **You fulfil the eligibility requirements as prescribed in the Prospectus. You should, appear in the entrance examination only if you fulfil the eligibility requirements for M. Tech Biotechnology Programme. Despite this caution, in case you do not meet the minimum eligibility criteria and still appear in the entrance examination, you will do so at your own risk and cost, and if at any stage, it is found that you do not fulfil the minimum eligibility requirements, the admission, if granted to you, shall be cancelled ipso facto.**

☞ **Examination Fee**: you have enclosed a Demand Draft drawn after 7th February, 2011 and valid for six months, in favour of **"JAWAHARLAL NEHRU UNIVERSITY"** payable at **New Delhi** for the amount indicated below towards the entrance examination fee.

General Category Candidates including OBC Candidates	**Rs. 600/-**
SC/ST/PH Category Candidates (PH includes OH, VH and HH)	**Rs. 300/-**
Foreign Nationals	**US$ 25.00 or Rs.1250/-**

☞ Application Forms can be submitted by Registered Post to Section Officer (Admissions), Room No.28, Administrative Block, Jawaharlal Nehru University, New Delhi - 110067 or dropped in the Box in the Administrative Block of the University. The application forms must reach the JNU on or before March 21, 2011. JNU will not accept responsibility for any postal delay or irregularity or loss in postal transit.

PLEASE DO NOT SEND YOUR APPLICATION FORM THROUGH PRIVATE COURIER SERVICES

CONTENTS

I. GENERAL

Biotechnology is a multi-disciplinary area on the educational scene and programmes have been developed to meet the growing demand for trained manpower for any meaningful Biotechnology activity. The Government of India has allotted high priority for the development of Biotechnology and its exploitation in agriculture and other related disciplines.

The Jawaharlal Nehru University will hold an entrance examination for the academic year 2011-12 for admission to four-semesters (Two years) M.Tech Biotechnology programme being offered by the following participating Universities:

1. ANNA UNIVERSITY, CHENNAI

2. COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY, KOCHI, KERALA

3. WEST BENGAL UNIVERSITY OF TECHNOLOGY, KOLKATA.

The entrance examination will be held on May 20, 2011 at centres all over the country. (detail of examination centers is shown under Section-XII of this Prospectus)

1. Anna University, Chennai (25 Seats) *

The candidates admitted to the programme are eligible for the award of M.Tech degree in Biotechnology on successful completion of the Programme. The candidates admitted to the programme are also eligible to receive scholarship at the rate prescribed by the Department of Biotechnology.

Major thrust areas of teaching and research offered by experienced faculty at the Centre of Biotechnology, Anna University, for the Programme are: (1) Molecular Immunotechnology; (2) Infectious Diseases, (3) Chemical Biology; (4) Protein Biotechnology; (5) Recombinant DNA Protein Technology; (6) Computational Biology; (7) Bioprocess Engineering; (8) Drug Discovery; (9) Biocatalysis; (10) Molecular Biology

**Fees to be paid at time of Admission: Rs.23420/- (approx.)

Contact Address: Prof. K Sankaran,
Director and HOD
Centre for Biotechnology,
Anna University,
Chennai – 600025
Tamil Nadu
Phone No.   :   044-22350772
Fax No.   :   044-22350299
E-mail   :   ksankaran@annauniv.edu
                         ksankran@yahoo.com

2. Cochin University of Science and Technology, Kochi, Kerala (6 Seats) *

The M.Tech programme in Marine Biotechnology sponsored by Department of Biotechnology, Government of India is a unique course of its kind in the country.

Over above two decades, Government of India has been supporting infrastructure development and research in focused areas of Marine Biotechnology to develop novel processes and products aiming at enhancement of manifold industrial processes, biomedical material development, environment management etc. These efforts paved the way for the development of Marine Biotechnology industry in the country harnessing the potentials of the marine environment. The Department of Biotechnology, Government of India on taking stock of the situation realized that to infuse power to the sector effective human resource with vibrant entrepreneurship and high level technical expertise were the prime requirements. This paved the way for instituting the M.Tech. programme in Marine Biotechnology at National Centre for Aquatic Animal Health, Cochin University of Science and Technology with the objective of generating the right kind of human resource to augment the developments in Marine Biotechnology industry in the country.

The four semester programme consists of two semesters of theory, practical classes, assignments, problem analysis, short term projects and case studies with full time in-house research during the third and fourth semesters. A training programme in an industry or in an Institution is placed during summer vacation after the first year. Scholarships are paid at the rate prescribed by Department of Biotechnology, Government of India.

**Fees to be paid at time of Admission: Rs.15848/-(approx.)

Contact Address: Prof. I S Bright Singh,
Coordinator
National Centre for Aquatic Animal Health,
Cochin University of Science and Technology,
Lakeside Campus, Fine Arts Avenue,
Kochi - 682016 Kerala

Phone No.	:	0484 - 2381120
Fax No.	:	0484 - 2381120
E-mail	:	bsingh@md3.vsnl.net.in
		isbsingh@gmail.com
web site	**:**	**www.ncaah.org**

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3. West Bengal University of Technology , Kolkata (18 Seats) *

The Government of West Bengal under its Ministry of Higher Education has set up the Department of Biotechnology with a view to establish a Centre for Excellence in Biotechnology at WBUT. The Department of Biotechnology (DBT), Government of India is initially supporting this 4-semester M.Tech. programme in Biotechnology at WBUT for 5 years. The M.Tech.(Biotechnology) programme took off successfully in early 2003. A good and sufficient infrastructure has been established with the financial support received from the Department of Biotechnology, Govt. of India. The main focus of this department is training of students and developing expertise in various facets of Biotechnology. The research trainings (R&D) that will be undertaken as a part of the future programme, and the knowledge students would gather from the course curricula would help them and the researchers in future to develop commercially viable biotechnological processes/products. Scholarships will be payable at the rates prescribed by the Department of Biotechnology.

**Fees to be paid at time of Admission: Rs.26100/-(approx.)

Contact Address: Prof. Subrata Kumar Dey,
Professor & Director
Department of Biotechnology,
West Bengal University of Technology,
BF-142, Salt Lake, Sector-I,
Kolkata – 700064

Phone No.	:	033-23211327 Ext.204
Fax No.	:	033-23341030
E-mail	:	subrata.dey@wbut.ac.in
		subrata_dey@sify.com

* **No. of seats in subject to change by participating Universities.**

** **Subject to revision.**

II. ELIGIBILITY FOR ADMISSION

Minimum 60% marks or equivalent CGPA (under grading system) from any recognised university in any one of the following:

B.Tech/BE in:		**M.Sc. in:**
1. Chemical Engineering		1. Biotechnology
2. Biochemical Engineering **OR**		2. Life Sciences
3. Industrial Biotechnology		3. Botany, Zoology, Biochemistry
4. Leather Technology		4. Microbiology, Genetics
5. Chemistry/Biotechnology		5. Biophysics
6. Biomedical Engineering		6. Microbial Genetics & Bioinformatics
7. B. Pharma		
8. Chemical Technology		

For Anna University: Candidates with B.Tech/B.E in Electrochemistry, Bioengineering, Pharmaceutical Technology, Food Technology and M.Sc. in Chemistry & Physics are also eligible.

For West Bengal University of Technology : Candidates with M.Sc. in Bioengineering are also eligible.

For Cochin University of Science and Technology: Candidates with M.Sc in Marine Biotechnology, Marine Biology/Aquatic Biology & Fisheries, Environmental Biotechnology are also eligible.

Only those candidates who have passed the qualifying examination in 2009 or thereafter including those who are appearing in 2011 are eligible to apply. In other words, those who have passed the qualifying examination PRIOR to 2009 are NOT eligible to apply.

Important Notes:

➤ **Before submitting/posting the completed Application Form, please ensure that you fulfil the eligibility require-ments as prescribed above. Also please note that permission to appear in the entrance examination is strictly subject to your fulfilling the minimum eligibility requirements prescribed by each University as detailed above. You may, therefore, appear in the entrance examination only if you fulfil the eligibility requirements for M. Tech Biotechnology Programme. Despite this caution, in case you do not meet the minimum eligibility criteria and still appear in the entrance examination, you will do so at your own risk and cost, and if at any stage, it is found that you do not fulfil the minimum eligibility requirements, the admission, if granted to you, shall be cancelled ipso facto.**

➤ Number of seats is subject to change by the participating Universities.

➤ Candidates who are due to appear in the final semester/year of the qualifying examination shall also be considered for appearing in the entrance examination provided they have secured 60% or equivalent CGPA (under grading system) in previous semesters/year. However, in the event of their selection, the admission will be granted to them subject to their securing minimum 60% marks or equivalent CGPA in their qualifying examination.

III. RESERVATION/CONCESSION

a) **Reservation:** 15%, 7½% and 3% of seats shall be reserved for Scheduled Caste (SC), Scheduled Tribe(ST) and Physically Challenged (Handicapped) (PH) candidates (with not less than 40% disability) respectively. All the SC/ ST and PH candidates who have passed the qualifying examination are eligible to apply irrespective of their percentage of marks in the qualifying examination. **Only those SC/ST/PH candidates who have passed the qualifying examination in 2009 or thereafter including those who are appearing in 2011 are eligible to apply. In other words, those who have passed the qualifying examination PRIOR to 2009 are NOT eligible to apply. OBC reservation, wherever applicable, will be implemented as per the policy of each participating University.**

b) **Concession for Kashmiri Migrants:** 10% marks will be added to the overall marks scored by a Kashmiri migrant candidate in the Entrance Examination. After adding 10% marks, in case he/she is covered in the cut-off point in the merit list, he/she will be offered admission strictly in accordance with his/her inter-se merit alongwith other candidates subject to his/her meeting the minimum prescribed eligibility requirements and also subject to his/her producing valid registration documents issued by the notified authorities certifying the candidate's Kashmiri Migrant status.

IV. GUIDELINES FOR ENTRANCE EXAMINATION

The question paper for Entrance Examination will be of 3-hours duration consisting of Two Streams: (i) Technology Stream and (ii) Life Sciences Stream.]

(i) **Technology Stream :**
Part A	:	Basic Engineering & Technology........................... at under graduate level
Part B	:	Physics/Chemistry/Maths...................................... at under graduate level
Part C	:	Fundamental Life Sciences and Informatics............ at 10+2 level

(ii) **Life Science Stream:**
Part A	:	Life Sciences (Biochemistry, Molecular Biology & Immunology)……at post graduate level
Part B	:	Physics/Chemistry...……………………at undergraduate level
Part C	:	Maths, Computer & Information Sciences.................…………………… at 10+2 level

V. SYLLABUS

Section I

Technology/Engineering Stream

Part A

(Basic Engineering and Technology Pharmacology)

i) **Basic Engineering and Technology**

Basic concepts/principles in mechanical engineering, electrical and electronics engineering:

Chemical Engineering: Computer applications in chemical engineering- chemical process industries instrumen-tation methods of chemical analysis- thermodynamics- stoichiometry- fluid dynamics- mechanical operations- heat and mass transfer operations- chemical kinetics/reaction engineering- process instrumentation dynamics and control- process equipment design.

Principles of Biochemical Engineering: Enzyme catalysis (Michalis Menton Kinetics) and reactor design. Material & energy balances of fermentation processes. Kinetics of microbial growth and product formation (Monad model-Leudekins-Piert model). Nature of fermentation processes. Transport phenomena in biochemical reactors- Mass transfer in immobilized enzyme systems and Oxygen transfer in submerged fermentation process, examples of primary metabolites, secondary metabolites and enzymes. Bioreactor operation and design, reactor sterilization. Batch, fed-batch and continuous culture process and cell recycle processes. Modelling of non-ideal behavior in bioreactors. Novel bioreactors, air-lift reactors, membrane bioreactors and fluidized bed reactors. Filtration and membrane based separations, centrifugation, extraction, absorption and chromatography.

(ii) **Pharmacology**

Physiology, Pharmacology & Biochemistry: Basic physiology and biochemistry pertaining to all the systems in the body. Classification, mode of action, pharmacological effects, side effects, toxicity and posology of drugs acting on the CNS, ANS, CVS, gastrointerstinal system, endocrine system. Principles of chemotherapy, chemotherapeutic agents, anticancer drugs, vitamins and minerals.

Industrial Pharmacy : Pharmaceutical processing - mixing, milling, drying, powder compression, clarification, filtration, Rheology, sterilization, sterility testing, disinfection, Pharmaceutical dosage forms : Formulation, manufacture and evaluation of solid, semisolid, liquid, aerosols and parentrals. Chemistry of natural products, SAR and Chemistry of analogesics, anticancer, CVS drugs, drugs acting on the CNS, GIT, chemotherapeutic agents, vitamins, hormones.classification, identification, extraction and isolation of active principles of commonly used medicinal plants. Immunological preparations, genetic engineering, fermentation. Biopharmaceutics, Pharmacokinetics-drug absorption, distribution, metabolism and elimination- general principles. Basic concepts of analysis of drugs.

Section I

Technology/Engineering Stream

Part - B

(Physics, Chemistry and Mathematics)

Mathematics:

Calculus - Differential Equation- Complex numbers- Complex integration- Power series- Three Dimensional Geometry-Algebra.

Physics:

Mechanics: Kinematics- Newton's laws - work and mechanical energy- dynamics of rotary motion- fundamentals of special theory of relativity- gravitation- motion in non-inertial frames.

Thermodynamics: Ideal gases- Ist law of thermodynamics- Kinetic theory of gases- 2nd law of thermodynamics -real gases.

Electricity and Magnetism: Electrostatics- Coulomb's law- electric field potential- capacitance- dielectrics in an electric field- energy of an electric field- direct current- magnetic field of direct current- - eletromagnetic induction.

Waves and Optics: Free hormonic oscillators- elastic waves- electromagnetic waves- interference, diffraction, scattering and polarisation of light- thermal radiation.

Modern Physics: Structure of matter and basic solid state physics - elementary nuclear physics- elementary quantum mechanics- structure of atom.

Chemistry:

Inorganic chemistry: Electronic structure of atoms, periodic table and periodic properties. General characteristics, structure and reactions of non-transition elements and transition elements. Coordination compounds, structure, crystal field and ligand field theories, spectral and magnetic properties.

Organic chemistry: Synthesis, reactions and mechanisms of alkenes, alkynes, arenes, alcohols, phenols, aldehydes, ketones, carboxylic acids and their derivatives, halides, nitro compounds and amines. Structure and properties of biomolecules, carbohydrates, amino acids and proteins.

Physical chemistry: Chemical equilibrium, first law, thermochemistry, second law and entropy, free energy, properties of dilute solutions. chemical kinetics, rates of reactions and factors affecting rates of reactions. Spectroscopy, principles of UV- visible and IR spectroscopy.

Section I

Technology/Engineering Stream

Part C

(Fundamentals of Life Sciences and Informatics)

Life Sciences: Organization of unicellular organisms, invertebrates and vertebrates. Ultrastructure of plant and animal cells. Nucleic acids, protein synthesis, Mendalian genetics. Morphology of angiosperms. Biotechnology, Physiology.

Information Technology: Introduction to www.Networking: Basics-modem-hub-switch-commands to transfer files-remote login. Elements of languages used on the Internet JAVA- Perl. Elements of databases- Relational databases.

Section II

Science Stream

Part A

Life Sciences

Biochemistry: Cell structure and function; protein synthesis; genetic code; DNA & RNA; carbohydrate, protein and lipid metabolism, clinical biochemistry; In born erros of metabolism; hormones and their function.

Molecular biology & recombinant DNA technology: Properties of nucleic acids, chromosomes, DNA replication, damage and repair, gene manipulation, cloning vectors, gene libraries, screening of libraries, gene cloning, applications of recombinant DNA technology, PCR, RFLP, Western, Northern and Southern blotting.

Immunology : Cells of the immune system, lymphoid tissues, complement, antibodies, hybridoma technology, applications of monoclonal antibodies, antigen recognitioin, processing and presentation, cell mediated immunity, cytokines, hypersensitivity, vaccine technology, auto-immunity, transplantation, immune responses to various infections, Immunotechnology.

Section II

Science Stream

Part B

(Physics and Chemistry)

Physics:

Mechanics : Kinematics- Newton's laws- work and mechanical energy- dynamics of rotary motion- fundamentals of special theory of relativity- gravitation- motion in non-inertial frames.

Thermodynamics: Ideal gases – 1st law of thermodynamics- Kinetic theory of gases- 2nd law of thermodynamics- real gases.

Electricity and Magnetism : Electrostatics- Coulomb's law- electric field potential- capacitance- dielectrics in an electric field- energy of an electric field- direct current- magnetic field of direct current- electromagnetic induction

Waves and Optics: Free hormonic oscillators- elastic waves- Electromagnetic waves- interference, diffraction, scattering and polarisation of light- thermal radiation.

Modern Physics: Structure of matter and basic solid state physics- elementary nuclear physics- elementary quantum mechanics- structure of atom.

Chemistry:

Inorganic Chemistry: Electronic structure of atoms, periodic table and periodic properties. General characteristics, structure and reactions of non- transition elements and transition elements. Coordination compounds, structure, crystal field and ligand field theories, spectral and magnetic properties.

Organic Chemistry: Synthesis, reactions and mechanisms of alkenes, alkynes, arenes, alcohols, phenols, alde-hydes, ketones, carboxylic acids and their derivatives, halides, nitro compounds and amines. Structure and properties of boimolecules, carbohydrates, amino acids an proteins.

Physical Chemistry: Chemical equilibrium, first law, thermochemistry, second law and entropy, free energy, properties of dilute solutions. Chemical kinetics, rates of reactions and factors affecting rates of reactions. Spectroscopy, principles of UV-visible and IR spectroscopy.

Section II

Science Stream

Part C

(Mathematics, Computer and Information Sciences)

Mathematics: Vectors- Trignometry- Differentiation & Integration- Matrices

Information Sciences: Introduction to www. Networking: Basics-modem-hub-switch-commands to transfer files-remote login. Elements of languages used on the Internet JAVA- Perl. Elements of databases- Relational database.

Computer Application: Basics of computers-hardware-components of a computer. Operating systems- windows-linux- simple commands. Elementary Boolean arithmetic- substraction- addition- multiplication. Applications- word processing- spread sheets. Elementary basic programming commands and syntax.

VI. PREVIOUS YEARS' QUESTION PAPERS

For the reference of intending candidates, a set of question papers pertaining to the last five years has been prepared. In order to meet the processing and printing charges, the cost of a set of five years' question papers has been fixed as under :

| (1) | At Cash Counter | : | Rs.150/- |
| (2) | By Post: | : | Rs.300/- |

Those who wish to obtain this set of five years question papers by post may write to the Section Officer (Admissions), Jawaharlal Nehru University, New Delhi-110067 alongwith a Bank Draft for Rs.300/- drawn in favour of **"Jawaharlal Nehru University", payable at New Delhi** and a self-addressed unstamped envelope of not less than 30x25 cm. mentioning clearly on the top of the envelope "**Request for M.Tech Biotechnology Previous Years Question Papers" before 11th April 2011.** However last date for issue of sets of question papers at Cash Counter will be 29th April 2011. **Please note that even though questions will be of multiple choice, the pattern may change from year to year.**

VII. SELECTION PROCEDURE

Selection of the candidates will be done in accordance with their inter-se merit drawn on the basis of All India Entrance Examination vis-à-vis the preference of Universities exercised by candidates. In case a candidate has not indicated his/her option for joining a particular university, his/her name will not be considered for that university.

The Selection procedure will be as follows:

1) After the merit list is drawn more than double the number of candidates than the total intake only will be informed of their merit rank in the entrance examination. The candidates will also be informed about the total number of seats in each participating University. The candidates will be asked to exercise their final options for joining the Universities in the proforma (which will be sent by JNU). The candidates will be asked to send to JNU a Bank Draft of Rs.5,000/- (Rs.2,500/- in the case of SC, ST, PH candidates) **as initial security deposit** giving their willingness to be considered for admission to the participating Universities in accordance with their options for joining the Universities vis-à-vis their inter-se merit in the Entrance Examination. **ALL CANDIDATES ARE ADVISED TO CHECK THE RESULT ON THE WEB SITE OF THE UNIVERSITY (www. jnu.ac.in) IN THE FIRST/SECOND WEEK OF JUNE.**

2) The candidates who do not exercise their options for joining any of the participating universities will not be considered for admission to that university/universities.

3) After allotment of seats, the JNU will send intimation to the candidates about their allotment of the university and also to the concerned participating university to which the candidate has been selected. Please note that once allotment of University is made on the basis of inter se merit vis-à-vis options,other options of the universities given by the candidate shall stand frozen. **CANDIDATES ARE ADVISED TO CHECK THE ALLOTMENT OF UNIVERSITY ON THE WEB SITE OF THE UNIVERSITY (www. jnu.ac.in) IN THE FIRST/SECOND WEEK OF JULY.**

4) The participating university will then inform the candidate about the complete admission procedure and schedule of their university as well as the amount of fee etc. to be deposited by the candidate. The initial security deposit already sent by the candidate through demand draft to JNU will be sent to concerned University for refund to the students after first semester.

5) In case the candidate is offered admission in accordance with his/her options for joining the universities vis-à-vis his/her inter-se merit, but subsequently in case he/she either does not join the concerned university or withdraws during first semester then in that event, the initial security deposit of Rs. 5,000/- or Rs.2,500/- in case of SC,ST, PH categories, as the case may be, <u>will stand forfeited.</u>

6) The initial security deposit of Rs.5,000/-, (Rs.2,500/- in the case of SC/ST, PH candidates) will be refunded in full to those of the candidates who are not offered admission to any of the participating university.

7) <u>**Candidates may note that request for transfer from one university to another will not be entertained under any circumstances. Therefore, candidates are advised not to make any request in this regard.**</u>

8) Only those candidates who will be asked to exercise their option will be informed by post/telegram and the list of these candidates will also be available on JNU website (www.jnu.ac.in). However, the candidates are advised to find out through their own sources whether their names appear in the list and thereby make arrangement for sending their option together with initial security deposit by the stipulated date. **The University will not be responsible for any delay/lapse on the part of postal/telegraph Department.**

9)   **PLEASE NOTE THAT ONLY ONE MERIT LIST WILL BE RELEASED AND THERE WILL BE NO SECOND LIST UNDER ANY CIRCUMSTANCES**.

VIII. ADMIT CARD FOR ENTRANCE EXAMINATION

Admit Cards will be issued by the University only to those candidates who have submitted the Application Form complete in all respects on or before the last date for submission of Application Form i.e. 21st March 2011. The University will not be responsible for any postal delay or irregularity or loss in postal transit resulting in non-receipt of either the filled in Application Form by the University or the Admit Card by the candidates. The candidates may download their Admit Card from the University's website: www.jnu.ac.in after 10th May 2011 and take the Admit Card to the Examination Centre with a copy of latest passport size photograph.

Before taking the entrance examination, please ensure that you fulfil the eligibility requirements as prescribed by the University. Also please note that permission to appear in the entrance examination is subject to your fulfilling the minimum eligibility requirements prescribed for admission as notified in the prospectus. You may, therefore, appear in the entrance examination only if you fulfil the eligibility requirements as prescribed for M.Tech Biotechnology Programme under Section-II of this prospectus. Despite this caution, in case you do not meet the minimum eligibility criteria and appear in the entrance examination, you will do so at your own risk and cost, and if at any stage, it is found that you do not fulfil the minimum eligibility requirements, the admission, if granted to you, shall be cancelled ipso facto.

Important Note: The Admit Cards are mailed to the candidates approximately fifteen days before the date of the Entrance Examination by ordinary post. In case, however, Admit Card is not received in time, the candidates may download their Admit Card from the University's website: www.jnu.ac.in after 10th May 2011 and take the Admit Card to the Examination Centre with a copy of latest passport size photograph.

Those candidates who have applied and fulfil the prescribed eligibility conditions but somehow do not receive the Admit Card, or are not able to download the Admit Card are advised to contact either the JNU Representative (who will be available at the Examination Centre at least a day in advance) or the Presiding Officer/Principal of the Centre to sort out the problems. It may be noted that only those candidates will be allowed to appear in the entrance examination whose names appear in the roll-list available with the examination centre. The University will assume no responsibility whatsoever in case the candidate fails to report on the due date and time for appearing in the entrance examination.

IX. TIME-TABLE FOR ENTRANCE EXAMINATION ADMISSION

1. Date of issue of Application Forms		:	**February 07, 2011**
2. Last date for issue of Application Forms:	a) by post	:	**March 10, 2011**
	b) by cash	:	**March 21, 2011**
3. Last date for submission of completed Application Forms		:	**March 21, 2011**
4. Date and time of Entrance Examination		:	**May 20, 2011** **(2.00 P.M. to 5.00 P.M.)**
5. Results of Entrance Examination		:	**June/July 2011**
6. For admission/result queries candidate may visit our website		:	**www.jnu.ac.in**

Although University will inform the candidates falling under consideration zone about their merit by post/telegram, it is the responsibility of the candidate to see the result on University website. University will not be responsible for any delay/lapse on the part of postal/telegraph Department.

X. HOSTEL FACILITIES

The outstation candidates admitted to the programme of study of the participating Universities will be considered for hostel accommodation as per rules of the concerned University subject to availability of hostel accommodation. Students may please note that grant of admission in a University would not ensure automatic allotment of hostel accommodation and that the same will be offered subject to its availability.

XI. CERTIFICATES AND OTHER DOCUMENTS REQUIRED AT THE TIME OF ADMISSION

(a) Two copies of the Matriculation, Higher Secondary Pre-University of Indian School Certificate or Senior School Certificate (10+2) or an equivalent examination certificate, showing the age/date of birth of the candidate duly attested by the Principal of the College/School last attended or a Gazetted Officer;

(b) A Character Certificate from the Head of the Institution last attended;

(c) Two attested copies of the statement of marks obtained by the candidate in Senior School, Bachelor's Degree/ Master's Degree examination etc; or their equivalent examination;

(d) Two attested copies of the Bachelor's Degree and/Master's Degree;

(e) SC/ST/OBC Certificate, if belonging to SC/ST/OBC category

(f) A Medical Certificate for PH Candidates certifying that the disability is not less than 40%.

(g) Migration Certificate (in original) from the Head of the Institution/University last attended:

Important: The candidates are also required to produce all originals of the above certificates/documents for verification at the time of registration/admission. In the absence of any of the original certificates/documents, registration/admission shall not be allowed.

XII. INSTRUCTIONS FOR COMPLETING THE APPLICATION FORM

Notes:

a) **Please read the Important Notes/Check List given in the inside front cover of the brochure before and after filling-up the Application Form.**

b) **Please fill the form in your own handwriting.**

c) **Please note down your Application Form Number for future correspondence or retain a photocopy of the filled in Application Form.**

d) **The Application Form is to be filled in by the candidate IN BLACK INK ONLY giving complete information using capital letters as far as possible. Please read carefully the instructions given hereunder before filling up the form. Refer to the sample of a filled-in Application Form given in the prospectus. Note especially the right method to darken the bubbles as shown in the Sample Application Form.**

e) **First, write in black ink (using capital letters) the required information in the boxes (wherever provided). Then darken the appropriate bubble corresponding to the letter/numeral underneath each box. What you write in these boxes is only for your guidance and verification that you are darkening the bubble corresponding to the correct letter/numeral.**

f) **If you wish to change a marking, completely cover the darkened bubble with white fluid, and then darken the appropriate bubble.**

g) **Please note that your name, your parent's/guardian's name, and your date of birth should exactly be the same as given in your 10th class or first Board/Pre-Universtiy examination certificate. Any deviation, whenever discovered, may lead to cancellation of your candidature.**

1. **Name of the Candidate:** Write your name in capital letters as given in your 10th class certificate or your first Board/ Pre-University Examination. Write a only one letter in each box. Leave one, **and only one**, blank box between consecutive words of your name. Darken the appropriate bubble underneath each letter of the name. If your name has several initials, leave one bubble blank after each of them.

2. **Date of Birth :** Darken the bubbles to indicate date of birth exactly same as given in your High School or your first Board Examination in terms of day, month and year. Use numeral 01 to 31 for date, use numerals 01 to 12 for month and use last two digits for the year of birth.

3. **Gender:** Darken the appropriate bubble.

4. **Nationality:** Darken the appropriate bubble. In case you are a Foreign National, please indicate the country to which you belong in the space provided.

5. **Category:** Darken the bubble corresponding to your category/categories as given below. **Your request for change of category subsequent to your submission of Application Form will not be accepted.**

Category	Code
General	G E N
Scheduled Caste	S C
Scheduled Tribe	S T
Other Backward Class (Only Non Creamy Layer)	O B C

6. **PH Category:** In case you are a candidate with a minimum of 40% disability, darken the bubble corresponding to your Physical Handicapped category as given below. Otherwise leave it blank.

Hearing Handicapped	:	HH
Orthopadeicaly Handicapped	:	OH
Visually Handicapped	:	VH

7. In case you are Kashmiri Migrant, darken the bubble, otherwise leave it blank.

8. **State of Domicile:** Mention the code of the state to which you belong (refer to the codes given below). Darken the bubble corresponding to the approprite numeral in each column.:

State/Union Territory	Code	State/Union Territory	Code
Andaman & Nicobar	0 1	Lakshadweep	1 8
Assam	0 2	Madhya Pradesh	1 9
Andhra Pradesh	0 3	Maharashtra	2 0
Arunachal Pradesh	0 4	Manipur	2 1
Bihar	0 5	Meghalaya	2 2
Chandigrah	0 6	Mizoram	2 3
Chattisgarh	0 7	Nagaland	2 4
Delhi	0 8	Orissa	2 5
Daman & Diu	0 9	Pondicherry	2 6
Goa	1 0	Punjab	2 7
Gujarat	1 1	Rajasthan	2 8
Haryana	1 2	Sikkim	2 9
Himachal Pradesh	1 3	Tamil Nadu	3 0
Jammu & Kashmir	1 4	Tripura	3 1
Jharkhand	1 5	Uttar Pradesh	3 2
Karnataka	1 6	Uttaranchal	3 3
Kerala	1 7	West Bengal	3 4
		Any other place(in India)	3 5
		Foreign Countries	3 6

9. **Programme of Study:** Darken the appropriate bubble corresponding to the programme of study for which you will be taking the Entrance Examination **(Darken only one bubble)**.

10. Darken the appropriate bubble corresponding to the stream for which you will be taking the Entrance Examination **(Darken only one bubble)**.

11. Darken the bubbles corresponding to the appropriate numerals to indicate year of passing or appearing in the qualifying examination (i.e. examination on the basis of which you are seeking admission).

12. **Entrance Examination Centre:** Darken the bubbles corresponding to the appropriate numerals to indicate the city where you would take the entrance examination. A list of cities where JNU entrance examination is to be held is given below. **No change will be permitted and no correspondence in this context will be entertained.** In case it is not possible to allot the Centre of your choice, the University reserves the right to allot you alternative centre.

Name of the Centre	Centre Code	Name of the Centre	Centre Code
1. Agartala	1001	22. Secundrabad	1022
2. Ahmedabad	1002	23. Imphal	1023
3. Aizawl	1003	24. Indore	1024
4. Allahabad	1004	25. Itanagar	1025
5. Amritsar	1005	26. Jaipur	1026
6. Bangalore	1006	27. Jammu	1027
7. Bareilly	1007	28. Katihar	1028
8. Bhubaneshwar	1008	29. Kolkata	1029
9. Calicut	1009	30. Lucknow	1030
10. Chandigarh	1010	31. Mumbai	1031
11. Chennai	1011	32. Madurai	1032
12. Coimbatore	1012	33. Nagpur	1033
13. Dehradun	1013	34. Noida	1034
14. Delhi	1014	35. Pant Nagar	1035
15. Dimapur	1015	36. Patna	1036
16. Gangtok	1016	37. Pondicherry	1037
17. Gwalior	1017	38. Pune	1038
18. Guwahati	1018	39. Raipur	1039
19. Goa	1019	40. Ranchi	1040
20. Gorakhpur	1020	41. Sambalpur.	1041
21. Hyderabad	1021	42. Shillong	1042

Name of the Centre	Centre Code		Name of the Centre	Centre Code
43. Shimla	1043		50. Vijayawada	1050
44. Silchar	1044		51. Visakhapatnam	1051
45. Siliguri	1045		52. Vadodara	1052
46. Srinagar	1046		**(Overseas Centre)**	
47. Thiruvananthapuram	1047		53. Kathmandu*	2000
48. Udaipur	1048			
49. Varanasi	1049		*Subject to sufficient number of candidates available.*	

Note:

1. **The University reserves the right to change/cancel any Centre of Examination within India/abroad without assigning any reason.**

2. **Addresses of the Centres of Examination will be available on our JNU website (www.jnu.ac.in) after 10th May, 2011**

13. **Details of Bank Draft enclosed towards Entrance Examination :** Darken the bubbles corresponding to the appropriate numerals to indicate Bank Draft Number, Date of Demand Draft and amount of the demand draft. The entrance examination fee is Rs. 600/- for general category candidates including OBC candidates and Rs. 300/- for the candidates belonging to SC/ST and Physically Challenged (Handicapped) categories. The entrance examination fee for Foreign Nationals is US$ 25.00 or Rs.1250/-.

You are required to enclose Crossed Bank Draft **(valid for six months)** for the prescribed examination fee. The bank draft should be drawn in favour of **JAWAHARLAL NEHRU UNIVERSITY** payable at **NEW DELHI.**

You must write your application form no., name, programme and examination centre opted for on the left hand corner on the reverse of the Bank Draft.

PLEASE NOTE THAT, IF YOUR APPLICATION IS REJECTED FOR ANY REASON, WHATSOEVER OR YOU ARE NOT ABLE TO TAKE THE ENTRANCE EXAMINATION, THE ENTRANCE EXAMINATION FEE PAID BY YOU SHALL NOT BE REFUNDED.

(If the bank draft (valid for six months) towards entrance examination fee is not submitted with the application form, your application will be summarily rejected without any intimation to you).

14. **Father's Name :** Write your father's name in BLOCK LETTERS exactly as in your 10th class or equivalent Certificate. Write only one letter in each box.

15. **Please note that Column No. 15. (i.e your name and mailing address) will be scanned and therefore it should be written very clearly IN BLACK INK ONLY. If you make any mistake, you should cover the whole box with exact size white paper slip and write your name and address on that. Your address must not overflow this box.**

16. **Photograph** : Please write your name and application form number on the backside of a recent good quality colour photograph (taken not earlier than two months) and paste (do not staple) in the box provided. The photograph should be taken preferably with dark coloured clothes in a white background. The approximate size of the photograh should be 3.5 cm. x 4.5 cm. **Do not sign on the photograph and do not get it attested.**

17. **Signature:** Put your usual signature in black ink within the box provided. Your signature must not overflow or touch the border of the box provided. Your signature establishes your identity. Hence, do not merely write your name in capital letters. This may lead to rejection of your application.

18. **Choice of University in order of Preference:** Candidates are advised to write the numerical code of the Universities they would like to join (in order of their preference), after carefully going through the eligibility conditions as laid down by each participating University and shown in Section II of this prospectus.

A maximum of three choices are to be indicated as M.Tech. Biotechnology progrmme is being offered by only three Universities

You should use the following numeral Codes as given below. Darken the bubble corresponding to the appropriate numeral as per your preference in each column:

Name of the University	Numerical Code
1. **Anna University, Chennai**	81
2. **Cochin Univeristy of Science and Technology, Kochi**	82
3. **West Bengal University of Technology, Kolkata**	83

Note:

(i) **In case it is found subsequently that the candidate does not fulfil the eligibility conditions for M.Tech programme, his/her admission, if granted, will stand automatically cancelled.**

(ii) In case a candidate has not indicated his/her choice/preference for joining a particular University in the application form, his/her name will not be considered for that University.

(iii) Candidates may also note that request for change of choice/preference or transfer from one university to another will not be entertained under any circumstances. Therefore, candidates are advised not to make any request in this respect.

19. Academic Record: While filling up the information relating to the Academic Record, you should strike off the examinations which are not relevant and should indicate the name of the relevant examination i. e. High School, Higher Secondary, Senior School Certificate (10+2), Intermediate or equivalent, B.Sc. (Hons.), B.Sc., B.Tech., B.E., M.Sc. etc. as the case may be. If you are appearing for final year examination you should fill in all the columns except percentage of marks column wherein you should write "APPEARING". **Please do not forget to write subjects studied in qualifying examination in the column provided for verificaton of your eligibility.**

In case the University/Institution from where your have passed the examination follows letter grading system/CGPA, you are required to indicate the equivalent percentage in the space provided in the application form for the purpose of determining the eligibility.

If you are presently a student of any University, please write the name of that University also indicate the year in which you will pass out the final year examination from this University.
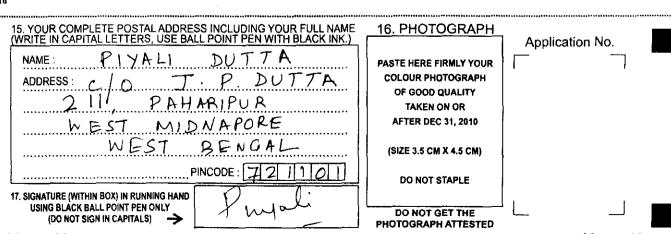
— **Declaration:** The candidate must sign the declaration at the end of the application form.

— **Telephone/Fax No./Email etc:** The candidate is also advised to give his/her telephone/mobile number; Fax/Email, if any, in the appropriate columns at the end of application form.

— **Acknowledgment Card :** One printed Acknowledgment Card is enclosed with the Application Form. You are required to fill all the columns provided in the Acknowledgement Card. You are also required to write your complete postal address on the space provided in the Card. and affix a postage stamp of Rs.6/- & submit it with the application form. For all further correspondence, you should invariably indicate your Application Form No. and address for communication to the Section Officer (Admissions), Room No. 28, Administrative Block, Jawaharlal Nehru University, New Delhi-110067.

— **Insert the following documents in the 10" X 7" size envelope supplied with the Application Form and post it or drop in the Box in the Administrative Block of the University.**

1. Bank Draft (Put the Bank Draft in the 9" X 4" size envelope supplied with the Application Form).
2. Application Form (Refold the application form where it is originally folded).
3. Acknowledgment Card duly filled in and affixed with postage stamp of Rs.6/-.

Application Forms can be submitted by Registered Post to Section Officer (Admissions), Room No.28, Administrative Block, Jawaharlal Nehru University, New Delhi - 110067 or dropped in the Box in the Administrative Block of the University. The application forms must reach the JNU on or before March 21, 2011. JNU will not accept responsibility for any postal delay or irregularity or loss in postal transit.

PLEASE DO NOT SEND YOUR APPLICATION FORM THROUGH PRIVATE COURIER SERVICES.

Important Notes:

— **If any information furnished by the candidate in the application form is found to be false, his/her admission, if granted on the basis of such information will be cancelled, ipso facto.**

— **Incomplete application forms will be summarily rejected without any reference to the candidates. The candidates are, therefore, advised to carefully complete all the relevant columns of the application form.**

— **Application Forms received after the closing date shall not be entertained. However, where marginal delay in submission of completed form occurs due to pressing reasons, or for circumstances beyond the candidate's control, such of the application forms shall be considered on the merit of each individual case with justification given by the candidate alongwith the form in support of his/her claim for its late submission.**

— **University shall not accept responsibility for any postal delay or non delivery of filled in application forms to the University or non receipt of admit card by the candidate.**

— **Any dispute with regard to any matter relating to admission shall be subject to the jurisdiction of Delhi Courts only.**

Price : Rs. 200/-
Last Date for Submission 21st March, 2011

Application Form for Combined Entrance Examination-2011-12
Biotechnology Programmes

Application No.

1. NAME OF THE CANDIDATE AS IT APPEARS IN THE SCHOOL LEAVING CERTIFICATE (IN CAPITAL LETTERS)

PIYALI DUTTA

APPLICATION FORM INCOMPLETE IN ANY RESPECT SHALL NOT BE CONSIDERED.

Wrong Methods

Correct Method

2. Date of Birth

Day	Month	Year
1 2	0 6	8 6

3. GENDER
Male ○
Female ●

4. Nationality
Indian ●
Foreigner, Country, If foreign National ○

5. CATEGORY
GENERAL ●
S. C. ○
S. T. ○
OBC(Non Creamy Layer) ○

6. PH CATEGORY
HH ○
OH ○
VH ○

7. Are you a Kashmiri Migrant ? ○

8. STATE OF DOMICILE
3 4

9. Programme for Study (Darken only one bubble)
M. Sc. Biotechnology (BIT) ○
M. Sc. (Agri) Biotechnology(BAG) ○
M. V. Sc.(MVS) ○
M. Tech. Biotechnology (MTB) ●

10. Stream to which applying only for M-Tech Programme
Engineering Stream ○
Science Stream ●
Pharma Stream ○

11. Year in which qualifying exam passed/appearing.
2011

12. Entrance Exam Centre Code
1029

13. Details of Bank Draft enclosed towards Entrance Examination Fee.

DD NUMBER
210211

DATE OF DEMAND DRAFT
D D 03 | M M 03 | Y Y 11

AMOUNT
0600

14. Father's Name (IN BLOCK LETTERS)
GOPAL DUTTA

HG 7416

15. YOUR COMPLETE POSTAL ADDRESS INCLUDING YOUR FULL NAME (WRITE IN CAPITAL LETTERS, USE BALL POINT PEN WITH BLACK INK.)

NAME : PIYALI DUTTA
ADDRESS : C/O J. P. DUTTA
2 11, PAHARIPUR
WEST MIDNAPORE
WEST BENGAL
PINCODE : 7 2 1 1 0 1

16. PHOTOGRAPH
Application No.
PASTE HERE FIRMLY YOUR COLOUR PHOTOGRAPH OF GOOD QUALITY TAKEN ON OR AFTER DEC 31, 2010
(SIZE 3.5 CM X 4.5 CM)
DO NOT STAPLE
DO NOT GET THE PHOTOGRAPH ATTESTED

17. SIGNATURE (WITHIN BOX) IN RUNNING HAND USING BLACK BALL POINT PEN ONLY (DO NOT SIGN IN CAPITALS) → Piyali

18. Choice of University in order of Preference :

Univ. Code 1	Univ. Code 2	Univ. Code 3	Univ. Code 4	Univ. Code 5	Univ. Code 6	Univ. Code 7	Univ. Code 8	Univ. Code 9	Univ. Code 10	Univ. Code 11	Univ. Code 12	Univ. Code 13	Univ. Code 14	Univ. Code 15
8 2	8 1	8 3												

Univ. Code 16	Univ. Code 17	Univ. Code 18	Univ. Code 19	Univ. Code 20	Univ. Code 21	Univ. Code 22	Univ. Code 23	Univ. Code 24	Univ. Code 25	Univ. Code 26	Univ. Code 27	Univ. Code 28	Univ. Code 29	Univ. Code 30

19. Academic Record : Take into account marks in those subjects which are counted for awarding class/division.

Examination Passed		Year of Passing and Division	% of Marks CGPA or Grade	Name of School/College/Institution and District in which situated	Name of Board/University	Subject/Papers Offered
* High School/Matriculation/ 10th Class		2004	75%	GIRLS' HIGH SCHOOL, N·MID.	WBBSE	MATHS SCIENCE ENGLISH
* Senior School Certificate (10+2) Intermediate or equivalent		2006	72%	—do—	WBBSE	—do—
* B.Sc.(Hons.) / B.Sc. / B.Sc. (Agri.) /	1st Year	2007	7·55	HIT Haldia	WBUT	BIOTECH.
B.Tech. /	2nd Year	2008	6·75	—do—	—do—	—do—
B.E. / B.Vsc. / M.B.B.S. or	3rd Year	2009	7·82	—do—	—do—	—do—
B.D.S. Any other Graduate	4th Year	2011	APPEARING	—do—	—do—	—do—
Degree........................	5th Year					
Aggregate of all years						
* Master Degree	1st Year					
....	2nd Year					
	3rd Year					
Aggregate of all years						
Any other examination Please Specify						

* Strike off the Name of Examination which is not applicable.
Are you a student of any University at present. If yes, give details : ___ WBUT, BIOTECHNOLOGY.
(Name of the University & Course of Study)

DECLARATION BY THE APPLICANT : I declare that the information furnished by me in the Application Form is true in all respects and in case any entry or information is found to be false, this shall entail automatic cancellation of my admission besides rendering me liable to such action as the University may deem proper. I hereby undertake that I have carefully gone through the eligibility conditions prescribed in the Prospectus for the programme I am applying for and shall appear in the entrance examination after satisfying myself that I do fulfil the same. If at any stage it is found that I do not fulfil the minimum prescribed eligibility criteria, my admission, if granted, shall stand cancelled and I shall have no right to admission whatsoever.

Signature of the Applicant

Date 3/3/11   Telephone No. with STD Code 03222 - 261597 Fax No. _____
Place West Midnapore Mobile No. 09932114424 E-mail _____

FOLD ALONG THIS LINE