PADMASHREE DR. D. Y. PATIL UNIVERSITY
(Established under section 3 of the UGC act, 1956 vide notification No. F.9.21/2000-U.3 Dated 20.06.2002 of the Govt. of India)
NAAC Accreditation: "A" Grade
DEPARTMENT OF BIOTECHNOLOGY & BIOINFORMATICS
Plot No50, Sector –15, C.B.D. Belapur, Navi Mumbai – 400614.

Prospectus and Application Form

AIET–B.TECH 2013
ALL INDIA ENTRANCE TEST

FOR ADMISSION TO

B. TECH BIOTECHNOLOGY
B. TECH BIOINFORMATICS
B. TECH BIOMEDICAL ENGINEERING
M. TECH INTEGRATED (BIOTECHNOLOGY)

AIET–B.TECH – 2013
IMPORTANT INFORMATION AT A GLANCE

Entrance Test Fee	:	Rs. 1500/- payable by cash/demand draft drawn in favour of 'Padmashree Dr. D.Y.Patil University', payable at Navi Mumbai.
Date of Availability of Application forms	:	From Friday, 15th February, 2013 Available at C.B.D. Belapur Campus
Last date for receipt of Completed Application Form	:	**Should reach the below address before 4.00pm on** **a) Thursday, 9th May, 2013 for appearing 13th May, 2013 Entrance Test** **b) Tuesday, 14th May, 2013 for appearing 18th May, 2013 Entrance Test** **c) Friday, 24th May, 2013 for appearing 28th May, 2013 Entrance Test** **Coordinator: AIET – B. Tech 2013** **Department of Biotechnology and Bioinformatics** **Level – 5, Plot – 50, Sector – 15, CBD Belapur, Navi Mumbai – 400614.** **Tel: (022) 39486049 / 27563600 Fax : (022) 39486097**
Last date for Submission of Completed Application Form with late fee of Rs. 500/- Online	:	**Upto 4.00 pm on** **a) Saturday, 11th May, 2013 for appearing 13th May, 2013 Entrance Test** **b) Thursday, 16th May, 2013 for appearing 18th May, 2013 Entrance Test** **c) Monday, 27th May, 2013 for appearing 28th May, 2013 Entrance Test** **Coordinator: AIET – B. Tech 2013** **Department of Biotechnology and Bioinformatics** **Level – 5, Plot – 50, Sector – 15, CBD Belapur,** **Navi Mumbai – 400614.** **Tel: (022) 39486049 / 27563600 Fax : (022) 39486097**
Hall Tickets	:	The Hall Ticket will be sent to the candidates by email.
Date, Time and Venue of Entrance Test Examination	:	**a) Monday, 13th May, 2013 from 12.00 noon to 2.00 p.m.** **b) Saturday, 18th May, 2013 from 12.00 noon to 2.00 p.m.** **c) Tuesday, 28th May, 2013 from 12.00 noon to 2.00 p.m.** **Department of Biotechnology and Bioinformatics** **Padmashree Dr. D. Y. Patil University** **Plot – 50, Sector – 15, CBD Belapur, Navi Mumbai – 400614.**
Announcement of Result	:	**Thursday, 6th June, 2013 at 4.00 p.m.**
Schedule of Counseling	:	**11th, 12th and 13th June, 2013.** **Department of Biotechnology & Bioinformatics** **Plot No. 50, Sector-15, CBD Belapur, Navi Mumbai-400614.** **Tel: (022) 39486049 / 27563600 Fax : (022) 39486097**
Commencement of Classes	:	Will be notified at the time of counseling
Documents to be brought	:	1. S.S.C / Equivalent Examination mark statement & Certificate. 2. H.S.C. / Equivalent Examination mark statement & Certificate. 3. AIET B. Tech 2013 mark statement. 4. Bonafide and character certificate from the Head of Institution last attended 5. Leaving and / or Transfer Certificate from the Institute last attended. 6. Nationality Certificate 7. Domicile Certificate 8. Residence Proof 9. Backward Class / Caste Certificate duly verified by the Competent Authority 10. Passport in case of Foreign Nationals / Wards of Persons of Indian Origin / Wards of Non Resident Indians 11. Physical Fitness certificate from a registered Medical Practitioner.

CONTENTS

PADMASHREE DR. D. Y. PATIL UNIVERSITY, NAVI MUMBAI
ALL INDIA ENTRANCE TEST B.TECH 2013 (AIET- B.TECH 2013)

ADMISSION PROCESS

1. INTRODUCTION

The All India Entrance Test–B-Tech 2013(referred to as AIET-B.TECH 2013) is conducted for selection of candidates for admission to B. Tech (Biotechnology/Bioinformatics/Biomedical Engineering) and M. Tech Integrated (Biotechnology) at the Department of Biotechnology & Bioinformatics, CBD Belapur, Navi Mumbai.

The medium of instruction for the above courses is English. The duration of the B. Tech course is 4 years, and that of the M. Tech (Integrated) course is 5 years.

The coursewise intake capacity is as follows:

Course	Intake Capacity
B. Tech in Biotechnology (BBT)	120
B. Tech in Bioinformatics (BBI)	60
M. Tech Integrated in Biotechnology (MTI)	60
B. Tech in Biomedical Engineering (BBE)	60

2. MODE OF ENTRANCE TEST

The AIET- B.TECH 2011 will be of two hours duration.

There will be one question paper at the Entrance Test in English medium containing 150 Multiple choice questions (MCQs) as detailed below:

Physics	40
Chemistry	40
Biology	50
Mathematics	10
Computers	10

Each correct answer carries one mark. There is no negative marking.

3. DATE AND TIME OF AIET- B.TECH 2013
The AIET- B.TECH 2011 will be conducted on
a) Monday, 13th May, 2013 from 12.00 noon to 2.00 p.m.
b) Saturday, 18th May, 2013 from 12.00 noon to 2.00 p.m.
c) Tuesday, 28th May, 2013 from 12.00 noon to 2.00 p.m.
at Department of Biotechnology and Bioinformatics, Padmashree Dr. D. Y. Patil University, Plot – 50, Sector – 15, CBD Belapur, Navi Mumbai – 400614.

4. ELIGIBILITY CRITERIA FOR APPEARING AT AIET - 2013
Candidates satisfying the following eligibility criteria are eligible to appear for AIET B.TECH-2013
The Candidate must be either 17 years of age or attain the age at the time of admission. Candidate must have passed HSC (10+2) or equivalent examination from a recognized Board, securing minimum 50%

marks in the aggregate of the subjects Physics, Chemistry, Biology (PCB) or Physics, Chemistry, Biology and Mathematics (PCMB) and English as a subject is compulsory. Candidates with Mathematics will be considered eligible for B. Tech Bioinformatics/B. Tech Biomedical Engineering courses. The Scheduled caste, Scheduled tribe and OBC students shall have relaxation of 10% in the aggregate marks required for eligibility.

5. CENTRE FOR THE ENTRANCE TEST

The AIET- B.TECH 2013 shall be conducted at
Department of Biotechnology and Bioinformatics
Padmashree Dr. D. Y. Patil University
Plot – 50, Sector – 15, CBD Belapur, Navi Mumbai – 400614.

6. INSTRUCTIONS FOR FILLING THE APPLICATION FORM

1. Candidates are advised to retain with them a photocopy of the completed application form before sending the form to the Admission Committee for their personal record and future reference.
2. Write in CAPITAL LETTERS only and tick in appropriate boxes using a blue or black ball point pen.
3. Ensure that the candidate's name and date of birth are the same as those mentioned in their High School or Board certificate.
4. Fill in the form completely. **Incomplete application forms will be rejected.**

6.1   Name of the Candidate

Enter your name as given in your original certificate of the High School or the Board Examination. Enter only one letter in one box leaving one box blank between any two parts of the name, as shown in the following example:
Example: Dighe Amit Suresh
          (Surname First)

| D | I | G | H | E | | A | M | I | T | | S | U | R | E | S | H | |

6.2   Category

  Tick the appropriate box

6.3   Nationality

6.4   Religion

6.5   Passport Details (In case of foreign nationals)

6.6   Date of Birth

Enter the date, month and year of your birth as per English calendar and as recorded in your High School or the Board Examination Certificate. Use numeral 01 to 31 for date, 01 to 12 for month and the year as per the following example.

For one whose date of birth is 18th June 1994.

| DATE | MONTH | YEAR |

| 1 | 8 | | 0 | 6 | | 1 | 9 | 9 | 4 |

6.7   Sex

Tick the appropriate box

6.8   Place of Birth

6.9   Address for Correspondence

Enter your complete postal address to which communication is to be sent. Also mention Tahsil and District in which the place is situated.

6.10   State

Mention name of the state with respect to the above correspondence address.

6.11   PIN code

6.12   E-Mail ID

6.13   Tel No (With STD Code)

Enter your contact telephone number with STD code prefixed to it.

6.14   Tel No Office

6.15   Fax No (With STD Code)

Enter your fax number, if any, with STD code prefixed to it.

6.16   Permanent Address

6.17   Board of Qualifying Examination

Enter name of the Board from which qualifying examination is passed / appeared.

6.18   Name of qualifying examination

Enter the name of the Qualifying examination passed or appeared for.

6.19   Whether passed or appeared for the qualifying examination.

Tick the appropriate box.

6.20   If Passed, percentage of marks in the qualifying examination.

Fill in percentage of marks.

6.21   Order of preference of programmes

Fill in your order of preference of programmes with the number given for each programme, in the boxes from left to right.

For example: If your order of preference is M.Tech Intergrated Biotechnology then B.Tech Biomedical Engineering then B.Tech Bioinformatics then B.Tech Biotechnology then the boxes are to be filled as shown.

4	3	2	1

Admission to the programs will be strictly as per order of preferences mentioned by the candidate in the application form.

6.22   Details of Entrance Test Fees

Fill in details of date, amount, DD number and name of bank with branch in the space provided.

Photograph

Past a recent (taken not more than 3 months prior) good photograph of size 3.5 cm x 2.5 cm in the box provided in the application form. It is expected that the candidate will have the same appearance at the time of examination as in the said photograph.

7. HALL TICKET

The Hall Ticket will be sent to the candidates by email.

8. SUBMISSION OF APPLICATION FORM & ENTRANCE TEST FEE

The Entrance Test fee payable is Rs. 1500/-. The fees is payable by cash / demand draft drawn in favor of Padmashree Dr. D. Y. Patil University, on a nationalized / scheduled bank, payable at Navi Mumbai. Particulars of the draft must be filled in the body of the forms as well in both parts of the receipt attached along with the form. The candidates should write their full name address and application number on the reverse of the demand draft.

The last date of receipt of completed application forms at the following address is upto
>   **a) Thursday, 9th May, 2013 for appearing 13th May, 2013 Entrance Test**
>   **b) Tuesday, 14th May, 2013 for appearing 18th May, 2013 Entrance Test**
>   **c) Friday, 24th May, 2013 for appearing 28th May, 2013 Entrance Test**

*With late fee of Rs. 500/- up to 4:00pm on
>   **a) Saturday, 11th May, 2013 for appearing 13th May, 2013 Entrance Test**
>   **b) Thursday, 16th May, 2013 for appearing 18th May, 2013 Entrance Test**
>   **c) Monday, 27th May, 2013 for appearing 28th May, 2013 Entrance Test**

Entrance Test Administration Cell,
Department of Biotechnology and Bioinformatics
Padmashree Dr. D. Y. Patil University
Level 5, Plot – 50, Sector - 15
Navi Mumbai – 400 614.
Tel No.: (022) 39486049, 27563600
Email: drdebjanid@dypatil.edu / biosciences@dypatil.edu

It will be the responsibility of the candidate to ensure that his/her demand draft for fee reaches the office of the Coordinator of Admission Committee with in the specified time and date. The demand draft received after the due date shall be rejected and such candidates shall not be allowed to appear for the Entrance Test. The Admission Committee **AIET- B.TECH 2013** will not be responsible for non-receipt of demand draft within the specified time and date due to postal / courier service delays.

9. MERIT LIST

The results of the Entrance Test (names of the candidates and marks obtained by them) will be declared by the Admission Committee at **4 pm on Thursday, 6th June, 2013.** The results will be displayed at University notice board and on the website of the University http://www.dypatil.ac.in.

10. FN/ PIO/ NRI CATEGORY

Please note that fifteen percent seats for each course are reserved for Foreign National/ PIO/ NRI category and the fee structure for this category is different from that of the General Category as detailed in Item No 11. The candidates desirous of getting admission under this category will have to apply separately on a prescribed form available from the Department / AIET- B.TECH 2013 Office.

As students from countries other than India come from different backgrounds from a wide range of countries graduating at different times each year, an examination for them becomes a difficult task, as such. The students desirous of getting admission in this category are exempted from appearing for

AIET- B.TECH 2013. Preference will be given to the Foreign Nationals and wards of Persons of Indian Origin settled abroad.

The candidates in General Category who desire to be considered for admission against vacant seats in FN/ PIO/ NRI category and who agree to be governed by the fee structure of this category, will have to submit a separate application which can be obtained from the Admission Office of the University in addition to application for appearing at AIET- B.TECH 2013. The vacant seats will be filled on the basis of inter-se-merit of such applications based on their AIET- B.TECH 2013 marks.

Documents required for admissions under FN/ PIO/NRI (having results of qualifying examination declared)

Attach the Original documents or attested copies

- Indian embassy in the student's country OR

  Mission/Embassy of the Student's country in New Delhi, OR

  Ministry of education in student's country
- Provisional admission application form completed in all respect
- Eight passport size photographs
- 10+2 or equivalent mark sheet/grade sheet
- 10th or equivalent mark sheet/grade sheet
- Gap certificate if applicable
- Migration certificate
- Student's passport
- Sponsor's passport and Visa
- Sponsor's Letter
- Registration certificate
- Residence permit

Interested students/parents should approach University Office for the details and compliance of the documents.

Reservation will be as per the directive of the Government of India **(MHRD)**

11. Fee Structure

The Tuition Fees per Annum payable by the candidates, admitted to various courses for academic year 2013-2014 is as follows:

Course	Tuition Fees per Annum
A) General Category B.Tech and M.Tech (Integrated)	1,25, 000/-
B) FN/ PIO/ NRI Category B.Tech and M.Tech (Integrated)	7200/- (USD)

The fees excludes Eligibility and Enrolment fees applicable for calendar year 2013-2013 and will be reviewed.

A) Mode of Payment

The candidates will have to bring cash/demand draft

- Of Rs. 1,25,000/- in case of B. Tech (Biotechnology/Bioinformatics/Biomedical Engineering) and M.Tech Integrated courses on the day of Counseling in order to secure admission. D.D. drawn should be in favor of **Padmashree Dr. D. Y. Patil University – Department of Biotechnology & Bioinformatics** on a nationalized/scheduled bank, payable at Navi Mumbai while reporting for counseling. The requests for extension of time limit for payment or to accept partial payment will not be entertained. The candidates may be required to submit Bank Guarantee covering payment of fees for the balance years of the course.

- The tuition fees excludes enrolment and eligibility fees which shall be charged separately as decided by the University from time to time.

B) REFUND RULES:

In case of cancellation of admission within one month from the date of admission through counseling as per the schedule mentioned in point, the fees will be refunded in full, after deduction of 1,000/- towards administrative charges.
In the event of a student leaving the programme after commencement of the academic year, proportionate deductions in the fees would be made as applicable.

C) MERIT SCHOLARSHIP

The candidate who secures the highest mark in each semester examinations will be awarded with merit scholarship of 1000/- per month for the next semester.

12. SELECTION PROCESS

Candidates who secure the minimum 50% marks at AIET- B.Tech 2013 shall be eligible for admission to B.Tech Biotechnology/Bioinformatics/Biomedical Engineering and M.Tech Integrated courses and would be offered provisional admission to these courses on the basis of their inter-se-merit at the time of Counseling. For details, refer to para 14 Counseling.

TIE-BREAKER RULES

In case of equal marks at AIET- B.TECH 2013, the following procedure shall be adopted for determining inter-se-merit:

First Level: A candidate securing higher marks in the aggregate of Physics, Chemistry, Biology (Botany & Zoology) out of 300 at H.S.C. or equivalent examination shall be preferred. If the tie still persists, then

Second Level: A candidate securing higher marks in the science subjects at the S.S.C. or equivalent examination shall be preferred. If the tie still persists, then

Third Level: A candidate securing higher marks in the aggregate of all the subjects at the H.S.C. or equivalent examination shall be preferred, if the tie still persists, then

Fourth Level: An older candidate shall be preferred over a younger candidate.

13. SPECIAL INSTRUCTIONS TO CANDIDATES WHOSE NAMES ARE ON THE ADMISSION LIST

1. Students who wish to cancel their admission will not be given original mark-sheet unless they produce documentary evidence from the authorities of college / Institute where the students have been assigned a seat.
2. Such students will also surrender their seat by giving a written application to the Department in advance stating the reason for cancellation of the allotted seat.

14. COUNSELING FOR ADMISSION

The Counseling will be carried at

Department of Biotechnology and Bioinformatics
Padmashree Dr. D. Y. Patil University
Plot No. 50, Sector-15,
CBD Belapur, Navi Mumbai – 400 614.
Tel: (022) 39486051 / (022) 27563600, Fax: (022) 39486097

The AIET- B.TECH 2013 merit list in a serial order shall be a list of successful candidates in order of merit based on the score obtained in AIET – B. Tech 2013. Mere inclusion of a candidate in the merit list would not entitle every candidate to present himself / herself for counseling. The counseling of the candidates short listed for counseling will be carried out according to the following schedule given in Table.

Table: Counseling Schedule

Day	Date	10 AM to 1 PM Serial Number of Merit List	2 PM to 5 PM Serial Number of Merit List
Tuesday	11/06/2013	1 to 50	51 to 100
Wednesday	12/06/2013	101 to 150	151 to 250
Thursday	13/06/2013	251 to 350	351 and above

Call Letters will not be sent to the candidates.

Candidates will be called for counseling according to the published Serial Numbers list. At the counseling, the eligibility of the candidates for admission shall be verified from the original documents and those found eligible will be offered provisional admission. The admissions to various courses will be offered on the basis of inter-se-merit of the candidates.

Candidates selected for admission will have to make payment of fees as mentioned in para 12A (Mode of Payment). The physical presence of the candidate at the counseling is essential. If a candidate is unable to present himself/herself for counseling on account of unavoidable circumstances, he/she may authorize another individual to represent him/her. The said representative must carry with him/her, the authorization from the candidate in the format given in the prospectus (Annexure I), bring all the original documents for verification and pay the fees immediately if the candidate is found eligible and offered admission.

Absence of the candidate/representative at the indicated time and date will result in instantaneous forfeiture of any claim for admission and the University will not be responsible for this. Only the candidate and the authorized representative will be allowed in the Counseling Hall.

Asking a candidate to report for counseling does not mean that he/she will be admitted to the courses. The actual admission will depend upon the number of seats available when his/her turn comes in order of his/her inter-se-merit. Candidates will have to report for counseling at their own cost.

WAITING LIST

The admissions will be offered to the candidates on the basis of their inter-se-merit in the order as mentioned in para 14 above. After the seats of a course are filled, the candidates will be offered available seats of the other course/s. If a candidate does not wish to take admission to the course offered to him/her, he/she will be required to give a written submission to that effect in the proforma that will be given to him/her at the counseling stage and he/she will be wait-listed for course he/she desires to get admitted and given a wait-list number. The Coordinator AIET- B.Tech 2013 will declare waiting list for each course as closed as soon as an adequate number of candidates have been waitlisted for that course.

The Wait List will be operated if any vacancy/vacancies arise at a later stage, as a consequence of withdrawal or cancellation of admission of any originally admitted candidates before the last date of admission as specified by the University. Candidates concerned will be informed by the Admission Committee about chances of their admission against vacancy/vacancies and in that case they will have to report immediately and pay the fees.

15. DOCUMENTS

The candidates are required to have original copies of the following documents along with two sets of their photocopies duly attested.
In case the candidate has submitted original documents to some other institute, he should bring a letter from the Head of that institute certifying submission of documents in that institute.

1. S.S.C/Equivalent Examination mark statement and certificate.
2. H.S.C/ Equivalent Examination mark statement and certificate
3. AIET- B.TECH 2013 mark statement
4. Bonafide and character certificate from the Head of Institution last attended
5. Leaving and/or Transfer Certificate from the institute last attended
6. Nationality Certificate
7. Domicile Certificate
8. Residence Proof
9. Backward Class / Caste Certificate duly verified by the Competent Authority
10. Passport (in case of Foreign Nationals / wards of Persons of Indian Origin / Non - Resident Indians).
11. Physical fitness Certificate from a registered Medical Practitioner.

16. COMMENCEMENT OF CLASSES

The date of commencement of classes will be communicated to the candidates at the time of counseling.

Candidates will be required to be present in the campus and report to the Professor and Head of the Department for the inaugural address so that they are aware of the academic calendar, extracurricular activities, rules of discipline, facilities, structures and organization of the Department and the University.

17. DISCIPLINE

The candidates admitted in the Department of the University are subject to the discipline and conduct rules of the University. A Disciplinary Committee will deal with all cases either suo moto or when referred to it by the Professor and Head of the Department or the Vice Chancellor of the University. The decision of the Vice-Chancellor shall be final in this regard.

18. COURT JURISDICTION

Any legal dispute arising out of the conduct of AIET- B.TECH 2013 and admission procedure to the Department of Biotechnology & Bioinformatics of Padmashree Dr. D.Y. Patil University shall be subject to the jurisdiction of the Courts of Navi Mumbai and High Court at Mumbai only.

19. DISCLAIMER

Padmashree Dr. D.Y. Patil University, Navi Mumbai has not authorized any individual agent or agency to deal with the admissions to its Departments. The University will not be responsible for any activities of such individual agents/agencies.

Whilst every effort has been made to ensure accuracy of contents at the time of publication of the Entrance Test Prospectus, the University reserves the right to amend or alter information without notice. No liability can be accepted by the University in connection with such alterations or amendments. All differences and disputes arising in the interpretation and implementation of the sections of the prospectus will be referred to the Vice Chancellor and his decision shall be final and binding.

20. SYLLABUS FOR THE ALL INDIA ENTRANCE TEST

PHYSICS

Mechanics and Properties of Matter

Circular motion

Angular displacement, Angular velocity, Angular acceleration, Relation between linear and angular velocity. Uniform circular motion, Radial acceleration, centripetal and centrifugal forces, Banking of roads.

Gravitation

Newton's law of gravitation, periodic time, binding energy and escape velocity of a satellite, weightlessness condition in a satellite.

Rotational Motion

Centre of mass of a two particle system, its generalization to 'n' particals, rigid body and its centre of mass, definition of moment of inertia it's physical significance, radius of gyration, K. E. of a rotating body, torque, M.I. of principle of perpendicular and parallel axes its application to M. I. of uniform rod and disc with proof. Angular momentum and its conservation.

Oscillations

Explanation of periodic motion, Simple Harmonic Motion (S. H. M.), uniform circular motion and S. H. M., phase of S. H. M., K. E. and P. E. in cases of S. H. M., composition of the two S. H. M., having same period and parallel to each other (Analytical treatment), simple pendulum, angular S. H. M., magnet vibrating in the uniform magnetic induction.

Elasticity

General explanation of elastic property (a few examples) plasticity, deformation, Definition of stress and strain, Hooke's law. Elastic constants Y, K, N, and O. Determination of Young's modulus by Searle's method, observation on a wire under applied increasing load, calculation of work done in stretching a thin uniform wire.

Properties of fluids
Behavior of liquid surfaces, its explanation on the basis of molecular theory, surface energy, surface tension, Angle of contact, capillary action.

Sound

Wave motion

Explanation of formation of wave, simple harmonic progressive waves, longitudinal and transverse types of waves, deflection of sound waves. Change o f phase, superposition of sound waves, explanation of formation of beats, Doppler effect.

Stationary waves

Study of vibrations on strings, explanation of formation of stationary waves on strings, study of Vibrations of air columns, forced vibrations, resonance. Experiments like sonometer, resonance tube, Mold's experiment to study stationary waves.

Heat and Thermodynamics
Kinetic theory of gases

Assumptions of kinetic theory, mean free path, derivation for pressure of a gas in the container on the basis of Kinetic theory of gases, Derivation of Boyle's law, specific heat at constant volume and pressure (Cp and CV). Method of determination of Cp, Mayor's relation, internal and external latent heat.

Radiation

Absorption, emission, reflection of heat radiations, Corresponding Coefficients and relation between them, Perfectly black body, emissive power, emissivity, Kirchhoff's law of radiation, it's theoretical proof, Ritche's experiment, Prevost's theory of exchange of heat, Stefan's law. Newton's law of cooling and radiation correction.

Thermodynamics

Thermodynamic state, equation of state isothermals, pressure temperature phase diagram, Vander waal's equation of state.

LIGHT
Wave theory of Light

Newton's corpuscular theory, wave theory of light , wave front and wave normal, Huygen's principle construction of plane and spherical wave front Reflection and refraction at plane surfaces, Ray optics as a limiting case of wave optics, scattering of light.

Interference of light

Interference of light, conditions for producing steady, interference pattern, Young's experiment Analytical treatment of interference bands, Measurement of wave length by biprism experiment.

ELECTRICITY AND MAGNETISM

Electrostatics

Gauss's Flux theorem, its proof and applications, mechanical force on unit area of charged conductor energy per unit volume. Capacity of a parallel plate condenser with a dielectric, Energy of a changed condenser, Condensers in series and parallel.

Current Electricity

Flow of current in a conductor, sources of e.m.f., simple cell, electric current, Ohm's law, Kirchhoff's laws, Wheatstone's bridge, Potentiometer.

Magnetic effect of current

Moving coil galvanometer, ammeter, voltmeter, sensitivity and accuracy of moving coil galvanometer Theory and construction of Tangent Galvanometer, sensitivity and accuracy of TG.

Magnetism

Magnetic induction at any point due to a magnetic dipole; Magnetic potential at any point due to a magnetic dipole; Diamagnetism, Paramagnetism, Ferromagnetism on the basis of domain theory, Curie temperature.

Electromagnetic Induction

Electromagnetic Induction, Faraday's experiment, law of the electromagnetic induction, proof of e= dœ)/dt, Eddy currents, self and mutual inductance, induction coil earth coil, coil rotating in a uniform magnetic induction, alternating currents, reactance and impedance, power in A. C. circuits, Electromagnetic oscillations, Electromagnetic spectrum (Elementary facts, uses and application)

MODERN PHYSICS

Electrons and photons

Discovery of an electron, change and mass of electron, photoelectric effect, Einstein's equation. Photoelectric cell and its application.

Atoms, molecules and nuclei

Rutherford's model of an atom, Bohr model energy quantization, H2 spectrum, composition of nucleus, Radioactivity, mass energy relation.

Thermionic emission of solid state devices

Thermionic emission, diode, its construction and use' as a half wave and full wave rectifier. Triode, its construction and use as an amplifier (Qualitative idea)

Semi- conductor

P-type and N- type semi conductors, P- N junction diodes, P- N junction diode as rectifier, and transistor as amplifier.

CHEMISTRY

Atomic Structure and Nature of Chemical Bonds

i.   Introduction, electronic theory of valency, limitations:

ii. VB. Theory- postulates, overlapping of atomic orbitals.

   a. S- S in H2 molecule
   b. P- P in halogen molecule
   c. S- P in Hexmolecule

iii The concept of hybrid orbitals and geometry of molecules

   a. Tetrahedral (SP3) hybridization in CH4, Nh3, H2O
   b. Trigonal hybridization (SP2) in BF3, and C2H4
   c. Diagonal hybridization (SP) in Bef, and C2H2

iii. Bond Energy – Average Bond energy, factors affecting bond energy

iv.   The uncertainty principle, orbitals and Quantum numbers shapes of orbitals, Electronic configuration of atoms.

Chemical Thermodynamics and Energetics

 i. Introduction
 ii. Concepts in Thermodynamics- System, isolated, closed and open system, Homogeneous and heterogeneous system Thermodynamic equilibrium, nature and type of processes, isothermal and adiabatic processes, reversible and irreversible processes.
 iii. Nature of work and heat, units of energy and work in thermodynamics, work of pressure, volume, maximum work in reversible isothermal process, simple numerical problems.
 iv. First law of Thermodynamics- Relation between mass and energy, internal energy, change in internal energy and mathematical deduction of the first law of Thermodynamics. $q = \triangle E + W$, Simple numerical problems Second law of Thermodynamics: Entropy, free energy, spontaneity of a chemical reaction, free energy change and chemical equilibrium, free energy as energy available for useful work.
 v. Enthalpy (H) of a system, change in enthalpy mathematical derivation, numerical problem and conversion of $\triangle H$ related to endothermic and exothermic reaction.
 vi. Thermochemistry Endothermic and exothermic reaction, heat of reaction, heat of neutralization, Head of formation $\triangle H = [H(Product)- H(Reactant)]$, effect of temperature on heat of reaction (Kirchoof's equation), numerical problem.
 vii. Internal energy and change in internal energy.

viii. Hess's Law of const. heat summation – definition and explanation

ix. $\triangle H = \triangle HI + \triangle H2 + \triangle H3$

Electrochemistry

i. Introduction
ii. Electrolysis, electrolytic cells
iii. Faraday's laws of electrolysis, simple numerical problem
iv. Electrochemical cells- Construction, working of simple voltatic cell (Daniel Cell), convention used in S the representation of galvanic cell, use of salt bridge, type of electrodes, hydrogen electrode, calomel electrode and measurement of electrode potentials
v. Concept of electrode potential – electronation and deelectronation (Nerst Theory) , S. D. P. and e. m. f of a cell e. m. f. series, its applications, simple numerical problems on e. m. f. of cell
vi. Common types of cells – Dry cell accumulator.

Ionic Equilibrium

i. Introduction
ii. Arhenius theory of acids and bases
iii. Lowry and Bronsted concepts of acids and bases
iv. Lewis concept of acids and bases
v. Strong and weak acid and bases, degree of dissociation, dissociation constant, Ostwald dilution formula. Simple problems
vi. Ionisation of water, Ionic product of water (Kw)
vii. H ion concentration, pH and pOH – pH + pOH= 14 numerical problems
viii. Commonion effects, Buffer solution, Mechanism of buffer action, solubility product its application numerical problems on solubility product
ix. Hydrolysis of salts, Hydrolysis constant, Relation between hydrolysis constant and dissociation constant.

Adsorption Colloids

i. Introduction
ii. Adsorption as a surface phenomenon, difference in type of adsorption and absorption, factors affecting adsorption, types of adsorption.
iii. Freundlich's adsorption isotherm, Applications in water purification, catalyst, adsorption indicate and chromatography
iv. Colloids- Introduction, colloidal state of matter disperse phase, dispersion medium, few examples colloidal solutions.
v. Preparation of colloidal solutions:
   a. Dispersion method (electrical and mechanical)
   b. Condensation methods (Oxidation and reduction) properties of colloidal solutions, general properties, (electrophoresis and electroosomsis) coagulation.
vi. Gels- Definition, example, types, properities and uses
vii. Emulsion- Definition, examples, type, (D/W, W/O)prosperities and uses.
viii. Application of colloids- food, medicine, sewage, precipitation of smoke.

Nuclear and Radiochemistry

i. Introduction
ii. Characteristics of nucleons, mass number, atomic number, isotopes and isobars.
iii. Nuclear stability, mass defect, binding energy, average binding energy, simple numerical problem on binding energy.
iv. Radioactivity – Radioactive decay, nature of radiations, radioactive disintegration constant, half life period, mathematical derivation for the decay constant- and halflife (t1/2, simple numerical problems, Artificia radioactivity and artificial transmutation of elements.
v. Nuclear reactions. Radio isotopes and their uses- carbon dating, production of synthetic elements, medicine, agriculture.

Chemical of Third Row Elements

i. Introduction
ii. Position of third row elements in periodic table
iii. Electronic Configuration
iv. Periodic trend- reducing and oxidizing characters, ionization potential, electropositive and electronegative character and hence metallic and non- metallic character.
v. Nature of bonding in crystal lattice
vi. Explanation of prosperities of metallic solids- conductivity, metallic luster, malleability, ductility.
vii. Acidic and basic character of oxides and hydroxyl compounds of third row elements. Hydrogen – Position in periodic table, isotopes, properties, reaction and uses). Oxygen- Position in periodic table, preparation, reaction uses, ozone. Water and hydrogen peroxide structure of water molecule, physical and chemical prosperities of water, hard and soft water. Hydrogen peroxides- Preparation, properties, structure and uses. Nitrogen- Preparation, properties, uses, compounds of nitrogen.

Fluorine and Hydrogen Fluoride

i. Introduction
ii. Position of halogens in – periodic table, electronic configuration, general principles of halogens
iii. Fluorine- Occurrence, preparation, properties, reaction and uses.
iv. Hydrogen- fluoride and hydrofluoric acid- preparation, properties, reaction uses

Silicon
i. Introduction
ii. Position of silicon in periodic table, electronic configuration
iii. Silicon- occurrence, preparation, properties and uses
iv. Silicates, structure of simple silicates, nature of Si-O bond, tetrahedral geometry of Si 04 units in silicates. Halogen

Derivatives of Alkanes

i. Introduction
ii. Classification, Mono, di, tri and tetrahalogen derivations of alkanes.
iii. Monohalogen derivatives (alkylhalides)

    a. Nomenclature- Trivial and I. U. P. A. C. system
    b. Preparation
    c. Halogenation of alkanes
    d. Addition of Hx to alkanes
    e.   Action of P and PXs to Sod2 on alcohols (Ethyl bromide C_2H_5Br to be taken as a representative member)

iv. Reactions of alky halides
    a. Substitution reactions with Akalies KCN, Ammonia, Sodium alkoxide, R- COOAg
    b. Wurtz reaction
    c. Formation of Grignards reagent
    d. Elimination – Action of alcoholic KOH

v.   a.   Introduction of Homolytic and heterolytic fission explanation of fission taking compound
    A- B
    1. A- B 0A +B Homolytic
    2. A- B0A + B- Heterolytic

    b. Types of reagents
        1. Electrophillic with suitable examples
        2. Nucleuophillic with suitable examples
    c. Mobility of electrons in single and double bonds
        1. Inductive effect
        2. Electromeric effect

vi. SN1 and SN2 reaction mechanism:
   a. Mechanism of alkaline hydrolysis of methyl bromide (SN2 mechanism)
   b. Alkaline hydrolysis oft – Butyl bromide (SN1 mechanism)

Vii. Optical activity:
   Following points are to be emphasized : polarization of light by Nicol prism Asymmetric carbon atom optically active (compounds, definition with example of lactic acid (Dextro, Leavo and Racemic forms) Optically activity of 2- chlorobutane to be discussed on the following points presence of asymmetric Carbon atom Two non- superimposable mirror image structures Amixture and its optical inactivity.

viii. Dihalogen Derivatives:
   Preparation of $C_2H_4CI_2$ Two isomers
   a. Ethylene dichloride
   b. Ethylidence chloride
      Preparation of ethylene dichloride by
   a. Addition of CI_2 to ethane
   b. Ethylene glycol and PCI_5
      Preparation of ethylidence chloride from
   a. Acetaldehyde and PCI_5
   b. Acetylene and HCI

ix. Trihalogen Derivatives of CH_4 :
   Preparation of chloroform and Iodoform General physical and chemical properties
   a. Reduction
   b. Oxidation
   c. Hydrolysis
   d. Carbylamine reaction
   e. Action of HNO_3

Organic Hydroxy Compounds

i. Introduction
   Alcohols- introduction – classification Nomenclature-
   1. Trival system
   2. I. U.P. A. C system
   Preparation method
   Hydrolysis of alky halides
   Hydration of Alkene by acid Reduction of Aldehydes and ketones by
   a. Catalytic method using Nickel
   b. Na- Hg/ H_2O
      Properties and Reactions:
      General Physical and Chemical Properties
      Reaction with:
   a. Na, Hx, PCB, PCI_5
   b. Dehydration
   c. Oxidation of primary, secondary and tertiary alcohols

ii. Phenols:
   Aromatic hydroxyl compounds- Phenol as a representative compounds
   a. Chlorobenzene
   b. Benzene Sulphonic acid
   c. Cumene

iii. Physical properties and chemical reactions
   a. Halogenation
   b. Nitration,
   c. Sulphonation

   Distinction between alcohol and phenol, uses of phenol

Aldehydes and Ketones:
i. Introduction
ii. Preparation
   Oxidation of alcohols
   Hydrolysis of gemdihalides
   From Grignard reagent,
   From calcium salt of acids

iii. Reactions :
   a. Addition to Carbony1 compounds HCN, NaHCO3 NH3, Grignard reagent
   b. Condensation reactions- (NH2OH), C5H5NHNH2
   c. Aldol condensation , Acetaldehyde with dil alkali, similar reactions with ketones.
   d. Cannizzaro's reaction- Action of conc. NaOH on formaldehyde
   e. Reduction of Aldehydes and Ketones, catalytic hydrogenation
   f. Reducing properties of Aldehydes Fehling solution, Tollen's reagent, Schiff's reagent.

Acids and Esters
i. Introduction
ii. Preparation (acids)
   a. Oxidation of primary alcohols, aldehyde
   b. Hydrolysis of alky1 cyanides
   c. Grignard reagent and CO2

iii. Reactions:
   a. Acidic properties
   b. Antyride formation by using P205
   c. Ester formation

iv. Amide formation

v. Esters
   a. Introduction
   b. Preparation: Acid and Alcohol, Alcohol and acid anhydride Alcohol and acid chloride Alkylhalide and Ag- salt of acid
   c. Reaction of ethyl acetate Hydrolysis with acid and alkali Action of Grignard reagent Uses of esters

Ethers

i. Introduction
ii. Definition: Classification, simple and mixed ethers
   Preparation:
   a. Williamson's synthesis
   b. Continuous etherification process
   c. Alcohol and Diazomethane

iii. Physical and chemical properities:
   a. Action of HI on simple and mixed ethers in cold and hot
   b. Hydrolysis by dil. H2SO4 uses of dethyl ether

Amines
i. Introduction
ii. Definition : Classification- Nomenclature
iii. Preparation
   a. Haloalkanes and Ammonia
   b. Reduction of Oxime, nitriles and nitroalkanes.

iv. Properties : Physical and Chemical
   a. Basic nature on the basis of Lewis concept
   b. Acetylation by acetyl chloride and acetic anhy dride

    c.   Action of HNO2 on primary, Secondary and tertiary amines yielding quaternary ammonium salts.

Carbohydrates, Proteins and Fats

i.   Introduction
ii. Carbohydrates: Classification, mono di and polysaccharide preparation of glucose from surcrose and starch
iii. Proteins: Classification, simple conjugated and drived proteins . Hydrolysis of proteind to produce amino acids peptide linkage colour tests:
    1)   Biuret test
    2)   Millon's test

iv. Fats and Oils:
    Glycerol- as atrihydroxy alcohol, fatty acid Esters of glycerol with fatty acids   Saponification, Hydrogenation.

Synthetic Fibres
i.   Introduction
ii. Definition of fibers: Classification as – natural and artificial fibres
iii. Preparation: properties and used of Nylon 6, Nylon 66. Terylene, Teflon, PVC, Polystyrene.

BIOLOGY (BOTANY)
Section (A): General Biology And Botany
General Biology

Continuity of life

i.   Mendel's laws of inheritance, with reference to Mendel's experiments with peas, ideas of factors, Monohybrid and Dihybrid ratio.
ii. Genes – Packaging of hereditary material, prokaryotes, bacterial chromosomes, plasmid and eukarytic chromosomes Genetic material, DNA replication; Genetic Code and Central dogma of protein synthesis.
iii. Cell division-cell cycle, mitosis and meiosis significance.

Applications of Biology

i.   Domestication pf plants: improvement of crop plants – Principals of plant breeding and technique of hybridization
    Application of Tissue: Culture.
    Use of fertilizers and pesticides – Their advantages and disadvantages; Biological method of Pest control. .

ii. Bio- energy:- Bio-gas, plants as sources of hydro carbons for producing Petroleum to

iii. Bio-technology:- Fermentation and manufacture of Alcohols, Antibiotics and Vitamins.

Multicelluarity, Plants Life

i.   Concept of species – Various taxons and catergories, Hirearchial levers of classification, Binomial nomenclature, principles of classification.
ii. Conquest of land- Life history of Gern (Nephrolepis). Cycas and angiosperms (Hisbiscus, jowar, Bajra)- Anatmoy, development of seed habit, flower and fruit . (Development of Reporductive structure not excepted)
iii. Physiology
    Transpiration : Transpiration and exchange of gases, stomatal mechanism.
    Photosynethesis: Ultra – structure and function of chloroplast, photochemical pathways, significance.
    Respiration: Ultra- structure and function of mitochondrion, glycolysis, krebs cycle, electron transport system, fermentation, significance.

Growth: Plant hormones and growth regulation, action of plants hormones in relation to seed dormancy and germination, apical dominance.

Reproduction : Asexual and sexual Brief accopunt of mode sexual reproduction in multicelluar lower plants- antheridium and archegonium. Sexual reproduction in angiosperms Pollination, structure of male and female gametophytwes, fertilization, formation of endosperm, seed and fruit.

BIOLOGY (ZOOLOGY)
Section (B) – General Biology And Zoology Evolution of life

Evolution: Definition, Darwin's theory of natural selection (Common origin, recombination as a source of variability, Role of selection on variation, adaptation, reproductive isolation and speciation).

ii) Human evolution: Paleontological evidence , Brief idea of the Dryopithecus, Australopithecus, Homo-erectus, Homo- meanunderthalensis, Cro- magnon, Homo- sapiens,

Continuity of life
i. Sex determination and sex linkage in man.
ii. Domestication of animals-introduction of poultry, fisheries.
   Sericulture and apiculture. Principles of animal breeding major animal diseases and their control
iii. Human diseases and their control + Hepatitis, AIDs, Leprosy, Cancer.
iv. Community Health Services – Blood bank smoking. Alcoholism, drug addiction –Physiological symptoms and their measures.
v. Pollution – Air, Water-effect and control.
vi. Human population – Growth, problems and control.

Multicellularity
Structure and functions of animal life with reference to mammals:
i. Circulation – Closed vascular system, Heart – Structure and pumping action, Arterial blood pressures.
ii. Excretion and Osmo–regulation: Aminotelism, uriotelism, uricorelism, Excreton of water and urea, with special reference to main, role of kidney, in regulation of plasma, osmoregularity on the basis of structure of nephron: role of skin and lungs, in excretion.
iii. Hormonal Co-ordination: Morphological and histological structure of pituitary and thyroid glands, Important hormones of pituitary and thyroid and their role as messengers and regulators.
iv. Nervous Co-ordination: Central, Peripheral, autonomous nervous system, receptors and effectors, reflection.
v. Locomotion-Joints, muscle movements.
vi. Skeleton – Brief account of human skeleton.
vii. Reproduction: Human reproduction, female reproductive cycle, embryonic development up to three germinal layers.
viii. Classification of chordata: Pisces, Amphibia, Reptilia, Aves, Mammals, highlighting major characters with two examples of each class.

Mathematics

i. The set theory properties of subsets
ii. Linear and geometric functions
iii. Limits of functions, derivatives of functions
iv. The binomial theorem
v. Logarithm
vi. Differentiation
vii. Integration
viii. Probability calculations
ix. Method of sampling, confidence level
x. Measurement of central tendencies
xi. Measurement of deviation

Fundamental Of Computer

i. Introduction to computers
ii. Hardware
iii. Software

iv.   Types of Computers
v.   Concept of files and directories
vi.   OS and interfaces
vii.   Commonly used commands
viii.   Concept of login and logout
ix.   File ownership
x.   Networking Fundamentals
xi.   Client – server
xii.   LAN, WAN
xiii.   Ftp, telnet, rlogin
xiv.   Internet, WWWhtml
xv.   Programming in a high-level language
xvi.   Algorithms, pseudo codes

21.   MODEL QUESTION PAPER

22.1 Physics

1. A string breaks under a tension of 103 Newton. A stone of mass 1kg is tied at one end of the string of length 1.0m and whirled in vertical circle at the other end. The minimum frequency of whirling will be - (Assume $g=10m/s^2$)

   A. $5\sqrt{10}$ / nHz

   B. $5\sqrt{10.1}$ / nHz

   C. $5\sqrt{9.9}$ / nHz

   D. $5\sqrt{8.9}$ / nHz

2. Equivalent resistance of two resistances connected in parallel is (12/5). When one resistance is removed the remaining resistance is 3 Ohm. The first resistance must be

   A. 3/5 Ohm

   B. 1/2 Ohm

   C. 1/12 Ohm

   D. 5/3 Ohm

3. The equation between RI of the medium and wavelength of light is A + B/2 where A and B are positive and negative constants. Critical refraction for light of wavelength C will occur if

   A. A = B

   B. A < B

   C. A > B

   D. A = -B

4. Average value of output voltage of a full wave rectifier if E0 is the peak value of input is –

   A. $E_0\sqrt{2}$

   B. $E_0\sqrt{e2}$

   C. $2E_0\sqrt{n}$

   D. $2E_0\sqrt{en}$

23.2 Chemistry

1. Which one of the following reaction is endothermic?

A. $NaOH + HCl \rightarrow NaCl + H_2O$

B. $CH_4 + 2O_2 - CO_2 + 2H_2O$

C. $CaCO_2 - CaO - Co_2$

D. $C + O_2 - CO_2$

2. The Standard oxidation potentials of metals X, Y and Z are 0.403V - 0.337V and -0.79V respectively. The reactions belonging to which one of the following groups is possible:

A. $Y + H_2SO_4 - YSO_4 + H_2YCl + Z$

B. $2Y + XCl_2 - 2 YCL + X;$

$2Z + 2HNO_3 - 2ZNO_3 + H_2$

C. C. $X + 2 ZCl - XCl_2 + Z$

$Z + H_2SO_4 - ZSO_4 + H_2$

D. $X + 2HCl - XCl + H_2$

$Y + ZNO_3 - YNO_3 + Z$

3. The nucleus 238 A/92 emits 4X and 3B particles. The atomic number and mass number of the   daughter nuclei are respectively

A. 81, 222

B. 81, 219

C. 87, 230

D. 87, 222

4. Fluorine forms interhalogen compounds like AB, AB, AB_5, AB_7 in these compounds -

A. F is always B

B. A is always F

C. A can be F, Cl, Br or I

D. B can be Cl, Br or I

23.3 Biology (Botany & Zoology)

1. RNA plays major role in synthesis of:

A. Amino Acids

B. Nucleotides

C. Ribosomes

D. Enzymes

2. NPK is an example of a

A. complete fertiliser

B. complex fertiliser

C. both a and b

D. none of the above

3. Identify the correct Rank-Tanon combination from the following:

A. Division-Monocotyledonae

B. Class-olypetalae

C. Order-thalamitlorae

D. Family-Gramineae

4. According to Emerson, the quantum requirement of photo synthesis

sharply decreases at wave-lengths beyond 680 mm. This is known as

A. Emerson effect

B. red drop

C. both a and b

D. None

5. Common relation between chimpanzee and man is best shown by

A. binocular vision

B. bipedal locomotion

C. dental formula

D. banding pattern in chromosomes

6. The opening of coronary sinus is guarded by

A. Eustachian valve

B. Thebesian valve

C. Mitral Valve

D. Tricuspid valve

7. Reflex arc is formed by

A. Receptor-brain-muscle

B. Muscle-spinal cord-receptor

C. Receptor-spinal cord-muscle

D. Muscle-brain receptor

8. _____is a bone of foot

A. Tibia

B. Calcaneum

C. Capitate

D. Hamate

Guidelines for entrance test

Pattern of Entrance Test

The AIET- B.TECH 2013 will have one question paper. The test will have duration of two hours and would comprise of 150 Multiple Choice Questions (MCQ) of the objective type. Each question will carry 1mark and the questions will be in English. The syllabus for the entrance test has been mentioned in the previous section.

Regulations at the Test Centre

The examination hall will be opened 30 minutes before the commencement of the test. Each candidate is allotted a hall ticket number. He/she should find out and occupy the seat with the allotted number. The invigilator at the examination will start giving general instructions 15 minutes prior to the commencement of the examination. Candidates must carry their Hall Ticket with them and produce it on demand for admission to the test hall. Candidates will not be allowed to write the test if they do not carry a valid Hall Ticket issued by the University with them. The invigilator will check the Hall Tickets of the candidates, during the test, to check the identity of each candidate. While this is being done, the candidates must sign the attendance sheet and declaration on the answer sheet in the presence of the invigilator. The invigilator will also put his/her signature in the place provided in the Hall Ticket and Attendance Sheet.

At 11:45 a.m. the candidates will receive an Answer Sheet. They must ensure that the Answer Sheet they have received is correct and properly printed. At 11:55 a.m., the candidates will receive a Test Booklet for AIET- B. Tech 2013. They must ensure that the Test Booklet received by them is correct and printed properly. Each Test Booklet has a specific five-digit number on a front page.

No candidate will be allowed to enter the examination hall after 12:00 noon. Candidates will have to remain seated in the examination hall till the completion of the duration of the test. Once candidates leave the hall he/she cannot return under any circumstances. Candidates are expected to maintain perfect silence for the entire duration of the examination. Any conversation or gesticulation or disturbance in the examination hall shall be deemed as misbehavior.

The Admission Committee will take strict action against the candidates, who use unfair means or impersonation. Such candidates will be asked to leave the examination hall immediately and they will be liable to be debarred from taking examination either permanently or for a specified period to be decided by the University. The Admission Committee will reserve the right to withhold the result of such candidates.

All the entries must be made using a Black or Blue Ball-point pen only. Wherever the entries have to be marked in the circles, it should be done by completely darkening the corresponding circles.

Candidates must stop marking the answers when the warning bell is rung at the closing time. After completing the test and before handing over the Test Booklet and the Answer Sheet, the candidate should check again that all the particulars required in the Test Booklet and answer sheet have been correctly written. The answer sheet of the candidates who do not submit the Test Booklet before they go out of the examination hall will not be evaluated. Such candidates will be debarred from writing the test in future.

Candidates will not be allowed to carry any textual material (printed or written), or any other material except the Hall Ticket inside the test hall. Candidates are also not permitted to carry any device that is likely to be of unfair assistance. Smoking in the test hall is strictly prohibited. Any kind of eatable or drink is not allowed into the examination hall.

Marking of Answers:-

Each Multiple Choice Question will have four responses labeled A, B, C and D. Only one of the four responses is the correct or most appropriate answer. Candidates should indicate the correct or most appropriate answer by darkening the appropriate circle completely with blue or black ball point pen. The questions can also be in form of incomplete statements. The candidate should appropriately mark one of the four responses, which completes the statement. The candidates should mark their answers as shown below. A Computer using Optical Recognition will evaluate the answer sheet. The following example illustrates the correct method of indicating the answer. Question no. 98 in the Test Booklet may read as follows:

98. According to Newton's First Law of Motion

   A. $F = ma^2$
   B. $F = m^2a$
   C. $F = ma$
   D. None of the above

The correct response is C. The candidate will locate question no. 98 in the Answer Sheet and darken

the circle C as shown below: (There is only ONE CORRECT WAY of indicating the answer)

	A	B	C	D	
	○	○	●	○	
98	○	○	⊘ (✓)	⊗	wrong
98	○	○	○	○	wrong
98	○	○	⌀	○	wrong
98	○	○	●	○	wrong
98	⊗	⊗	●	⊗	wrong
98	○	○	●	○	wrong
98					right

If more than one circle is darkened or if the response is marked in any wrong manner as shown above, it shall be treated as wrong answer. Candidates must ensure that the Answer Sheet is not folded and they make no stray marks on it. Candidates must bring their own pen, pencil, eraser. They are not allowed to take anything from the other candidates during examination. The order of question is not same in all Test Booklet and they are jumbled. Candidate should never change their Test Booklet during the test.

Changing the Answer :-

If a candidate wants to change any answer on his/her answer sheet, he/she must erase completely the existing mark and then darken the appropriate circle. To facilitate this, the candidate will have to mark correct option with blue or black ball point pen. An answer will be treated as wrong if these are marks on a circle other than darkening the circle for the correct answer. Also a lightly or faintly darkened circle will be treated as wrong and will be rejected by the Optical Scanner. Candidates are advised to decide about the answer before they mark it on the answer sheet. This would save some valuable time, which would otherwise get wasted in erasing the marks and re-doing them.

Rough Work :
If a candidate wishes to do some rough work, then it should be done in the Test Booklet itself. It should not be done on the Answer Sheet.

Scoring
Each question carries one mark. There is no negative marking. If the answers are not marked correctly, then it will be considered as a wrong answer. Also, no request for revaluation or re-checking will be entertained.

Disciplinary Measures Against Ragging

The Padmashree Dr. D. Y. Patil University does not allow ragging in its campuses including Hostels. We have anti-ragging Committee to monitor and prevent ragging.

This is as per the guidelines of the University Grant Commission (UGC). Here is an extract from the report of the Committee Constituted by the University Grants Commission to frame guidelines to curb the menace of 'ragging' in University / educational institutions.

Forms of Ragging

Ragging is found to take the following forms (the list is only indicative and nor exhaustive)

Crisp orders

- To address seniors as 'Sir'
- To perform mass drills,
- To copy class notes for the seniors;
- To serve various errands,
- To do menial jobs for the seniors;
- To ask/answer vulgar questions;
- To look at pornographic pictures to shock the Fresher's out of their innocence;
- To force to drink alchol, scalding tea, etc.,
- To force to do acts with sexual overtones, including homosexual acts;
- To force to do acts which can lead to physical injury/mental torture or death;
- To strip, kiss, etc.,
- To do other obscenities

Punishments

The following could be the possible punishments for those who are found guilty of participation in or abetment of ragging. The quantum of punishments shall, naturally, depend upon the nature and gravity of the offence as established by the Disciplinary Committee or the Court of Law.

- Cancellation of Admission
- Suspension from attending classes.
- Withholding/withdrawing scholarship/Fellowship and benefits.
- Debarring from appearing in any test/examination or other evaluation process.
- Withholding results
- Debarring from representing the Department in any national or international meet, tournament, youth festival, etc.
- Expulsion from the hostel
- Expulsion from the institution for periods varying from 1 to 1 semesters
- Expulsion from the institution and consequent debarring from admission to any other institution.
- Fine up to Rs. 25,000/-
- Rigorous imprisonment up to three years.

While the first 10 types of punishments can be awarded by the appropriate authority of the institution itself, the last punishment can be awarded only by a court of law.

- **If any incident of ragging comes to the notice of the authority, the concerned student shall be given liberty to explain and if his explanation is not found satisfactory, the authority would expel him from the institution.**

Maintenance of discipline among the students and disciplinary powers of the University
(Under Rule 26 (h) of MOA)

BL 466

a) Every student, during his course of studies, shall be under disciplinary jurisdiction of the competent authority which shall take appropriate action, in case of indiscipline, misconduct on part of the student.
b) Definitions : In this Bye-Laws unless the context otherwise requires,

i) **'Student'** means a person who is enrolled in the Institute for receiving instructions and / or qualifying for any degree or diploma or certificate of the Institute.

ii) '**College**' means a constituent college runs by the Institute.

iii) '**Competent Authority**' means the Vice Chancellor of the Institute or the person to whom the powers are delegated by the Vice- Chancellor under these Bye-Laws.

c) The Vice- Chancellor may, by orders, delegates all or any of his powers under the Memorandum of Association as he deems fit, to such other officer as he may nominate in that behalf.

d) The Vice- Chancellor may in exercise of his powers, by order direct that any student or students be expelled or rusticated for a specified period or be not admitted to a course of study in college for a specified period or be punished with fine, not exceeding Rs. 5000/- or be debarred from appearing in an examination conducted by the Institute for a specified period not exceeding five years or that the result of the student or students concerned in the examination in which he or they have appeared be cancelled. Provided that, the Vice-Chancellor shall give reasonable opportunity to the student concerned of being heard if expulsion is for a period exceeding one year.

e) Obligation of the students: Every student, shall at all the time,

i) conduct himself properly,

ii) maintain proper behavior,

iii) observe strict discipline both within the campus of the college, hostel, hospital and also outside, in buses, railways, or at public places or at picnic or study tours, organized by the college or playgrounds or in extra curricular activities.

iv) Ensure that no act of his purposely or otherwise brings the Institute or college in disrepute.

f) Any act of a student which is contrary to the provisions of clause (e) above shall constitute misconduct and / or indiscipline, which terms shall mean and include, among others any one or more of the acts jointly or severally, mentioned hereinafter, namely:

i) Any act whether directly or indirectly causes or attempts to cause disturbance in the lawful functioning of college and / or Institute.

ii) Habitual unpunctual in attending lectures, tutorials, sessional examination and other courses, as may be prescribed.

iii) Repeated absence from lectures, tutorials, practicals and other courses, as prescribed.

iv) Any act whether direct or indirect through the media or newspapers and / or other media, by which, in the opinion of the competent authority, the college and Institute stand defamed, and any other act of intimidating and / or assailing and / or threatening the employees / officers / officials of the college and Institute and any act to cause damage to the assets of the Institute and college by any means.

v) Occupation of any building such as, hostel, room, residential quarter or such other accommodation in the premises owned or hired by the college or Institute without prior permission from the competent authority.

vi) Permitting or conniving with any person not authorized to occupy any hostel room, residential quarter, or any accommodation or any part thereof of the college or Institute.

vii) Securing admission in the Institute, to any undergraduate or post-graduate programme or any other course by fabrication of the documents or suppression of facts or information

viii) Obstruction to any students or group of students in his or their legitimate activities pertaining to classroom, laboratories, fields, playgrounds, gymnasium or places of social and cultural activity within the campus of the Institute.

ix) Suppressing material information or supply of false information to the college and Institute, for seeking any privilege.

x) Possessing or using any fire arms, lethal weapons, explosive, or dangerous or corrosive substance on the premises of the college, hostel, playground and Institute.

xi) Possessing or consuming any poisonous or stupefying drugs or intoxicant in any form in the college, hostel and Institute.

xii) Ragging, bullying or harassing any students in college and Institute or hostels or outside thereof.

xiii) Indulging in any act of violence, assault, intimidation or threatening in the Institution or hostels or outside thereof.

xiv) Destroying or attempting to destroy or tamper with any official record or document of the Institute and college.

xv) Misconduct of the student, at any meeting or special functions or sports and cultural activities arranged by the Institute, staff member of the college and Institute or any other public place.

xvi) Stealing or damaging any form produce or any property belonging to the college and Institute, staff member of the college and Institute or any other public places.

xvii) Instigation violence or participation in any demonstrations or violent agitation or violent strike in the college and Institute.

xviii) Instigation or participation in any 'gherao' of any official or staff member of the Institute.

xix) Violation of any of the rules and regulations of the Institute or of the competent authority.
xx) Gambling in any form in the Institute or college, hostel etc.

xxi) Disorderly behavior in amy form or any act specifically forbidden by the competent authority.

xxii) Refusal to appear to give evidence before enquiry officer appointed by the competent authority with respect to a charge against student concerned.
xxiii) Any act violating any provision of the memorandum of association, Bye-Laws made thereunder.

xxiv) Conviction in the court of law for criminal offence involving moral turpitude.

xxv) Any other act not specifically mentioned hereto before which, whether by commission or omission, as would in the circumstances of the case be considered by the competent authority as an act of misconduct and / or indiscipline.

g) The competent authority may impose any one or more of the following punishment(s) on the students found guilty of misconduct, indiscipline, in proportion thereof:

i) Warning / censure / reprimand

ii) Fine not exceeding Rs. 5000/-

iii) Cancellation of the scholarship / award / prize / medal, awarded to the student by the Institute, with prospective effect.

iv) Expulsion from the college

v) Debarring from admission to a course or courses of study in the concerned college, debarring from

appearing for examination or examinations, conducted by the Institute concerned, for a specific period, not exceeding five years.

vi) Cancellation of performance of the student concerned in an examination in which he has appeared.

vii) Rustication from the Institute for the period not exceeding five years.

h) If the competent authority is satisfied that there is a prima-facie case for inflicting penalties, mentioned in clause No. (g) above it may itself or through other person(s), authorized by it, for this purpose, shall make inquiry, in following manner;

i) Due notice in writing shall be given to the student concerned about his alleged act of   misconduct / indiscipline.

ii) Student charged shall be required within three days of the receipt of the notice to submit his written representation about such charge(s).

iii) If the student fails to submit his written representation within specified time limit, the inquiry may be held separately.

iv) If oral evidence of the witness against student is recorded by the enquiry authority, the student charged shall be given an opportunity to cross examine the witness concerned.

v) If the student charged desires to see the relevant documents, which are being taken into consideration or are to be relied upon for the purpose of proving the charge or charges, the same may at the discretion of the enquiry authority, be shown to him after the notice as provided in sub-clauses (I) above is furnished to him.

vi) The student charged shall be required to produce documents, if any, in support of his defense. The enquiry authority may admit relevant evidence, documentary, or otherwise, at the stage before the final orders are passed.

vii) Legal practitioner shall not be allowed to appear either on behalf of the student charged or the institute, in the proceedings to the competent authority.

viii) Enquiry authority shall record findings on each implication of indiscipline and the reasons for such findings and submit the report along with proceeding to the competent authority.

ix) The competent authority o the basis of findings shall pass such orders, as it deems fit.

i) Provided that procedure prescribed above need not be followed and all or any of its provisions may be waived in the following circumstances:

i) When the student charged admits the charges in writing.

ii) When the student charged has absconded for any other reasons or it is impracticable to communicate with him.

iii) If in the opinion of the competent authority, a punishment or fine not exceeding Rs. 5000/- or reprimand, censure, warning is sufficient.

iv) If the punishment or rustication is imposed on a student by the Vice-Chancellor or such other person in whom the authority is vested by him, student shall be entitled to prefer an appeal to the grievance committee if the Institute within seven days of the receipt of the notice of the punishment.

v) In respect of such student, Principal of the respective college shall maintain the record of punishment.

k) The Institute shall, on each occasion of any punishment being imposed on any student, intimate by a letter, to be sent under a certificate of posting, the fact of such imposition to the parent or guardian of such student on the address available in the college record.

l) **A copy of these rules shall be supplied to each student at the time of his admission to the Department and a receipt for the same shall be obtained from the student. This receipt shall form a part of the record of admission of the students.**

PADMASHREE DR. D. Y. PATIL UNIVERSITY

(Declared as Deemed-to-be-University under section 3 of UGC Act, 1956)

NAAC Accreditation: "A" Grade

DEPARTMENT OF BIOTECHNOLOGY & BIOINFORMATICS

Plot No50, Sector –15, C.B.D. Belapur, Navi Mumbai – 400614.

HALL TICKET No. 2222

Name
CHETAN

Father's Name
HARKISHAN

Surname
KANTHARIA

ALL INDIA ENTRANCE TEST - 2013

Test Booklet

	O	O	O	O
	10	20	30	40

Version

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	O	O	O	O	51	O	O	O	O	101	O	O	O	O	151	O	O	O	O
2	O	O	O	O	52	O	O	O	O	102	O	O	O	O	152	O	O	O	O
3	O	O	O	O	53	O	O	O	O	103	O	O	O	O	153	O	O	O	O
4	O	O	O	O	54	O	O	O	O	104	O	O	O	O	154	O	O	O	O
5	O	O	O	O	55	O	O	O	O	105	O	O	O	O	155	O	O	O	O
6	O	O	O	O	56	O	O	O	O	106	O	O	O	O	156	O	O	O	O
7	O	O	O	O	57	O	O	O	O	107	O	O	O	O	157	O	O	O	O
8	O	O	O	O	58	O	O	O	O	108	O	O	O	O	158	O	O	O	O
9	O	O	O	O	59	O	O	O	O	109	O	O	O	O	159	O	O	O	O
10	O	O	O	O	60	O	O	O	O	110	O	O	O	O	160	O	O	O	O
11	O	O	O	O	61	O	O	O	O	111	O	O	O	O	161	O	O	O	O
12	O	O	O	O	62	O	O	O	O	112	O	O	O	O	162	O	O	O	O
13	O	O	O	O	63	O	O	O	O	113	O	O	O	O	163	O	O	O	O
14	O	O	O	O	64	O	O	O	O	114	O	O	O	O	164	O	O	O	O
15	O	O	O	O	65	O	O	O	O	115	O	O	O	O	165	O	O	O	O
16	O	O	O	O	66	O	O	O	O	116	O	O	O	O	166	O	O	O	O
17	O	O	O	O	67	O	O	O	O	117	O	O	O	O	167	O	O	O	O
18	O	O	O	O	68	O	O	O	O	118	O	O	O	O	168	O	O	O	O
19	O	O	O	O	69	O	O	O	O	119	O	O	O	O	169	O	O	O	O
20	O	O	O	O	70	O	O	O	O	120	O	O	O	O	170	O	O	O	O
21	O	O	O	O	71	O	O	O	O	121	O	O	O	O	171	O	O	O	O
22	O	O	O	O	72	O	O	O	O	122	O	O	O	O	172	O	O	O	O
23	O	O	O	O	73	O	O	O	O	123	O	O	O	O	173	O	O	O	O
24	O	O	O	O	74	O	O	O	O	124	O	O	O	O	174	O	O	O	O
25	O	O	O	O	75	O	O	O	O	125	O	O	O	O	175	O	O	O	O
26	O	O	O	O	76	O	O	O	O	126	O	O	O	O	176	O	O	O	O
27	O	O	O	O	77	O	O	O	O	127	O	O	O	O	177	O	O	O	O
28	O	O	O	O	78	O	O	O	O	128	O	O	O	O	178	O	O	O	O
29	O	O	O	O	79	O	O	O	O	129	O	O	O	O	179	O	O	O	O
30	O	O	O	O	80	O	O	O	O	130	O	O	O	O	180	O	O	O	O
31	O	O	O	O	81	O	O	O	O	131	O	O	O	O	181	O	O	O	O
32	O	O	O	O	82	O	O	O	O	132	O	O	O	O	182	O	O	O	O
33	O	O	O	O	83	O	O	O	O	133	O	O	O	O	183	O	O	O	O
34	O	O	O	O	84	O	O	O	O	134	O	O	O	O	184	O	O	O	O
35	O	O	O	O	85	O	O	O	O	135	O	O	O	O	185	O	O	O	O
36	O	O	O	O	86	O	O	O	O	136	O	O	O	O	186	O	O	O	O
37	O	O	O	O	87	O	O	O	O	137	O	O	O	O	187	O	O	O	O
38	O	O	O	O	88	O	O	O	O	138	O	O	O	O	188	O	O	O	O
39	O	O	O	O	89	O	O	O	O	139	O	O	O	O	189	O	O	O	O
40	O	O	O	O	90	O	O	O	O	140	O	O	O	O	190	O	O	O	O
41	O	O	O	O	91	O	O	O	O	141	O	O	O	O	191	O	O	O	O
42	O	O	O	O	92	O	O	O	O	142	O	O	O	O	192	O	O	O	O
43	O	O	O	O	93	O	O	O	O	143	O	O	O	O	193	O	O	O	O
44	O	O	O	O	94	O	O	O	O	144	O	O	O	O	194	O	O	O	O
45	O	O	O	O	95	O	O	O	O	145	O	O	O	O	195	O	O	O	O
46	O	O	O	O	96	O	O	O	O	146	O	O	O	O	196	O	O	O	O
47	O	O	O	O	97	O	O	O	O	147	O	O	O	O	197	O	O	O	O
48	O	O	O	O	98	O	O	O	O	148	O	O	O	O	198	O	O	O	O
49	O	O	O	O	99	O	O	O	O	149	O	O	O	O	199	O	O	O	O
50	O	O	O	O	100	O	O	O	O	150	O	O	O	O	200	O	O	O	O

Important Instruction

Wrong Method

*A	B	C	D
A	*B	C	D
A	B	▭	D
A	B	■	■
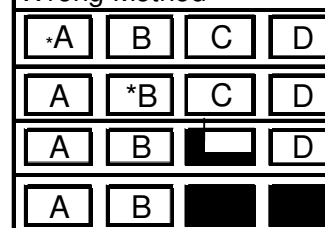
Correct Method

■	B	C	D

- Use blue or black ball point pen only to make all the entries in the Answer Sheet.
- Rough work if required should be done in the space provided for this in the Test Booklet only.
- Write your Name, Hall Ticket Number in appropriate places provided in the Answer Sheet only. Darken the Corresponding Circle
- Do not use any religious invocation or any writing that is relevant to the answer.
- Candidate must stop marking the answer as soon as warning bell is rung at the closing time.
- Candidate should not carry any written or blanks Answer Book or Test Booklet while having the examination hall
- Candidate should not speak or communicate with any other candidate while the examination is in progress. If a candidate wants anything he/she should approach the invigilator without disturbing other candidates however, he/she should not leave the seat on any account.

AUTHORISATION FOR REPRESENTATION

I ………………………………………………… son/daughter of ……………………………………………………. being unable to attend the counseling session for admission to B. Tech Biotechnology / Bioinformatics / Biomedical Engineering / M. Tech Integrated (Biotechnology), in Padmashree Dr. D. Y. Patil University, Navi Mumbai at…………………………………….. on……………………………………………… do hereby authorize ……………………………………………………… whose photograph is affixed below and who will sign as shown there under, to represent me at the counseling session. I hereby declare that the decision made by the said authorized representative will be irrevocable and that it will be final and binding on me. This authorized representative will present all the necessary documents in support of my eligibility, pay the requisite fees and complete all the formalities as may be necessary, on my behalf.

Name of the Candidate_____

Application Number_____ Hall Ticket Number_____

Examination Centre_____ Merit Number_____

Reason for absence_____

Paste recent Photograph of the candidate with his/ her signature thereon	Signature of Candidate
Paste recent Photograph of the representative with his/ her signature thereon	Signature of Representative

Signature of the Parent/ Guardian as
recorded in the Application Form.

Annexure – II

Medical Fitness

A Candidate must be medically fit to undergo the professional course applied for. The medical fitness must be certified by a Registered Medical Practitioner on his letterhead in the prescribed proforma, as given below:

CERTIFICATE OF MEDICAL FITNESS

This is to certify that I have conducted clinical examination of Mr/Ms …………………………………... who is desirous of admission to B. Tech (Biotechnology / Bioinformatics / Biomedical Engineering / M. Tech Integrated Biotechnology).

He/She has not given any personal history of any disease incapacitating him/her to undergo the professional course. Also, on clinical examination it has been found that he/she is medically fit to undergo the professional course.

Certified further, that he/she has not shown any evidence of major defects of posture, locomotion, vision, hearing or any other systemic disorder.

Though, following deviation has been revealed, in my opinion, these are not impediments to pursue a course in B. Tech (Biotechnology / Bioinformatics / Biomedical Engineering / M. Tech Integrated Biotechnology) (Strike, which is not applicable).

1. ………………………………………………………………

2. ………………………………………………………………

3. ………………………………………………………………

Address of the Registered Medical Practitioner Signature :

Name   :
Registration No :
Seal of Registered Medical Practitioner

Date: /   / 20

AIET B-TECH 2013   RECEIPT

ALL INDIA ENTRANCE TEST

ALL INDIA ENTRANCE TEST SELECTION OF CANDIDATES FOR ADMISSION TO B.TECH (BIOTECHNOLOGY / BIOINFORMATICS / BIOMEDICAL ENGINEERING / M.TECH INTEGRATED BIOTECHNOLOGY) COURSES.

PADMASHREE DR. D. Y. PATIL UNIVERSITY
(Declared as Deemed-to-be-University under section 3 of UGC Act, 1956)
NAAC Accreditation: "A" Grade
Plot No – 50, Sector – 15, C.B.D. Belapur, Navi Mumbai – 400 614**.**

Note: Candidates should fill both the copies of this format. The copy marked "Candidate's copy" will be sent to candidate as receipt for payment of Entrance Test Fee.

Name and Address of the Candidate   Transaction ID

_____   _____

_____   _____

Particulars of the Demand Draft:
Name of the Bank _____
Issuing Branch_____DD No_____ Date _____Amount_____
Received the Entrance Test fee as mentioned above.

Date : _____   Stamp : _____   Accounts Clerk / Cashier

- -

AIET B-TECH 2013   RECEIPT

ALL INDIA ENTRANCE TEST

ALL INDIA ENTRANCE TEST SELECTION OF CANDIDATES FOR ADMISSION TO B.TECH (BIOTECHNOLOGY / BIOINFORMATICS / BIOMEDICAL ENGINEERING / M.TECH INTEGRATED BIOTECHNOLOGY) COURSES.

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_____   _____

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Name of the Bank _____
Issuing Branch_____DD No_____ Date _____Amount_____
Received the Entrance Test fee as mentioned above.

Date: _____   Stamp:_____   Accounts Clerk / Cashier

CANDIDATES COPY

OFFICE COPY

NOTE

PADMASHREE DR. D. Y. PATIL UNIVERSITY
(Established under section 3 of the UGC act, 1956 vide notification No. F.9.21/2000-U.3 Dated 20.06.2002 of the Govt. of India)
NAAC Accreditation: "A" Grade
Plot No - 50, Sector – 15, C.B.D. Belapur, Navi Mumbai – 400 614.

Tel. No. (022) 39486000 / 012 / 014 Fax (022) 39486099.