INFORMATION BROCHURE OF ENTRANCE TEST
For Admission to B. Sc. Biotechnology through
B.Tech, B.Pharm/Pharm D. ABON-2020
At
Bharati Vidyapeeth (Deemed to be University), Pune
Rajiv Gandhi Institute of Information Technology and Biotechnology, Pune
Ranked among top 100 Colleges
(30th in 2017, 62nd in 2018 & 42nd in 2019)
Under college category by NIRF India Ranking)
Hon'ble Dr. Patangrao Kadam
Founder : Bharati Vidyapeeth (1964)
FOUNDER - CHANCELLOR:Bharati Vidyapeeth (Deemed to be University)
## Important Dates

<table>
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<tr>
<th>A) Last date for submission of online application form</th>
<th>:</th>
<th>30th July 2020</th>
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<tr>
<td></td>
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<td>upto 5.00 p.m. at <a href="http://www.bvuniversity.edu.in">www.bvuniversity.edu.in</a></td>
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<td>B) Date of Online Computer Based Entrance Test</td>
<td>:</td>
<td>10th August 2020</td>
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<td>C) Declaration of Result of both tests</td>
<td>:</td>
<td>17th August 2020 after 5.00 p.m. at: <a href="http://www.bvuniversity.edu.in">www.bvuniversity.edu.in</a></td>
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<td>D) Counseling and spot admission Venue for Counseling</td>
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<td>Bharati Vidyapeeth (Deemed to be University), Rajiv Gandhi Institute IT &amp; Biotechnology, Pune-Satara Road, Katraj, Pune-46 Ph. No. 020-24379013</td>
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<td>E) Commencement of Classes</td>
<td>:</td>
<td>1st September 2020</td>
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Since its inception, Bharati Vidyapeeth Deemed to be University has emerged as one of the prominent University in India. It is established by Founder Chancellor, Dr. Patangrao Kadam with an objective to bring all round social transformation by providing quality education and holistic development of its students. As one of the most trusted global knowledge destination, University has made astonishing strides in the field of education.

The year 2018-19, was a significant year for the University on many fronts. The biggest achievement was the accordance of Category-I University Status by University Grant Commission. The ranking profile of the University was strengthened by being ranked at 62nd among Universities by NIRF-2019. Bharati Vidyapeeth is the first and the only organization to have 4 institutes under its ambit having NIRF ranking.

Throughout the year the university continued its focus on excellence in academics and research. Faculty members strengthened their research profile by publishing their research work in highly reputed International and National journals having high impact factor and indexed in Google Scholar, Scopus, and Web of Science. The partnership with the industry was strengthened by successfully securing the major and minor research projects. The university also entered into various national and international collaborations.

What we have achieved so far is greatly admirable. But in this dynamic world, we are aware about the demand for highly qualified professionals in every sector. The responsibility of fulfilling these expectations lies with us. I have no doubt that Bharati Vidyapeeth Deemed to be University will be able to fulfill it with the joint efforts and cooperation of its management, faculties and staff.

I congratulate to the Vice Chancellor for his continued efforts in bringing the University to the higher pinnacle of academic excellence.
Vice Chancellor’s Message

Hon’ble Prof. Dr. Manikrao Salunkhe
Vice Chancellor
Bharati Vidyapeeth (Deemed to be University) Pune

It is a matter of immense pleasure for me to be a part of the Bharati Vidyapeeth (Deemed to be University) family as its Vice Chancellor. I take this opportunity of welcoming new students joining the College of Engineering as well as the Faculty of Management Studies in undergraduate as well as postgraduate programmes. Most of such students move away from the folds of their family and need to feel that they are just moving away from one family fold to another. Their teachers seniors and peers, all form an extended family from whom they can look up for any guidance support and help to move ahead in life as professionals in the study programmes they have opted.

The College of Engineering offers graduate, post graduate programmes and Doctoral programmes. The college has earned its reputation owing to its excellent infrastructure as well as qualified faculty. In terms of credentials, the College of Engineering is one of the few institutes in the country which has Programmes accredited by National Board of Accreditation (NBA) twice and application for the third cycle of accreditation is underway. This is the only institute selected by MHRD for its Technical Education Quality improvement Programme (TEQ IP-II- 1.1 Programme) for the grant of Rs. 4 Crores.

Like any other area of science, engineering technology is also going through rapid changes. As far as high quality engineering education is concerned in such an ever-changing area, an institution needs to keep itself always updated through course curriculum, laboratories resources and most importantly faculty. We have a team of qualified, experienced & dedicated teaching faculty in the faculty of management Studies for constant updation of syllabi. The respective departments are supported by equally dedicated qualified laboratory staff.

Under the Faculty of Management Studies, we have courses taught at our Management Schools located in Pune, Sangli, Solapur, Kolhapur, Karad and New Delhi. Also we have an Institute for Hotel Management and Catering Technology in Pune. We have a continuous process of updation of syllabi, as far as high quality Management education is concerned. In order to impart education, Liaison with industry in the form of industrial visits, students training, expert lectures and arranging of seminars & workshops are an integral part of our educational program.

The colleges have a well designed building and other well equipped infrastructural requirements with state-of-the-art facilities. Our curriculum goes through regular revisions to incorporate new developments for imparting the course contents and knowledge beyond syllabus given in the University curriculum. Ours is a multi campus university with multi disciplinary approach. We produce graduates to become future leaders in industry, academia, government and the society. Through a good blend of course work and projects, the departments endow students with the ability to apply knowledge in multidisciplinary teams, provide leadership and technical expertise, and practice their professions with ethical approaches and concern for society and environment. We have a team of qualified, experienced & dedicated teaching faculty for constant updation of syllabi. Research is an inclusive part of the teaching and our faculty members publish research papers in indexed journals of repute with impact factor. Active interaction of learners with faculty and other academicians & professionals in the field provide exposure by way of seminars, workshops etc.

The campus is ICT enabled and the colleges provide an e-learning and e-connect environment, along with class coordination system, document management system as well as virtual class rooms. The university is situated in a serene environment. The serenity along with a complex structure of curricular, co-curricular and extra-curricular activities will shape your physical, mental and intellectual growth. As a student of Management/Engineering, you are the torch bearers of latest technology. You have the responsibility of developing an environmentally and socially sustainable society.

I, wish and assure you, on behalf of the university family, that we will help you pursue your objectives of life under the varied social, cultural and economic environment and make the University family proud of your attainments.
Dear student,

I am extremely happy that you have chosen this University as a stepping stone for your future progression as a professional.

Dr. Patangrao Kadam established Bharati Vidyapeeth at the age of 19 in May 1964. Within a span of few decades, he developed it into one of the largest educational organizations in the country known for its high academic excellence within the country and beyond. Dr. Patangrao Kadam had envisioned metamorphosing Bharati Vidyapeeth into a full-fledged University, which came to be true in April 1996 when the Government of India conferred the status of “Deemed to be University”. Its high academic standing has been acknowledged by the NAAC which has awarded it with A+ grade successively in three rounds. The University is placed under Category-I by the UGC. The University has been ranked 62nd among Universities by NIRF-2019.

Current global challenges require graduates with advanced skills who will drive growth in the industrial and technological spheres and one who continues to learn so as to grow professionally and personally. The constituent units of Bharati Vidyapeeth (Deemed to be University) will provide enabling platforms where student learning is enriched as per requirements of the industry.

We dedicate our intellectual resources to advancement in the field through research activities so as to develop and empower students with requisite expertise & understand and address changes impacting the world. Our close linkage with industry has enabled development of curriculum based on latest industry requirement, experiential learning with the help of experts & career progression through placement. In testimony are our alumni who are working in the best organizations globally and as successful entrepreneurs.

Through our guiding principles we are committed to provide quality education in different disciplines and a conducive environment to be an effective contributor professionally and for the growth of the nation.

I once again welcome you, and wish you all success in your academic pursuit.

Dr. Vishwajeet Kadam
Bharati Vidyapeeth (Deemed to be University), Pune

Bharati Vidyapeeth, the parent organization of this University is one of the largest educational organizations in the country. It has 180 educational units under its umbrella including 80 Colleges and Institutes of conventional and professional disciplines.

The Department of Human Resource Development, Government of India on the recommendations of the University Grants Commission accorded the status of “Deemed to be University” initially to a cluster of 12 units of Bharati Vidyapeeth. Subsequently, 17 additional colleges / institutes were brought within the ambit of Bharati Vidyapeeth (Deemed to be University) wide various notifications of the Government of India. Bharati Vidyapeeth (Deemed to be University) commenced its functioning on 26th April, 1996.

Constituent Units of Bharati Vidyapeeth (Deemed to be University)

1. BVDU Medical College, Pune.
2. BVDU Dental College & Hospital, Pune
3. BVDU College of Ayurved, Pune
4. BVDU Homoeopathic Medical College, Pune
5. BVDU College of Nursing, Pune
7. BVDU New Law College, Pune
8. BVDU Social Science Centre (M.S.W.), Pune
9. BVDU Yashwantrao Chavan Institute of Social Science Studies & Research, Pune.
10. BVDU Centre for Research & Development in Pharmaceutical Sciences & Applied Chemistry, Pune
11. BVDU College of Physical Education, Pune.
12. BVDU Institute of Environment Education & Research, Pune
13. BVDU Institute of Management & Entrepreneurship Development, Pune
14. BVDU Poona College of Pharmacy, Pune
15. BVDU College of Engineering, Pune.
16. BVDU Interactive Research School in Health Affairs (IRSHA), Pune
17. BVDU Rajiv Gandhi Institute of Information Technology & Biotechnology, Pune
18. BVDU College of Architecture, Pune
19. BVDU Abhijit Kadam Institute of Management & Social Sciences, Solapur
20. BVDU Institute of Management, Kolhapur
21. BVDU Institute of Management & Rural Development Administration, Sangli
22. BVDU Institute of Management & Research, New Delhi
23. BVDU Institute of Hotel Management & Catering Technology, Pune
24. BVDU Yashwantrao Mohite Institute of Management, Malkapur- Karad
25. BVDU Medical College & Hospital, Sangli
The status of University was given to a cluster of these colleges and institutes in appreciation of the high level of their academic excellence and for their potential for further growth.

During the last 23 years or so, the University has achieved higher pinnacle of academic excellence and has established its reputation to such an extent that it attracts students not only from various parts of India but also from abroad. According to a survey conducted by Association of Indian Universities, this University is one among the top ten Universities in the country preferred by the overseas students for admissions. At present, there are more than 542 overseas students from 41 countries on the rolls of constituent units of this University.

During the last 23 years, there has been tremendous academic expansion of the University. It now conducts in all 290 courses in its constituent units, of them 107 are Post Graduate, 40 are Under Graduate and 37 Diploma level and 14 are PG Diploma level courses. 11 Fellowship and 5 certificate courses. All the professional courses which the University conducts such as those of Medicine, Dentistry, Engineering etc., have approval of the respective statutory councils, viz., Medical Council of India, Dental Council of India, All India Council for Technical Education etc.

The University is a throbbing center of research activities and has launched Ph.D. programmes in 79 subjects and M.Phil in 2 subjects. It has also introduced quite few innovative academic programmes such as Masters in Clinical Optometry, M.Tech. in Nano Technology etc.

The University's performance and achievements were assessed by the "National Assessment and Accreditation Council" and it was Accredited with a prestigious "A+" grade in 2017. Some programmes of the constituent units such as Poona College of Pharmacy, College of Engineering at Pune & the Institute of Management and Research, at New Delhi, have also been accredited by "National Board of Accreditation". Three constituent units of Bharati Vidyapeeth (Deemed to be University) are also the recipients of ISO 9001-2001 certifications.

In 2019, in the assessment under National Institutional Ranking Framework (NIRF), by Ministry of HRD, Govt. of India, the university is ranked 62th at National level among universities. Also its constituents units-i.e. Poona College of Pharmacy, Pune is figured at 16th place, College of Engineering, Pune at 93rd place, Institute of Management and Entrepreneurship Development, Pune at 55th place and Rajiv Gandhi Institute of Information Technology and Biotechnology at 42th place at the national level.
Salient and Distinctive Features of Bharati Vidyapeeth (Deemed to be University)

This University:

- is one of the largest Deemed to be University in the country established u/s. 3 of the UGC Act, 1956;
- is a multi-faculty University offering a variety of courses in 12 faculties namely Faculty of Arts, Social Sciences and Commerce; Faculty of Science; Faculty of Law; Faculty of Medical Sciences; Faculty of Dentistry; Faculty of Ayurveda; Faculty of Homoeopathy; Faculty of Nursing; Faculty of Pharmaceutical Sciences; Faculty of Management Studies; Faculty of Engineering & Technology and Faculty of Interdisciplinary Studies is accredited and reaccredited by the NAAC with prestigious 'A+' grade.
- is probably the only University of its kind in the country having three self-financing Research Institutes devoted exclusively to the researches respectively in Health Related Sciences, Pharmaceutical Sciences and Social Sciences.
- has the distinction of getting recognition from the University Grants Commission u/s. 12 (B) of its act;
- is a University, which is academically and intellectually very productive. Its faculty members have a very laudable track record of research, publications and patents;
- has created a special fund to provide research seed money to its faculty members;
- has digitalized the libraries of its constituent units and which makes an extensive use of modern Information and Communication Technology in teaching, learning and research and also in administration;
- publishes its own scientific Journal. Besides, two of its Management Education Institutes publish their own academic journals which have gained recognition in the core academic circles;
- has established linkages with more than 50 national and international reputed academic institutions, such as North Carolina A & T University (USA), University of Cologne, (Germany), Liverpool Law School, (UK), Kingston University (UK), Pioneer Research Centre for Nano-grid Materials, Pusan National University, Busan (South Korea), Deakin University (Australia), Salford University (Australia), Oxford Brookes University (UK) and several others;
- has several colleges of health related sciences such as Medicine, Dentistry, Ayurved, Homoeopathy, Nursing, Audiology & Speech Language Pathology, Optometry in one campus (Pune). This has facilitated introduction of interdisciplinary courses and research.
Bharati Vidyapeeth (Deemed to be University)

Our Campuses

Bharati Vidyapeeth (Deemed to be University) has campuses in Pune, Mumbai, Solapur, Kolhapur, Sangli, Karad and New Delhi, the capital city of India. Bharati Vidyapeeth (Deemed to be University) has two campuses in Pune, one on Pune-Satara Road 5 kms. South of Pune another at Erandwane, in the heart of the city. In addition, two more campuses have been developed at Sangli and Navi Mumbai.

- IRSHA, its health related Sciences Research Institute has done a good path breaking research work on Omega 3 Fatty Acids and has taken a lead in encouraging farmers to cultivated flax seeds which are major source of Omega 3 Fatty Acids.
- Its Institute of Environment Studies & Research Education has adopted several primary schools, wherein it implements its programmes of creating environmental consciousness among the students. Its work has received national level applaud.
- is a throbbing centre of academic activities and has organized several national and international level seminars, conferences, workshops, etc.
- runs a School of Performing Arts, wherein graduate and postgraduate programmes in various Performing Arts including dance, music etc., are conducted in the traditional Gurukul system.
Bharati Vidyapeeth (Deemed to be University)

RAJIV GANDHI INSTITUTE OF IT AND BIOTECHNOLOGY

The Institute was conceptualized in 2001 and acquired recognition by the University Grants Commission (UGC) in September 2002. The academic programme is aimed at generating competent work force for growing life sciences industry. The institute's activities focus on imparting education, training and research in the emerging important areas of biotechnology. A three year graduate course (B.Sc.) in biotechnology was introduced in 2003 and a post-graduate course (M.Sc.) in 2005. In 2010, a post graduate course in Bioinformatics (M.Sc. Bioinformatics) was introduced in the institute and M.Sc. Medical Biotechnology has been launched since 2012 with an aim to generate skilled manpower for inter disciplinary subject. The institute also conducts various extension activities such as training to students in tissue culture of important crop plants and supply of authentic plant material to farmers. Details of infrastructural facilities resources available and other activities conducted at the institute are available on its website.

Vision
To make the institute a world class center of excellence in Biotech education and research

Mission
Social Transformation Though Dynamic Education

Goal
To generate professionally competent human resource in biotech to serve academia, research, agriculture, health and industry
ACADEMIC PROGRAMME

The biotechnology graduate and post-graduate programme is designed to provide fundamental knowledge of the basic subjects with special emphasis on the hands-on practical training. With a modest beginning of two faculty members in 2003, the institute today has 15 highly experienced faculty members and over 10 visiting faculty. Our expertise include Microbial Biotechnology, Molecular Biology, Recombinant DNA Technology, Plant Biotechnology, Plant and Animal Tissue Culture, Enzyme Technology and Bioinformatics. The coursework is essentially framed to acquaint the students with recent advances in the field. Seminars, research projects, presentations, and industrial visits are integral part of the curriculum. In addition, guest lectures by eminent scientists from different disciplines of Biotechnology and allied industry are regularly organized. The institute also encourages and supports sports, cultural and social activities of students.

ATTRACTIO NS TO CHOOSE RGIT-BT AS CENTRE FOR LEARNING

- CBCS syllabus for up-to-date knowledge
- High qualified and experienced faculty in each department
- Infrastructural facilities to run all academic programs
- Knowledge and job-oriented syllabi, Subject-wise specialized faculty as per UGC norms
- Digitalized library with internet connectivity
- All classrooms are equipped with LCD projectors connected to LAN, for simultaneous conduct of theory classes
- Subject-wise separate UG and PG laboratories for different programs
- Research laboratories focused for research in nutrigenomics, fermentation technology and herbal biotechnology etc.
- A/c auditorium with 140 seating capacity for seminars
- Conference / exhibition hall, administrative/ students' guidance office
- Practicals oriented for industrial applications to groom students for industry placement
- Hands-on training for every student to work independently in laboratories to handle different research equipments & gain practical skills
- Dedicated 125 kVA generator for uninterrupted power supply
- Poly-house and shade-net facility for hardening banana plants

PLACEMENT

It is our endeavor to impart training to our students to make them desirable candidates in various sectors. Over the years many of our students have qualified for various PG courses at National institutes like JNU, New Delhi and IISc, Bangalore. Our UG students have also qualified for MS programs in institutes like University leading Maastricht University, The Netherlands, University of Warwick, UK, University of Melbourne, Australia East Anglia University, UK, State University of New York, Buffalo, US, Indiana - Purdue University, Indiana, Pollis, US. Northsternn University, Boston. PG students have been placed as Project Assistants in funded projects at National Institutes such as NCL, IRSHA, ARI and for Ph.D. in (i) International Universities such as University of Gloucestershire and Texas University, (ii) Central Universities in India. Many students are placed in prestigious industries like Serum Institute of India, Pvt. Ltd, MahiCo, Pune, Reliance Life Sciences, Mumbai, Zydus Hospira Oncology, Hyderabad, Zelle Biotechnology Pvt Ltd, Mumbai, ToxIndia, Pune, Novartis Pharma, Ankleshwar, Tarson Products Pune, Glenmar, Pune, MCure Pune, Venky’s Chicken Pune, Mind Enviro Biomatrix Pvt Ltd Malaysia, etc.
INFRASTRUCTURE:
A Spacious architecture built up in an area of 58,000 square ft. house five departments. Department of Microbial Biotechnology, Department of Biochemical Sciences, Department of Plant Biotechnology, Department of Cell and Molecular Biology and Department of Bioinformatics. Each department has well equipped laboratories to conduct practicals of graduate, post-graduate as well as research students. Adequate library facility with over 3000 books and number of periodicals is presently provided to students. Efforts are being made to avail latest knowledge in the form of periodicals and journals. Library is also equipped with internet searching facility and INFLIBNET Facility.

COMPUTER FACILITY
A special emphasis is given to the computer training of the students. Modern computer laboratory equipped with bioinformatics software and Internet connectivity is developed. Use of computer at every step of learning and laboratory exercise is encouraged. Internet facility is provided to students to undertake literature survey and promote innovative ideas. Every class room is equipped with LCD projectors & Internet connection.

INDUSTRY AND ACADEMIC INTERACTION
Bharati Vidyapeeth provides unique opportunity to work in collaboration with allied disciplines of Biotechnology such as Pharmacy, Ayurveda, Medicine, Environmental, Pure Science, Medicine, Dentistry etc. Collaborative research projects with college of Ayurveda, Pharmacy, Agriculture and Interactive Research School for Health Affairs (IRSHA) are conceived. The academic programme of Rajiv G andhi Institute has a strong support of scientists from prestigious Institutes such as Interactive Research School of Health Affairs (IRSHA), Bharati Vidyapeeth and National Chemical Laboratory (NCL). Rajiv G andhi Institute has signed MOU’s & Jay Biotech for research & conducting workshops respectively.

SCOPE OF BIOTECHNOLOGY
Biotechnology is an emerging inter disciplinary branch of science that applies the principles of biology and engineering and offers scientists all the background material, indispensable for the development of biotechnological processes and products. It also offers a unique collection of current information on all aspects in biotechnology research and genomics, bioinformatics, special processes, metabolism and legal, economic and ethical dimensions. Advances in science and technology have transformed traditional biotechnology techniques, such as selective breeding, hybridization and mutagenesis, into modern ones such as recombinant DNA techniques and tissue culture. This transformation has opened the door to more varied applications in areas such as health care, the environment, forestry, industrial processes and others.

Discoveries in genetics have led to novel strategies for treating disease. Decades ago, scientists learned that DNA is mainly the archive of genetic information. Its orders are translated into action by segments of ribonucleic acid (RNA), which serve as the working blueprints for all proteins. Today, chemists are beginning to create valuable new drugs by fabricating “anti-sense” segments of RNA, whose sequence is the exact opposite of an unwanted sequence, to combine with certain existing strands of RNA and thus block the action of specific genes.

Agriculture clearly needs new and safer tools to manage a range of insects and plant diseases. Fortunately, the pesticide industry has discovered and brought to market some very effective, safer and selective biopesticides and closely related synthetic analogues. These “reduced risk” pesticides are key new tools for farmers. Within a few years, millions of farmers worldwide will use these biopesticides to reduce their reliance on risky, disruptive broad – spectrum insecticides.

Exciting prospects are likely to result from industrial -scale plant tissue culture. This may soon obviate the need for rearing whole plants in order to generate valuable commodities such as dyes, flavorings, drugs, and chemicals. Cloning techniques could prove to be the way to tackle some of the acute problems of reforesting in semi-desert areas. Plants grown from the cells of mature trees could greatly speed up the process. Combination of advantageous genes could bring about a new era in plant protection. The crop can be treated safely with more effective does of weed killer, and it is also engineered to be less susceptible to insect damage.
Collaborative activities: Research Institute

- National center for Microbial Resource (NCMR) Pune
- BVDU-Medical College, Pune/Sangli
- BVDU-College of Engineering

Linkages with Research Institutes
- NCL(Pune), IISER(Pune), SPPU(Pune), ARI(Pune), VSI(Pune), HAFFKINE INSTITUTE (Mumbai)

Linkages with Industries for placement, internship, Research Entrepreneurship development and students training
- Serum Institute of India pvt. Ltd., Toxindia, BEST, AG ASTI, SIIM SAR, G REENVENTIO N BIO TECH, EdubioSkills, P²S foods, iSERA BIOLOGICAL, Fabgenics, Welinnovate Biosolutions, Jay Biotech (Pune), Inoplex, Vision Ecologica, Mothers recipe, M O CHEM (Latur).

Seminar and workshop conducted at RGITBT

- One day workshop on Entrepreneurship in Biotechnology - Issues & Challenges” on 1st Feb 2020.
- Workshop on ENTREPRENEURSHIP AWARENESS CAMP Sponsored by NSTEDB, Dept. of Science and Technology, Govt. of India during 26th to 28th December 2018.
- Awareness Program on Organ Donation on 4th August 2018.
- Guest lecture on Yoga and Biopsychology by Acharya Kripamayanand Avdhut 20th July 2018.
- Understanding Sustainability by Mr. Bhushan Patil on 17th Feb 2018.
- Seminar on Relevance to Environmental and Waste management by Manjushree Tadwalkar on 20th Jan 2018.
- Career opportunities in Govt. sector through competitive examinations by Mr. Ashishkumar Dubey on 6th Dec 2017.
- Importance of Panchkarma by Dr. Meenaz Dhage on 16th Sept 2017.

Student enrichment programmes conducted at RGITBT

- Guest lectures from Biotech Industry and Academics.
- Film and documentaries shows related to Life science and current trends of Biotechnology as Saturday activity.
- Seminars and interactions with subject experts.
- Zoological and Botanical study tour and excursion.
- Biotechnology industry visit.
- Workshop for training in sophisticated Biotechnology equipments.
- Involvement of students in an enterpreneural unit “Nature Tech” under earning while learning scheme for preparing kitchen and herbal kits, in vitro gift articles etc.

Thrust areas for research

- Biochemical Sciences
- Microbial Biotechnology
- Plant Biotechnology
- Cell and Molecular Biology
- Bioinformatics
- Nutrigenomics, Diabetes, Waste Utilization, Industrial Enzymes
- Marine Biotechnology, Health and Nutrition
- Herbal Biotechnology, Commercial Micro-propagation Of Fruit Crops, Ornamental and Medicinal Plants
- In vitro Toxicity Assays Molecular Diagnostics,
- Genomics, Proteomics, Next Generation Sequencing Data Analysis.
Course structure of three- year B.Sc. Degree Course in Biotechnology
Under Choice Based Credit System

**SEMESTER I**

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<tr>
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Elective Courses in Sem I:
1) Elective Open Course I; Option I: General English, Option II: Basic Programming for Bioinformatics, Option III: Open course offered in other constituent units of BVDU.
2) Elective General Course; Option I: Yoga & Meditation, Option II: An appropriate General course offered in other constituent units of BVDU.

**SEMESTER II**

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Elective Courses in Sem II:
1) Elective Open Course II; Option I: Ecology, Option II: Gardening & Landscaping, Option III: An appropriate Open course offered in other constituent units of BVDU.
2) Elective General Course II; Option I: Human Values, Option II: An appropriate General course offered in other BVDU constituent units.
### SEMESTER III

<table>
<thead>
<tr>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<tr>
<td>Biochemistry II</td>
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<td>40</td>
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<tr>
<td>Principles &amp; Techniques in Molecular Biology</td>
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<tr>
<td>Immunology</td>
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<tr>
<td>Practicals in Molecular Biology &amp; Immunology</td>
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**Total Credits:** 25

**Elective Courses in Sem III:**
1) Elective Open Course III; Option I: Patent & IPR, Option II: Nutrition, Option III: An appropriate Open course offered in other disciplines of BVDU.

2) Elective General Course III; Option I: Communication skills & Personality Development, Option II: An appropriate General course offered in other constituent units of BVDU.

### SEMESTER IV

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<tr>
<td>Fundamentals in Molecular Biology</td>
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<tr>
<td>Developmental Biology</td>
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<td>Environmental Biotechnology Lab</td>
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<tr>
<td>Practicals in Molecular &amp; Developmental Biology</td>
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<tr>
<td>Analytical Techniques Lab</td>
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</table>

**Total Credits:** 25

**Elective Courses in Sem IV:**
1) Elective Course IV Option I: Nanotechnology, Option II: Bio fertilizer Technology, Option III: An appropriate Open course offered in other disciplines of BVDU.

2) General Course IV; Option I: Seminar & Journal Club, Option II: An appropriate General course offered in other BVDU constituent units.
### SEMESTER V

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<td>Clinical Biochemistry</td>
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</tr>
<tr>
<td>Recombinant DNA Technology</td>
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<td>40</td>
<td>60</td>
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<tr>
<td>Food Biotechnology</td>
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<tr>
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<td>Practicals in Recombinant DNA Technology</td>
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<tr>
<td>Practicals in Food Biotechnology</td>
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<td>Elective</td>
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<td>Continuous Assessment</td>
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</tr>
</tbody>
</table>

25 Credits

Elective Courses in Sem V:
1) Elective Course V; Option i: Biotechnology for forensics, Option II: Biodiversity, Option III: Information security
2) Elective General Course V; Option I: Innovative ideas in Biotechnology, Option II: An appropriate General course offered in other BVDU constituent Unit

### SEMESTER VI

<table>
<thead>
<tr>
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<th>Total Credits</th>
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<td>Bioprocess Technology &amp; Quality Control</td>
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</tr>
<tr>
<td>Plant Biotechnology</td>
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<td>40</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Basics of Bioinformatics</td>
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<td>Practicals in Animal Tissue Culture</td>
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</tr>
<tr>
<td>Practicals in Plant Tissue Culture</td>
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<td>60</td>
<td></td>
</tr>
<tr>
<td>Exercises in Computer Applications &amp; Bioinformatics</td>
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<td>60</td>
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</tr>
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<td>Continuous Assessment</td>
<td></td>
</tr>
</tbody>
</table>

25 Credits

Elective Courses in Sem VI:
1) Elective Open Course VI; Option i: Entrepreneurship in Biotechnology, Option II: Business management in Biotechnology, Option III: Cyber Law
2) BBT 609: Elective General Course VI; Option i: Scientific Writing, Option ii: An appropriate General course offered in other BVDU constituent unit
PROCEDURE AND RULES FOR ADMISSION

1 ONLINE COMPUTER BASED ENTRANCE TEST - GENERAL INSTRUCTIONS, TERMS & CONDITIONS:

1.1 A single combined entrance test B.Tech, B.Pharm/Pharm D. ABON-2020 for B.Tech B. Pharm/Pharm D, Bachelor of Audiology & Speech Language Pathology, B.Sc Biotechnology, B.O ptometry and B. Sc. Nursing will be conducted for admission to the above courses.

1.2 Applicant may kindly note that mere appearance in the online computer based entrance test and inclusion of name in the merit list does not confer any automatic rights to secure admission to the programme offered by the institute. The selection and admission to the programme is subject to fulfilling the admission criteria, eligibility, and any such criteria as may be prescribed by the University and availability of seats to the particular programme and institute at the time of counseling.

1.3 Applications of candidates producing false or fabricated information will not be considered.

1.4 Before initiating online registration process, candidates should go through the Information brochure carefully for eligibility criteria, and pattern of examination etc. The information brochure shall be available at www.bvuniversity.edu.in

1.5 Incomplete online application, if not in accordance with instructions, will not be considered and processed. Applicant should carefully fill up all the fields during online application process and complete the payment process. Application once submitted finally, cannot be withdrawn/modified.

1.6 The online computer based entrance test fee, once paid, will not be refunded under any circumstances. Candidates who remain absent for the online computer based entrance test will forfeit their entrance test fee.

1.7 The Information brochure is subject to modification without notice, please check the website regularly for updations, if any.

1.8 The authorities of the institution reserves the right to withdraw permission, if any, granted inadvertently to any candidate who is not eligible to appear in the online computer based entrance test even though Admit card/Registration number has been issued.

1.9 The Admissions provided to candidates based on the result of the online computer based entrance test will be purely provisional and subject to the fulfillment of eligibility criteria as mentioned in the Information brochure.

1.10 Under no circumstance a change in online computer based entrance test centre once selected by the candidate will be allowed.

1.11 Candidates MUST bring the following documents to the online computer based entrance test centre - (a) Printed copy of online computer based entrance test Admit Card (b) Any one of the authorized photo IDs (must be original, valid and non-expired): Aadhaar Card / PAN card/Driving license/Voter ID/Passport. The name on the photo identification must match with the name as shown on the Admit card. Candidate reporting to test center without the above said requisite documents shall not be allowed to appear for the entrance test.

1.12 All the correspondence should preferably be addressed by e-mail. The e-mail query shall be addressed only if it is not anonymous and not vague.

1.13 Candidates are deemed to have read, agreed and accepted the terms and conditions in the Information brochure and on completing the online registration/application form for the online computer based entrance test.

1.14 In case differences of opinion or any ambiguity in interpretation and implementation of any of the instructions/terms/rules/criteria regarding the determination of eligibility/conduct of examinations/registration of candidates / information contained herein, the same shall be referred to the Vice Chancellor of the Bharati Vidyapeeth (Deemed to be University) and his decision shall be final and binding on all concerned.

1.15 Any legal matters arising out of the total admission process through the All India Common Entrance Test of Bharati Vidyapeeth (Deemed to be University), Pune - 30 i.e. B.Tech, B.Pharm/Pharm D. ABON-2020 shall be within the exclusive jurisdiction of competent courts at Pune, Maharashtra State only.
2. GENERAL
The information and the rules given here in are applicable for admissions to the first year of three years full time Bachelor of Biotechnology (B. Sc. Biotechnology) under graduate degree programme of Bharati Vidyapeeth (Deemed to be University), Pune.

The seats will be filled on merit, based on their performance in B.Tech, B.Pharm/Pharm D. ABO N-2020 online computer based entrance test*, conducted by Bharathi Vidyapeeth (Deemed to be University) at the designated centers.

INTAKE CAPACITY:

<table>
<thead>
<tr>
<th>Course</th>
<th>No. of seats</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Sc. Biotechnology</td>
<td>80</td>
</tr>
</tbody>
</table>

Note:
15% seats are reserved under Foreign / NRI / P.I.O. / O C I/ Institutional Quota Merit Category. Candidates seeking admissions to the seats under Foreign / NRI / P.I.O. / O C I/ Institutional Quota Merit category will have to apply separately on a prescribed application form. The application form will be available at the office of The Registrar, Bharati Vidyapeeth (Deemed to be University), Bharati Vidyapeeth Bhavan, L.B.S. Marg, Pune -30. The form fee for this category is Rs. 1,000/- (non refundable). Seats remaining vacant after allotment to Foreign / NRI / P.I.O. / O C I/ Institutional Quota Merit category will be allotted to Indian students as per norm. The last date for submission of form to this category at the above mentioned address is 30th July 2020 before 5.00 p.m.

All the candidates seeking admissions will have to appear for online computer based Entrance Test “B.Tech, B.Pharm/Pharm D., ABO N-2020” conducted by Bharati Vidyapeeth (Deemed to be University), Pune. All candidates will have to apply online & fill the prescribed application form.

3 ELIGIBILITY
Candidate who have successfully passed the Higher Secondary Examination (10+2course) or equivalent examination with minimum 45% (40% for SC/ST) marks in Physics, Chemistry, Biology and/or Mathematics and passed in English, from a recognized board is eligible for admission to the First year of the B.Sc. Biotechnology course.

4 BASES OF SELECTION FOR ADMISSION
4.1 A Candidate desirous of seeking admission to B. Sc. Biotechnology Programme should fulfill the minimum eligibility condition as stated in point no. 3 above the final admission will be offered based solely on the merit obtained at the all India entrance online computer based Entrance Test B.Tech, B.Pharm/Pharm D. ABO N-2020 conducted by Bharati Vidyapeeth (Deemed to be University), Pune.

4.2 He/She must have appeared for the B.Tech, B.Pharm/Pharm D. ABO N-2020 Test, conducted by Bharati Vidyapeeth (Deemed to be University), Pune at designated centres.

4.3 The candidate shall be offered admission on the basis of his/her rank obtained in the merit list and availability of the seats to the programme. Mere appearance in the online computer based Entrance Test and inclusion of name in the merit list does not confer any automatic rights to secure admission to the programme offered by the institute. The selection and admission to the programme is subject to fulfilling the eligibility criteria.
4.4 In case two or more candidates obtaining equal marks in between B.Tech, B.Pharm/Pharm D. ABO N-2020 online computer based Entrance Test merit of such candidates shall be determined in order of preference as under:
   a) Candidate obtaining higher marks in Biology (Botany & Zoology) in the entrance examination, if equal
   b) Candidate obtaining higher marks in C hemistry in the entrance examination, if equal
   c) Candidate obtaining higher total marks in subjects of Biology, C hemistry, Physics in the 12th standard qualifying examination. (Such a tie will be settled at the time of counselling), if equal
   d) Candidate obtaining higher percentage of total marks in the 10th standard examination, if equal
   e) In case of tie at this level, computerised random selection of candidate will be carried out.

5. NATURE OF ONLINE COMPUTER BASED ENTRANCE TEST B.Tech, B.Pharm/Pharm D. ABO N-2020
All candidates desirous of taking admission for B. Sc. Biotechnology Programme must appear for online computer based Entrance Test B.Tech, B.Pharm/Pharm D. ABO N-2020
The question paper shall consist of three sections with multiple choice questions (MCQ). The questions will be based on syllabus as mentioned in the information brochure. Each question carries one mark with no negative marking. Details are as given below.

<table>
<thead>
<tr>
<th>Section No.</th>
<th>Subject</th>
<th>No of questions</th>
<th>Marks</th>
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<td>Section-2</td>
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</tr>
<tr>
<td>Section-3</td>
<td>Chemistry</td>
<td>60</td>
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</tbody>
</table>

For candidates seeking admission to first year B.Sc. Biotechnology degree course it is mandatory that the candidate must appear for Physics, Chemistry and Biology.

The online computer based Entrance Test shall be of 200 marks and shall be of 180 minutes duration.

6. ONLINE COMPUTER BASED ENTRANCE TEST SCHEDULE AND ADMIT CARDS:
The online computer based entrance test "B.Tech, B.Pharm/Pharm D., ABO N-2020" will be held on 10th August 2020. A single result will be prepared for all the tests.
The admit cards will be available from seven days prior to the date of entrance test. The candidates will have to login with their credentials provided and download their respective admit cards of the entrance test which they have applied for.

6.1 The candidate must report to online computer based entrance test centre as per the time schedule mentioned.

6.2 The candidates must bring this Admit Card at the Examination Centre. No candidate will be allowed entry without this Hall Ticket. The candidate is also required to bring one of the photo identification card in original viz. Voter Identity Card, Driving License, PAN Card, Passport or Adhar Card etc.

6.3 No candidate will be allowed to enter the online computer based entrance test centre after the scheduled time of commencement of online computer based entrance test.

6.4 The candidates appearing for the online computer based entrance test should, in their own interest, check their eligibility in all respect so as to avoid disappointment at any later stage. Your application for the online computer based entrance test is "PURELY PROVISIONAL" pending detailed scrutiny of your fulfilling the eligibility conditions as mentioned in the information brochure for the programme applied. In case, it is found that the candidate does not fulfill the eligibility criteria, application of such candidate is liable to be rejected at any stage of admission process or even after joining in the Institute.
7. TEST CENTRES:

The B.Tech, B.Pharm/Pharm D. ABO N - 2020 entrance test will be conducted through "online computer based entrance test". The online computer based entrance tests will be held at 58 centres throughout the country giving students a wide choice of test centres.

The list of cities where the online computer based entrance test centres are located is as below:

<table>
<thead>
<tr>
<th>SR NO</th>
<th>CITY</th>
<th>SR NO</th>
<th>CITY</th>
<th>SR NO</th>
<th>CITY</th>
<th>SR NO</th>
<th>CITY</th>
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</thead>
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<tr>
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<td>AMRITSAR</td>
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<td>BANGALORE</td>
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<td>JAMMU</td>
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<td>ERNAKULAM/KOCHI/KOCHI</td>
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<td>AURANGABAD</td>
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<td>MUMBAI</td>
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</tr>
</tbody>
</table>

*Note: If the candidates count for a centre is less than 20, then the candidate will be allocated to the nearest available centre. NO REQUEST FOR CHANGE IN EXAMINATION CENTRE WILL BE CONSIDERED UNDER ANY CIRCUMSTANCES.

7.1 Candidates shall appear at the online computer based entrance test centre as shown on their Admit Cards.

7.2 Candidates have the option of selecting their city to appear for the online computer based entrance test and date of exam during filling up of online application form.

7.3 Candidates are advised to familiarize themselves with the route and location of the online computer based entrance test centre.

7.4 Only registered candidates with valid admit card and identity card will be allowed at the online computer based entrance test centre.

7.5 The candidates must reach the online computer based entrance test centre at least one and half hour prior to the commencement of online computer based entrance test on the day of the entrance test.

7.6 Possession and use of electronic devices such as Mobile Phone, Micro Phone or any other Associated Accessories, Calculator, Log Tables, Pager, Digital Diary Books etc are strictly prohibited in the online computer based entrance test Hall. If any candidate is found in possession of any these devices/ documents his/her candidature is liable to be cancelled. As such the candidates should not bring Mobile Phone/ Micro Phone etc at the online computer based entrance test Centre. BHARATI VIDYAPPETH & EXAM CENTER will not be responsible for its safe custody.

7.7 The authorities of Bharati Vidyapeeth (Deemed to be University) however reserve the right to make suitable changes in the centre venue or schedule of the online computer based entrance test.

8. ENTRANCE TEST FEE:

8.1 Entrance test fee: Rs 1,100 /-

8.2 The online computer based entrance test fee shall be paid through payment gateway using internet banking mode or through debit/credit card. Service charges and other taxes for transaction as applicable by bank has to be paid by the applicant.
8.3 The online computer based entrance test fee, once paid, will not be refunded under any circumstances. Candidates who remain absent for the online computer based entrance test will forfeit their online computer based entrance test fee.

9. APPLICATION PROCEDURE:

A candidate desirous of appearing for the online computer based entrance test B.Tech, B.Pharm/Pharm D. ABO N-2020 is required to complete the prescribed online application form and submit to the University along with entrance test fee. The application form is available online at: www.bvuniversity.edu.in

The candidates should strictly follow the instructions given in the website while filling up the application form online, and must read the instructions carefully before filling up the online application form. Instructions are mentioned at ‘Registration Guide’ menu which is available on website. Before filling up the application form online, candidates should:

a) Create their login credential
b) Have a scanned image of their recent passport size photograph (Refer to guidelines mentioned on the website)
c) Have a scanned image of their signature, ready before filling up the online application form.
d) Read the procedure and guidelines for online payments of test fee which is to be made through Credit Card / Debit Card/ Internet Banking. (Refer to guidelines, terms and conditions for using online payment mentioned on the website)

The candidate may then proceed to fill the form and submit the completed online application form. The candidate should take a print of payment receipt and completed online application form for reference and as a record.

Candidates should submit the completed online application form on or before the last date mentioned in the website. (See “Important dates” in the brochure.)

Candidates should ensure that all information entered during the online application process is correct. Applications of candidates producing false or fabricated information will not be considered. The authorities of the University do not edit / modify/ alter any information entered by the candidates at the time of online application process under any circumstances. Any request for change in information there after will not be entertained.

For any queries related to filling online application form, Email to : cet@bharatividyapeeth.edu

*Note: NO REQUEST FOR CHANGE IN EXAMINATION DATE AND EXAMINATION CENTRE WILL BE CONSIDERED UNDER ANY CIRCUMSTANCES.

The university will not be responsible if the candidate has filled in and submitted an application for a different test from the one intended to appear. In such cases the university will not refund the entrance test fees.

10. INSTRUCTIONS REGARDING ONLINE COMPUTER BASED ENTRANCE TEST.

About Question Paper:

1) The duration of the CET exam in Three hours. The online test comprises of 200 marks. It will be of 200 multiple choice questions

2) All questions are compulsory. for each question, for alternatives answers have been provided out of which only one answer is correct.
3) Only one question will be displayed on the computer screen at a time.
4) There is one mark for each question which will be displayed at the top right hand corner of each question.
5) There is no negative marking.
6) The question paper will appear in English language.
7) Candidates can attempt question in any sequence by clicking on the question number in the Section wise Summary Report reflecting on the left hand side of the screen.
8) The exam screen will continuously display the remaining time at the top right hand corner of the question paper.
9) The candidates may ask the Invigilator their doubts or questions before the commencement of test. No queries shall be entertained after the commencement of the examination.
10) Additional rough Sheet (if required) shall be provided to the candidates for rough work during the test. All the rough sheets need to be returned to the Invigilator before leaving the test venue.

About Answering Questions:
1) In order to answer a question, you have to `Click' the option you think is appropriate/ correct. The alternative which has been clicked on will be highlighted and shall be treated as the answer given by you for the question.
2) If you do not wish to attempt the question then you should not click on any option for that question and may click `Next'.
3) You can `Bookmark' questions to review before submitting.
4) You can navigate between questions either by clicking on `Previous/ Next' or by directly clicking on the question numbers which are displayed as attempted/ unattempted / book marked in the Section wise Summary Report.

About Preview and Submission:
1) The answers are saved whenever the candidate navigates e.g. by clicking on Next/ Previous button
2) The candidates can make changes in their choice of alternative only before the paper is auto submitted.
3) After the expiry of 180 minutes the candidates will not be able to attempt any question or check their answers. The answers of the candidate would be saved and submitted automatically by the computer system.

Candidate can be debarred / disqualified by the Center-In-Charge for any of the following reasons:
1) Creating a disturbance.
2) Impersonate - Attempting to take the examination for someone else.
3) Giving or receiving assistance of any kind during the examination & communication in any form between candidates or with outsiders or gesticulation or disturbance or attempt to change seat / question paper in the examination hall
4) Attempting to tamper with the operation of the computer or meddling with system.
5) Leaving the test center without the permission from the invigilator.
6) Using prohibited aids, item not allowed, such as: Calculators, Cell Phones, Pieces of Paper, Electronic Diaries, Watch alarm, listening device, recording or photographic devices, or any other unauthorized device.
7) Attempting to remove examination question and /or examination responses (in any format) from the examination center.
8) Failing to follow instructions of invigilator or test center staff.
9) Manhandling of invigilators or test center staff.
10) Any suspicious act by the candidate which, as per the opinion of the Client observer, has created an impression of unfairness during the examination
11) Resorting to unfair means or trying to influence any person duly authorized to conduct the examination, in any way for examination results shall be considered as a serious offence. The candidate shall be liable to have his/her name removed from the list of candidates for the examination and may also be further dealt with in such manner as client may deem fit.

12) The Chief proctor is authorized to dismiss the candidate/s from the examination center for any misconduct by the candidates and the decision will be final and binding.

13) Any candidate found in possession of any unauthorized material or indulging in copying or impersonation or adopting unfair means shall entail disciplinary action including cancellation of candidature and debarment for three years.

14) In the event of the Examination being disrupted, the candidate should immediately inform the invigilator. The invigilator will help the candidate to re-login to the Examination. This will start the Examination from where it had stopped.

15) A mock test will be available on the bvuniversity.edu.in website for practice for all candidates who have been issued Admit Cards for the exam.

11. DECLARATION OF RESULT:

The result will be declared on 17th August 2020 and displayed at www.bvuniversity.edu.in. It shall be the responsibility of the individual candidate to see their own merit number and appear for the counselling at the centre of his/her choice as per schedule given in Point No. 12.

12. COUNSELING AND SPOT ADMISSIONS:

The counselling and on the spot admissions session will be held at Bharati Vidyapeeth (Deemed to be University), Rajiv Gandhi Institute of Information Technology & Bio Technology, Pune Satara Road, Katraj, Pune 411 0 43 Tel. No.: 020 24379013, as per the following schedule.

<table>
<thead>
<tr>
<th>Date</th>
<th>Course</th>
<th>Category</th>
<th>Merit No.</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>25th August 2020</td>
<td>B.Sc.Biotech</td>
<td>Regular Merit</td>
<td>All Candidates</td>
<td>10.00 a.m.</td>
</tr>
</tbody>
</table>

The candidate must report for counselling at 9.00 a.m. only, on the date of the counselling at the respective centers.

FAILURE TO REPORT FOR COUNSELLING ON THE SCHEDULED DATE AND TIME WILL RESULT IN INSTANTANEOUS CANCELLATION OF A CLAIM OF THE CANDIDATE TO THE SEAT.

The candidate must note that appearance for the online computer based entrance test and inclusion of name in the merit list does not necessarily mean that he/she will get admission to the Institute & course. The admission will depend upon the availability of seats to the particular programme.

It shall be candidates responsibility to see the result of the online computer based entrance test B.Tech, B.Pharm/Pharm D. ABON-2020 and confirm their merit no. The candidate should remain present for counselling as per the schedule.

Individual counselling letters are not going to be sent. The candidate should attend counselling & on the spot admissions on their own as per the schedule given. The candidate should bring along with them proof of having appeared for the online computer based entrance test such as Admit Card & or photo copy of online application form / online computer based entrance test payment receipt.

The candidate will be called for counselling as per their merit number and will be offered a seat as per availability.
of the seat.

11.2 The following certificates in original along with self-attested two copies each of the same are to be submitted at the time of counselling and on the spot admission.

   (a) For a Proof of date of Birth : SSC Certificate or School/College Leaving Certificate or Certificate of Domicile/Nationality Certificate
   (b) Statement of marks of X std examination.
   (c) Statement of marks of XII std examination.
   (d) Transfer Certificate from the Institution in which you had studied last.
   (e) Caste Certificate (in case of candidates of SC/ST category)
   (f) Caste validity certificate issued by appropriate authority (in case of candidates of SC/ST category)
   (g) Migration Certificate (for students who joined a course after 12th).
   (h) Conduct and Character Certificate from a responsible person.
   (i) Certificate of Medical Fitness. (as per Annexure II)
   (j) Six recent passport-size photographs with your names written on backside.
   (k) The amount of fees and Hostel fees (in case you are admitted to Hostel.)
   (l) Authority letter-wherever applicable.
   (m) The application should also be accompanied by a document in the form of school leaving certificate/transfer/migration/character certificate, which should include a report on behavioral pattern of applicant, so that the institution can thereafter keep intense watch upon a student who has a negative entry in this regard.
   (n) An affidavit in the format given in Annexure IV signed by the candidate and countersigned by the parent/guardian in the presence of Notary Public on stamp paper Rs. 100/-.

11.3 After scrutiny of the certificates, the candidates are offered admission according to their rank and availability of seats.

12. New fees as per fee structure 2020

*Note : The fee structure for the academic year 2020-21 will be available at bvuniversity.edu.in

Mode of Payment of Fees shall be as given below

The fee is to be paid through Bank Draft of any Nationalized bank drawn in the name of “The Registrar, Bharati Vidyapeeth Deemed University, Pune payable at Pune”.

Fee is accepted in only Demand Draft mode on any nationalized bank. University / Institute will not accept fees by Online/Net Banking / NEFT / RTGS Mode.

If a candidate fails to confirm admission given to him/her, the same shall stand cancelled and the resultant vacancy will be offered to the next eligible candidate from the list. However, if candidate is unable to report in person, he/she can depute a representative with an authority letter signed by the candidate (appended in this brochure) along with requisite documents under sec.12.2 above and Demand Draft of fees.

There are a few seats available in the hostel which will be allotted on first come first served basis. Those who are desirous of getting admission to the hostel will be required to pay the entire amount of rent for the year as well as the mess charges for the entire academic year at the time of admission only. The details of hostel fees will be given at the time of counselling.
13. REFUND OF FEE:
If the student chooses to withdraw from the program of studies in which he/she is enrolled, the refund of the fees paid will be made as per the following UGC guidelines:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Percentage of Refund of Aggregate Fees*</th>
<th>Point of time when notice of withdrawal of admission is submitted to the university</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100%</td>
<td>15 days or more, before the formally notified last date of admission.</td>
</tr>
<tr>
<td>2</td>
<td>90%</td>
<td>Less than 15 days before the formally notified last date of admission.</td>
</tr>
<tr>
<td>3</td>
<td>80%</td>
<td>15 days or less, after the formally notified last date of admission.</td>
</tr>
<tr>
<td>4</td>
<td>50%</td>
<td>30 days or less, after the formally notified last date of admission.</td>
</tr>
<tr>
<td>5</td>
<td>0%</td>
<td>More than 30 days after the formally notified last date of admission.</td>
</tr>
</tbody>
</table>

*(inclusive of course fees but exclusive of caution deposit)

- In case of (1) in the table above, the University shall deduct Rs. 5,000/- as processing charges form the refundable amount.
- Any student who withdraws form the course as mentioned in Sr. No. 5 and thereafter will be required to remit to the University, in addition to the amount already forfeited, the course fee payable for the remaining period of the course.
- In case of Foreign/NRI candidates, the refund will be made in accordance with RBI/ Foreign exchange regulations.
- All refunds will be processed by the respective units of the University upon receiving the approval from the Registrar based on the recommendation of the head of the Institution. Refund will be made only after the candidate has surrendered the ID card, original fee receipt and the dues clearance certificate.
- Application and Entrance Test Fees, wherever applicable, once remitted shall NOT be refunded under any circumstances.
- The refund information given above is indicative only and Bharati Vidyapeeth (Deemed to be University) reserves the right to make changes as per the notifications received form the concerned statutory / regulatory authorities from time to time.

** The date of opening of the college shall be deemed to be the last date of admission for the limited purpose of admission and refund of fees.

14. CONDUCT AND DISCIPLINE:
If any student is found indulging in antinational activities, or in activities that run contrary to the letter and spirit of the provisions of Acts and Laws enforced by the Government, or any activity that causes his/her behavior to be contrary to rules of discipline, will be liable to be expelled from the College forthwith without any notice by the Principal of the College.

If any of the statements made in application form or any information supplied by the candidate in connection with his/her admission is, at any time, found to be false or incorrect and willful suppression of facts, his/her admission will be cancelled forth with. The fees will be forfeited and he/she may be expelled from the College by the Principal and prosecuted, if deemed necessary.
Each of the candidates seeking admission in the institute is required to give the following undertaking at the time of admission:

A) “I have read all the Rules of Admission for the current year and after fully understanding these rules, I have filled in this application form for admission for the current year.

B) The information given by me in my application is true to the best of my knowledge and belief.

C) I have not been debarred from appearing at any examination conducted by any Government constituted or Statutory autonomous examination authority in India.

D) I fully understand that the Director of the College will have right to expel, rusticate me from the Institution for any infringement of the Rules of good conduct and discipline in general and particularly the ones referred to above and the rules of good conduct and discipline prescribed by the College / University and in the undertaking given above.”

15. MISCELLANEOUS:

The candidates are informed that the medium of instruction, for all programmes is English.

At the time of seeking admissions, a candidate will be provisionally admitted to Programme at the Institute subject to the production of the Provisional Eligibility Certificate from the University.

The Institution shall have the right to satisfy about the conduct and character of a candidate by verifying antecedents of a candidate through the appropriate police-authority, before admitting him/her to the College.

The Attention of the candidates is particularly invited to the provisions of rules regarding the eligibility of candidates for admission to the B. Sc. Biotechnology Programme. If at any stage it is found that a candidate is not eligible either for admission to B. Sc. Biotechnology Programme, his/her candidature and admission even if granted provisionally will be cancelled forthwith.

Differences of opinion and disputes arising in the interpretation and implementation of the clauses in this Brochure, if any, will be referred to the Vice-Chancellor of the Bharati Vidyapeeth (Deemed to be University), Pune and his decision shall be final and binding on all the concerned.
CONTENTS OF CLASS XI SYLLABUS

UNIT I: Physical World and Measurement

- Physics: Scope and excitement; nature of physical laws; Physics, technology and society.

- Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Length, mass and time measurements; accuracy and precision of measuring instruments; errors in measurement; significant figures.

- Dimensions of physical quantities, dimensional analysis and its applications.

UNIT II: Kinematics

- Frame of reference, Motion in a straight line; Position-time graph, speed and velocity. Uniform and non-uniform motion, average speed and instantaneous velocity. Uniformly accelerated motion, velocity-time and position-time graphs, for uniformly accelerated motion (graphical treatment).

- Elementary concepts of differentiation and integration for describing motion. Scalar and vector quantities: Position and displacement vectors, general vectors, general vectors and notation, equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors. Relative velocity.

- Unit vectors. Resolution of a vector in a plane-rectangular components.

- Scalar and Vector products of Vectors. Motion in a plane. Cases of uniform velocity and uniform acceleration—projectile motion. Uniform circular motion.

UNIT III: Laws of Motion

- Intuitive concept of force. Inertia, Newton’s first law of motion; momentum and Newton’s second law of motion; impulse; Newton’s third law of motion. Law of conservation of linear momentum and its applications.

- Equilibrium of concurrent forces. Static and Kinetic friction, laws of friction, rolling friction, lubrication.

- Dynamics of uniform circular motion. Centripetal force, examples of circular motion (vehicle on level circular road, vehicle on banked road).

UNIT IV: Work, Energy and Power

- Work done by a constant force and variable force; kinetic energy, work-energy theorem, power.

- Notion of potential energy, potential energy of a spring, conservative forces; conservation of mechanical energy (kinetic and potential energies); non-conservative forces; motion in a vertical circle, elastic and inelastic collisions in one and two dimensions.

UNIT V: Motion of System of Particles and Rigid Body

- Centre of mass of a two-particle system, momentum conservation and centre of mass motion. Centre of mass of a rigid body; centre of mass of uniform rod.

- Moment of a force, torque, angular momentum, conservation of angular momentum with some examples.

- Equilibrium of rigid bodies, rigid body rotation and equation of rotational motion, comparison of linear and

UNIT VI: Gravitation

- Kepler’s laws of planetary motion. The universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth.
- Gravitational potential energy; gravitational potential. Escape velocity, orbital velocity of a satellite. Geostationary satellites.

UNIT VII: Properties of Bulk Matter

- Elastic behavior, Stress-strain relationship. Hooke’s law, Young’s modulus, bulk modulus, shear, modulus of rigidity, poisson’s ratio; elastic energy.
- Viscosity, Stokes’ law, terminal velocity, Reynold’s number, streamline and turbulent flow. Critical velocity, Bernoulli’s theorem and its applications.
- Surface energy and surface tension, angle of contact, excess of pressure, application of surface tension ideas to drops, bubbles and capillary rise.
- Heat transfer- conduction and thermal conductivity, convection and radiation. Qualitative ideas of Black Body Radiation, Wein’s displacement law, and Green House effect.
- Newton’s law of cooling and Stefan’s law.

UNIT VIII: Thermodynamics

- Thermal equilibrium and definition of temperature (zeroth law of Thermodynamics). Heat, work and internal energy. First law of thermodynamics. Isothermal and adiabatic processes.
- Second law of the thermodynamics: Reversible and irreversible processes. Heat engines and refrigerators.

UNIT IX: Behaviour of Perfect Gas and Kinetic Theory

- Equation of state of a perfect gas, work done on compressing a gas.
- Kinetic theory of gases: Assumptions, concept of pressure. Kinetic energy and temperature; degrees of freedom, law of equipartition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path.

UNIT X: Oscillations and Waves

- Periodic motion-period, frequency, displacement as a function of time. Periodic functions. Simple harmonic motion(SHM) and its equation; phase; oscillations of a spring-restoring force and force constant; energy in SHM – Kinetic and potential energies; simple pendulum-derivation of expression for its time period; free, forced and damped oscillations (qualitative ideas only), resonance.
CONTENTS OF CLASS XII SYLLABUS

UNIT I: Electrostatics
• Electric charges and their conservation. Coulomb’s law-force between two point charges, forces between multiple charges; superposition principle and continuous charge distribution.
• Electric field, electric field due to a point charge, electric field lines; electric dipole, electric field due to a dipole; torque on a dipole in a uniform electric field.
• Electric flux, statement of Gauss’s theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside).
• Electric potential, potential difference, electric potential due to a point charge, a dipole and system of charges: equipotential surfaces, electrical potential energy of a system of two point charges and of electric dipoles in an electrostatic field.
• Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarization, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor, Van de Graaff generator.

UNIT II: Current Electricity
• Electric current, flow of electric charges in a metallic conductor, drift velocity and mobility, and their relation with electric current; Ohm’s law, electrical resistance, V-I characteristics (liner and non-linear), electrical energy and power, electrical resistivity and conductivity.
• Carbon resistors, colour code for carbon resistors; series and parallel combinations of resistors; temperature dependence of resistance.
• Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel.
• Kirchhoff’s laws and simple applications. Wheatstone bridge, metre bridge.
• Potentiometer-principle and applications to measure potential difference, and for comparing emf of two cells; measurement of internal resistance of a cell.

UNIT III: Magnetic Effects of Current and Magnetism
• Concept of magnetic field, Oersted’s experiment. Biot-Savart law and its application to current carrying circular loop.
• Ampere’s law and its applications to infinitely long straight wire, straight and toroidal solenoids. Force on a moving charge in uniform magnetic and electric fields. Cyclotron.
• Force on a current-carrying conductor in a uniform magnetic field. Force between two parallel current-carrying conductors-definition of amperes. Torque experienced by a current loop in a magnetic field; moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.
• Current loop as a magnetic dipole and its magnetic dipole moment. Magnetic dipole moment of a revolving electron. Magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis. Torque on a magnetic dipole (bar magnet) in a uniform magnetic field; bar magnet as an equivalent solenoid, magnetic field lines; Earth’s magnetic field and magnetic elements.
• Para-, dia-and ferro-magnetic substances, with examples.
• Electromagnetic and factors affecting their strengths. Permanent magnets.

UNIT IV: Electromagnetic Induction and Alternating Currents
• Electromagnetic induction; Faraday’s law, induced emf and current; Lenz’s Law, Eddy currents. Self and mutual inductance.
• Alternating currents, peak and rms value of alternating current/ voltage; reactance and impedance; LC oscillations (qualitative treatment only), LCR series circuit, resonance; power in AC circuits, wattles current.
• AC generator and transformer.

UNIT V: Electromagnetic Waves
• Need for displacement current.
• Electromagnetic waves and their characteristics (qualitative ideas only). Transverse nature of electromagnetic waves.
• Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, x-rays, gamma rays) including elementary facts about their uses.

UNIT VI: Optics
• Reflection of light, spherical mirrors, mirror formula. Refraction of light, total internal reflection and its applications optical fibres, refraction at spherical surfaces, lenses, thin lens formula, lens-maker’s formula. Magnification, power of a lens, combination of thin lenses in contact combination of a lens and a mirror. Refraction and dispersion of light through a prism.
• Scattering of light- blue colour of the sky and reddish appearance of the sun at sunrise and sunset.
• Optical instruments: Human eye, image formation and accommodation, correction of eye defects (myopia and hypermetropia) using lenses.
• Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.
• Wave optics: Wavefront and Huygens’ principle, reflection and refraction of plane wave at a plane surface using wavefronts.
• Proof of laws of reflection and refraction using Huygens’ principle.
• Interference, Young’s double hole experiment and expression for fringe width, coherent sources and sustained interference of light.
• Diffraction due to a single slit, width of central maximum.
• Resolving power of microscopes and astronomical telescopes. Polarisation, plane polarized light; Brewster’s law, uses of plane polarized light and Polaroids.

UNIT VII: Dual Nature of Matter and Radiation
• Photoelectric effect, Hertz and Lenard’s observations; Einstein’s photoelectric equation- particle nature of light.
• Matter waves- wave nature of particles, de Broglie relation. Davisson-Germer experiment (experimental details should be omitted; only conclusion should be explained).

UNIT VIII: Atoms and Nuclei
• Alpha- particle scattering experiments; Rutherford’s model of atom; Bohr model, energy levels, hydrogen spectrum. Composition and size of nucleus, atomic masses, isotopes, isobars; isotones.
• Radioactivity- alpha, beta and gamma particles/ rays and their properties decay law. Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number, nuclear fission and fusion.

UNIT IX: Electronic Devices
• Energy bands in solids (qualitative ideas only), conductors, insulators and semiconductors; semiconductor diode- I-V characteristics in forward and reverse bias, diode as a rectifier; I-V characteristics of LED, photodiode, solar cell, and Zener diode; Zener diode as a voltage regulator. Junction transistor, transistor action, characteristics of a transistor; transistor as an amplifier (common emitter configuration) and oscillator. Logic gates (OR, AND, NOT, NAND and NOR). Transistor as a switch.
CONTENTS OF CLASS XI SYLLABUS

UNIT I: Some Basic Concepts of Chemistry
• General Introduction: Important and scope of chemistry.
• Laws of chemical combination, Dalton’s atomic theory: concept of elements, atoms and molecules.
• Atomic and molecular masses. Mole concept and molar mass; percentage composition and empirical and molecular formula; chemical reactions, stoichiometry and calculations based on stoichiometry.

UNIT II: Structure of Atom
• Atomic number, isotopes and isobars. Concept of shells and subshells, dual nature of matter and light, de Broglie’s relationship, Heisenberg uncertainty principle, concept of orbital, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals- Aufbau principle, Pauli exclusion principles and Hund’s rule, electronic configuration of atoms, stability of half filled and completely filled orbitals.

UNIT III: Classification of Elements and Periodicity in Properties
• Modern periodic law and long form of periodic table, periodic trends in properties of elements- atomic radii, ionic radii, ionization enthalpy, electron gain enthalpy, electronegativity, valence.

UNIT IV: Chemical Bonding and Molecular Structure
• Valence electrons, ionic bond, covalent bond, bond parameters, Lewis structure, polar character of covalent bond, valence bond theory, resonance, geometry of molecules, VSEPR theory, concept of hybridization involving s, p and d orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules (qualitative idea only). Hydrogen bond.

UNIT V: States of Matter: Gases and Liquids
• Three states of matter, intermolecular interactions, types of bonding, melting and boiling points, role of gas laws of elucidating the concept of the molecule, Boyle’s law, Charle’s law, Gay Lussac’s law, Avogadro’s law, ideal behaviour of gases, empirical derivation of gas equation. Avogadro number, ideal gas equation. Kinetic energy and molecular speeds (elementary idea), deviation from ideal behaviour, liquefaction of gases, critical temperature.
• Liquid State- Vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations).

UNIT VI: Thermodynamics
• First law of thermodynamics-internal energy and enthalpy, heat capacity and specific heat, measurement of U and H, Hess’s law of constant heat summation, enthalpy of : bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution.
• Introduction of entropy as state function, Second law of thermodynamics, Gibbs energy change for spontaneous and non- spontaneous process, criteria for equilibrium and spontaneity.
• Third law of thermodynamics- Brief introduction.
UNIT VII: Equilibrium

- Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of chemical equilibrium, equilibrium constant, factors affecting equilibrium-Le Chatelier’s principle; ionic equilibrium- ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of polybasic acids, acid strength, concept of pH., Hydrolysis of salts (elementary idea)., buffer solutions, Henderson equation, solubility product, common ion effect (with illustrative examples).

UNIT VIII: Redox Reactions

- Concept of oxidation and oxidation and reduction, redox reactions oxidation number, balancing redox reactions in terms of loss and gain of electron and change in oxidation numbers.

UNIT IX: Hydrogen

- Occurrence, isotopes, preparation, properties and uses of hydrogen; hydrides-ionic, covalent and interstitial; physical and chemical properties of water, heavy water; hydrogen peroxide-preparation, reactions, uses and structure;

UNIT X: s-Block Elements (Alkali and Alkaline earth metals)

- Group I and group 2 elements:
  - General introduction, electronic configuration, occurrence, anomalous properties of the first element of each group, diagonal relationship, trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens; uses.
  - Preparation and Properties of Some important Compounds:
    - Sodium carbonate, sodium chloride, sodium hydroxide and sodium hydrogen carbonate, biological importance of sodium and potassium.
    - Industrial use of lime and limestone, biological importance of Mg and Ca.

UNIT XI: Some p-Block Elements

- General Introduction to p-Block Elements.
  - Group 13 elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous properties of first element of the group; Boron, some important compounds: borax, boric acids, boric hydrides. Aluminium: uses, reactions with acids and alkalies.
  - Group 14 elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous behaviour of first element. Carbon, allotropic forms, physical and chemical properties: uses of some important compounds: oxides.
  - Important compounds of silicon and a few uses: silicon tetrachloride, silicones, silicates and zeolites, their uses.

UNIT XII: Organic Chemistry- Some Basic Principles and Techniques

- General introduction, methods of purification qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds.
  - Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation.
Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions; electrophiles and nucleophiles, types of organic reactions.

UNIT XIII: Hydrocarbons
- Alkanes- Nomenclature, isomerism, conformations (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis.
- Alkanes-Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation: chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markovnikov’s addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition.
- Alkynes-Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of- hydrogen, halogens, hydrogen halides and water.
- Aromatic hydrocarbons- Introduction, IUPAC nomenclature; Benzene; resonance, aromaticity; chemical properties: mechanism of electrophilic substitution- Nitration sulphonation, halogenation, Friedel Craft’s alkylation and acylation; directive influence of functional group in mono-substituted benzene; carcinogenicity and toxicity.

UNIT XIV: Environmental Chemistry
- Environmental pollution: Air, water and soil pollution, chemical reactions in atmosphere, smogs, major atmospheric pollutants; acid rain ozone and its reactions, effects of depletion of ozone layer, greenhouse effect and global warming; pollution due to industrial wastes; green chemistry as an alternative tool for reducing pollution, strategy for control of environmental pollution.

CONTENTS OF CLASS XII SYLLABUS

UNIT I: Solid State
- Classification of solids based on different binding forces; molecular, ionic covalent and metallic solids, amorphous and crystalline solids (elementary idea), unit cell in two dimensional and three dimensional lattices, calculation of density of unit cell, packing in solids, packing efficiency, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties, Band theory of metals, conductors, semiconductors and insulators.

UNIT II: Solutions
- Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties- relative lowering of vapour pressure, Raoult’s law, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties abnormal molecular mass. Van Hoff factor.

UNIT III: Electrochemistry
- Redox reactions, conductance in electrolytic solutions, specific and molar conductivity variation of conductivity with concentration, kohlrausch’s Law, electrolysis and Laws of electrolysis (elementary idea), dry cell- electrolytic cells and G alvanic cells; lead accumulator, EMF of a cell, standard electrode potential, Relation between Gibbs energy change and EMF of a cell, fuel cells; corrosion.

UNIT IV: Chemical Kinetics
- Rate of a reaction (average and instantaneous), factors affecting rates of reaction; concentration, temperature, catalyst; order and molecularity of a reaction; rate law and specific rate constant, integrated
rate equations and half life (only for zero and first order reactions); concept of collision theory (elementary idea, no mathematical treatment). Activation energy, Arrhenious equation.

UNIT V: Surface Chemistry
- Adsorption-physisorption and chemisorption; factors affecting adsorption of gases on solids, catalysis homogeneous and heterogeneous, activity and selectivity: enzyme catalysis; colloidal state: distinction between true solutions, colloids and suspensions; lyophilic, lyophobic multimolecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation; emulsions-types of emulsions.

UNIT VI: General Principles and Processes of Isolation of Elements
- Principles and methods of extraction- concentration, oxidation, reduction electrolytic method and refining; occurrence and principles of extraction of aluminium, copper, zinc and iron.
- Group 15 elements: General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; preparation and properties of ammonia and nitric acid, oxides of nitrogen (structure only); Phosphorous- allotropic forms; compounds of phosphorous: preparation and properties of phosphine, halides (PCI3, PCI5) and oxoacids (elementary idea only).
- Group 16 elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; dioxygen: preparation, properties and uses; classification of oxides; ozone. Sulphur – allotropic forms; compounds of sulphur: preparation, properties and uses of sulphur dioxide; sulphuric acid: industrial process of manufacture, properties and uses, oxoacids of sulphur (structures only).
- Group 17 elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; compounds of halogens: preparation, properties and uses of chlorine and hydrochloric acid, interhalogen compounds oxoacids of halogens (structures only).
- Group 18 elements: General introduction, electronic configuration, occurrence, trends in physical and chemical properties, uses.

UNIT VIII: d and f Block Elements
- General introduction, electronic configuration, characteristics of transition metals, general trends in properties of the first row transition metals- metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation. Preparation and properties of K2Cr2O7 and KMnO4.
- Lanthanoids- electronic configuration, oxidation states, chemical reactivity, and lanthanoid contraction and its consequences.
- Actinoids: Electronic configuration, oxidation states and comparison with lanthanoids.

UNIT IX: Coordination Compounds
- Coordination compounds: Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds, isomerism (structural and stereo) bonding, Werner’s theory VBT, CFT; importance of coordination compounds (in qualitative analysis, biological systems).

UNIT X: Haloalkanes and Haloarenes
• Haloarenes: Nature of C-X bond, substitution reactions (directive influence of halogen for monosubstituted compounds only).
• Uses and environment effects of dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.

UNIT XI: Alcohols, Phenols and Ethers
• Alcohols: Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only); identification of primary, secondary and tertiary alcohols; mechanism of dehydration, uses with special reference to methanol and ethanol.
• Phenols: Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophillic substitution reactions, uses of phenols.
• Ethers: Nomenclature, methods of preparation, physical and chemical properties uses.

UNIT XII: Aldehydes, Ketones and Carboxylic Acids
• Aldehydes and Ketones: Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties; and mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes; uses.
• Carboxylic Acids: Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.
• Amines: Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary secondary and tertiary amines.
• Cyanides and Isocyanides- will be mentioned at relevant places.
• Diazonium salts: Preparation, chemical reactions and importance in synthetic organic chemistry.

UNIT XIV: Biomolecules
• Carbohydrates- Classification (aldoses and ketoses), monosaccharide (glucose and fructose), D.L. configuration, oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen): importance.
• Proteins- Elementary idea of - amino acids, peptide bond, polypeptides, proteins, primary structure, secondary structure, tertiary structure and quaternary structure (qualitative idea only), denaturation of proteins; enzymes.
• Hormones- Elementary idea (excluding structure).
• Vitamins- Classification and function.
• Nucleic Acids: DNA and RNA

UNIT XV: Polymers
• Classification- Natural and synthetic, methods of polymerization (addition and condensation), copolymerization. Some important polymers: natural and synthetic like polyesters, bakelite; rubber, Biodegradable and non-biodegradable polymers.

UNIT XVI: Chemistry in Everyday Life
• Chemicals in medicines- analgesics, tranquilizers, antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines.
• Chemicals in food- preservatives, artificial sweetening agents, elementary idea of antioxidants.

• Cleansing agents- soaps and detergents, cleansing action.

CONTENTS OF CLASS XI SYLLABUS

UNIT I: Diversity in Living World
• What is living? ; Biodiversity; Need for classification; Three domains of life; Taxonomy & Systematics; Concept of species and taxonomical hierarchy; Binomial nomenclature; Tools for study of Taxonomy – Museums, Zoos, Herbaria, Botanical gardens.

• Five kingdom classification; salient features and classification of Monera; Protista and Fungi into major groups; Lichens; Viruses and Viroids.

• Salient features and classification of plants into major groups-Algae, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms (three to five salient and distinguishing features and at least two examples of each category); Angiosperms- classification up to class, characteristic features and examples).

• Salient features and classification of animals-nonchordate up to phyla level and chordate up to classes level (three to five salient features and at least two examples).

UNIT II: Structural Organisation in Animals and Plants
• Morphology and modifications; Tissues; Anatomy and functions of different parts of flowering plants: Root, stem, leaf, inflorescence- cymose and recemose, flower, fruit and seed (To be dealt along with the relevant practical of the Practical Syllabus).

• Animal tissues; Morphology, anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of an insect (cockroach). (Brief account only)

UNIT III: Cell Structure and Function
• Cell theory and cell as the basic unit of life; Structure of prokaryotic and eukaryotic cell; Plant cell and animal cell; Cell envelope, cell membrane, cell wall; Cell organelles-structure and function; Endomembrane system-endoplasmic reticulum, Golgi bodies, lysosomes, vacuoles; mitochondria, ribosomes, plastids, micro bodies; Cytoskeleton, cilia, flagella, centrioles (ultra structure and function); Nucleus-nuclear membrane, chromatin, nucleolus.

• Chemical constituents of living cells: Biomolecules-structure and function of proteins, carbohydrates, lipids, nucleic acids; Enzymes-types, properties, enzyme action.

• B Cell division: Cell cycle, mitosis, meiosis and their significance.

UNIT IV: Plant Physiology
• Transport in plants: Movement of water, gases and nutrients; Cell to cell transport-Diffusion, facilitated diffusion, active transport; Plant – water relations – Imbibition, water potential, osmosis, plasmolysis; Long distance transport of water – Absorption, apoplast, symplast, transpiration pull, root pressure and guttation; Transpiration-Opening and closing of stomata; Uptake and translocation of mineral nutrients-Transport of food, phloem transport, Mass flow hypothesis; Diffusion of gases (brief mention).

• Mineral nutrition: Essential minerals, macro and micronutrients and their role; Deficiency symptoms; Mineral toxicity; Elementary idea of Hydroponics as a method to study mineral nutrition; Nitrogen metabolism-Nitrogen cycle, biological nitrogen fixation.
UNIT III: Plant Physiology

• Photosynthesis: Photosynthesis as a means of Autotrophic nutrition; Site of photosynthesis take place; pigments involved in Photosynthesis (Elementary idea); Photochemical and biosynthetic phases of photosynthesis; Cyclic and non cyclic and photophosphorylation; Chemiosmotic hypothesis; Photorespiration C3 and C4 pathways; Factors affecting photosynthesis.

• Respiration: Exchange gases; Cellular respiration-glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); Energy relations-Number of ATP molecules generated; Amphibolic pathways; Respiratory quotient.

• Plant growth and development: Seed germination; Phases of Plant growth and plant growth rate; Conditions of growth; Differentiation, dedifferentiation and redifferentiation; Sequence of developmental process in a plant cell; Growth regulators- auxin,gibberellin, cytokinin, ethylene, ABA; Seed dormancy; Vernalisation; Photoperiodism.

UNIT IV: Human Physiology

• Digestion and absorption; Alimentary canal and digestive glands; Role of digestive enzymes and gastrointestinal hormones; Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats; Caloric value of proteins, carbohydrates and fats; Egestion; Nutritional and digestive disorders – PEM, indigestion, constipation, vomiting, jaundice, diarrhea.

• Breathing and Respiration: Respiratory organs in animals (recall only); Respiratory system in humans; Mechanism of breathing and its regulation in humans-Exchange of gases, transport of gases and regulation of respiration Respiratory volumes; Disorders related to respiration-Asthma, Emphysema, Occupational respiratory disorders.

• Body fluids and circulation: Composition of blood, blood groups, coagulation of blood; Composition of lymph and its function; Human circulatory system-Structure of human heart and blood vessels; Cardiac cycle, cardiac output, ECG, Double circulation; Regulation of cardiac activity; Disorders of circulatory system-Hypertension, Coronary artery disease, Angina pectoris, Heart failure.

• Excretory products and their elimination: Modes of excretion- Ammonotelism, ureotelism, uricotelism; Human excretory system- structure and function; Urine formation, O smoregulation; Regulation of kidney function-Renin-angiotensin, Atrial Natriuretic Factor, ADH and Diabetes insipidus; Role of other organs in excretion; Disorders; Uraemia, Renal failure, Renal calculi, Nephritis; Dialysis and artificial kidney.

• Locomotion and Movement: Types of movement- ciliary, flagellar, muscular; Skeletal muscle- contractile proteins and muscle contraction; Skeletal system and its functions (To be dealt with the relevant practical of Practical syllabus); Joints; Disorders of muscular and skeletal system-Myasthenia gravis, Tetany, Muscular dystrophy, Arthritis, O steoporosis, G out.

• Neural control and coordination: Neuron and nerves; Nervous system in humans- central nervous system, peripheral nervous system and visceral nervous system; Generation and conduction of nerve impulse; Reflex action; Sense organs; Elementary structure and function of eye and ear.

• Chemical coordination and regulation: Endocrine glands and hormones; Human endocrine system-Hypothalamus, Pituitary, Pineal, Thyroid, Parathyroid, Adrenal, Pancreas, Gonads; Mechanism of hormone action (Elementary Idea); Role of hormones as messengers and regulators, Hypo-and hyperactivity and related disorders (Common disorders e.g. Dwarfism, Acromegaly, Cretinism, goiter, exophthalmic goiter, diabetes, Addison’s disease).

(Imp: Diseases and disorders mentioned above to be dealt in brief.)
CONTENTS OF CLASS XII SYLLABUS

UNIT I: Reproduction

• Reproduction in organisms: Reproduction, a characteristic feature of all organisms for continuation of species; Modes of reproduction – Asexual and sexual; Asexual reproduction; Modes-Binary fission, sporulation, budding, gemmule, fragmentation; vegetative propagation in plants.

• Sexual reproduction in flowering plants: Flower structure; Development of male and female gametophytes; Pollination-types, agencies and examples; Outbreeding devices; Pollen-Pistil interaction; Double fertilization; Post fertilization events- Development of endosperm and embryo, Development of seed and formation of fruit; Special modes-apomixis, parthenocarpy, polyembryony; Significance of seed and fruit formation.

• Human Reproduction: Male and female reproductive systems; Microscopic anatomy of testis and ovary; Gametogenesis- spermatogenesis & oogenesis; Menstrual cycle; Fertilisation, embryo development upto blastocyst formation, implantation; Pregnancy and placentation formation (Elementary idea); Parturition (Elementary idea); Lactation (Elementary idea).

• Reproductive health: Need for reproductive health and prevention of sexually transmitted diseases (STD); Birth control-Need and Methods, Contraception and Medical Termination of Pregnancy (MTP); Amniocentesis; Infertility and assisted reproductive technologies - IVF, ZIFT, GIFT (Elementary idea for general awareness).

UNIT II: Genetics and Evolution

• Heredity and variation: Mendelian Inheritance; Deviations from Mendelism-Incomplete dominance, Codominance, Multiple alleles and Inheritance of blood groups, Pleiotropy; Elementary idea of polygenic inheritance; Chromosome theory of inheritance; Chromosomes and genes; Sex determination-In humans, birds, honey bee; Linkage and crossing over; Sex linked inheritance-Haemophilia, Colour blindness; Mendelian disorders in humans-Thalassemia; Chromosomal disorders in humans; Down’s syndrome, Turner’s and Klinefelter’s syndromes.

• Molecular basis of Inheritance: Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; Transcription, genetic code, translation; Gene expression and regulation-Lac Operon; Genome and human genome project; DNA finger printing.

• Evolution: Origin of life; Biological evolution and evidences for biological evolution from Paleontology, comparative anatomy, embryology and molecular evidence); Darwin’s contribution, Modern Synthetic theory of Evolution; Mechanism of evolution-Variation (Mutation and Recombination) and Natural Selection with examples, types of natural selection; Gene flow and genetic drift; Hardy-Weinberg’s principle; Adaptive Radiation; Human evolution.

UNIT III: Biology and Human Welfare

• Health and Disease; Pathogens; parasites causing human diseases (Malaria, Filariasis, Ascariasis. Typhoid, Pneumonia, common cold, amoebiasis, ring worm); Basic concepts of immunology-vaccines; Cancer, HIV and AIDS; Adolescence, drug and alcohol abuse.

• Improvement in food production; Plant breeding, tissue culture, single cell protein, Biofortification; Apiculture and Animal husbandry.

• Microbes in human welfare: In household food processing, industrial production, sewage treatment, energy generation and as biocontrol agents and biofertilizers.
UNIT IV: Biotechnology and Its Applications

- Principles and process of Biotechnology: Genetic engineering (Recombinant DNA technology).
- Application of Biotechnology in health and agriculture: Human insulin and vaccine production, gene therapy; Genetically modified organisms-Bt crops; Transgenic Animals; Biosafety issues-Biopiracy and patents.

UNIT V: Ecology and environment

- Organisms and environment: Habitat and niche; Population and ecological adaptations; Population interactions-mutualism, competition, predation, parasitism; Population attributes-growth, birth rate and death rate, age distribution.
- Ecosystem: Patterns, components; productivity and decomposition; Energy flow; Pyramids of number, biomass, energy; Nutrient cycling (carbon and phosphorous); Ecological succession; Ecological Services-Carbon fixation, pollination, oxygen release.
- Biodiversity and its conservation: Concept of Biodiversity; Patterns of Biodiversity; Importance of Biodiversity; Loss of Biodiversity; Biodiversity conservation; Hotspots, endangered organisms, extinction, Red Data Book, biosphere reserves, National parks and sanctuaries.
- Environmental issues: Air pollution and its control; Water pollution and its control; Agrochemicals and their effects; Solid waste management; Radioactive waste management; Greenhouse effect and global warming; Ozone depletion; Deforestation; Any three case studies as success stories addressing environmental issues.
IMPORTANT NOTICE

The students and the parents will have to submit the printouts of antiragging undertaking online on the following websites

website 1: www.antiragging.in

2: www.amanmovement.org

This has to be submitted immediately after the confirmation of the admission.

Note:
As per the directions of Hon’ble Supreme Court of India Order No. SLP(C) No. 24295/2004 and SLP No. 143656/2005, WP (C) No. 173/2006 and SLP(C) No. 24296-24299/2004 all the students are hereby informed the following.
“If any incidents of ragging comes to the notice of the authority, the concerned students shall be given liberty to explain and if his explanation is not found satisfactory the authority would expel him from the institution.”
All the students should note the above directives from the Supreme Court.

Registrar
Bharati Vidyapeeth
(Deemed to be University)
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 in the prescribed proforma, as given below on a Letterhead:

Certificate of medical fitness

This is to certify that I have conducted clinical examination of

Mr./Ms. ................................................................................................................................................

who is desirous of admission to B.Sc. Biotechnology-2020

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 deviations have been revealed, in my opinion, these are not impediments to pursue a career in Biotechnology

1. ................................................................................................................................................

2. ................................................................................................................................................

3. ................................................................................................................................................

Address of the Registered Medical Practitioner  Signature:

Name:

Registration No.:

Seal of Registered Medical Practitioner

Date:  /  / 20
AUTHORIZATION FOR REPRESENTATIVE

I, .........................................................................................................................................., son/daughter of .................................................................................., being unable to attend the counseling session for admission to the B.Sc. Biotechnology course in Bharati Vidyapeeth (Deemed to be University) College, on ....................................... hereby authorize .................................................... son/daughter of .................................................................................., whose photograph is affixed below and who will sign as shown below, to represent me at the counseling and on-the-spot-admission. I hereby declare that the choice of course made by this authorised representative will be irrevocable and that it will be final and binding on me. This authorised representative will present all the necessary documents, pay the appropriate fees and complete all the necessary formalities on my behalf.

Name of the candidate: ________________________________________________________________

(IN CAPITAL LETTERS)

Seat No. B.Tech, B.Pharm/Pharm D. ABO N-2020 Examination): __________________________

Place: ______________________________

Date: _________________________________

Reason for absence: _________________________________________________________________

Specimen signature of the Representative

A recent passport size photograph of the representative should be affixed here.

Signature of the Candidate

A recent passport size photograph of the candidate should be affixed here.
ANNEXURE IV

DECLARATION

I, .......................................................... son/daughter of ............................................... hereby solemnly affirm that the following statements made by me are true to the best of my knowledge and belief,

A) I am a citizen of India

B) I have studied in class XI and XII in India and have passed a qualifying examination in the subjects of Physics, Chemistry, Biology and/or Mathematics individually and have obtained at least 45% (40% in case of candidate belonging to SC/ST category) marks together in those subjects and I have also Passed in the subject of English.

C) I have studied and understood the rules governing counselling, admission, procedure, fee structure and agree to abide by these rules.

D) If admitted to any of the Institutions of the Bharati Vidyapeeth (Deemed to be University), I will abide by all its rules and regulations, especially those regarding discipline, attendance, dress code, examinations and payment of fees. I understand that failure to comply with the rules and regulations will invite an appropriate disciplinary action from the institutional authorities.

E) I will not involve myself in any action of ragging during the course of my education in this University. I understand involvement in ragging would result into cancellation of my admission to the course.

Name of the candidate:

Date:

Place: Signature of the candidate

I, .......................................................... the father/mother/guardian of ............................................... an applicant for admission to course at Bharati Vidyapeeth (Deemed to be University), hereby solemnly affirm that all the above statements made by son/daughter/ward are true to the best of my knowledge and belief. I will be responsible for the payment of his/her fees on time and for his/her conduct.

Name of the parent/guardian

Relationship to candidate

Date

Address with Phone No.: Signature of the parent/guardian
A) Last date for submission of:
   online application form
   www.bvuniversity.edu.in

B) Date of Online Computer based:
   Entrance Test
   10th August 2020

C) Declaration of result
   17th August 2020 after 5.00 p.m.
   at: www.bvuniversity.edu.in

D) Counselling & on the spot admissions
   25th August 2020 at 10.00 a.m.
   at Bharati Vidyapeeth
   (Deemed to be University),
   Rajiv Gandhi Institute
   of Information Technology And
   Biotechnology, Katraj, Pune-46.
   Tel. No.: 020-24379013, 24365713

E) Commencement of Classes
   1st September 2020

The counselling schedule will be as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Course</th>
<th>Category</th>
<th>Merit No.</th>
<th>Time</th>
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<tr>
<td>25th August 2020</td>
<td>B.Sc.Biotech</td>
<td>Regular Merit</td>
<td>All Candidates</td>
<td>10.00 a.m</td>
</tr>
</tbody>
</table>

Entrance test fee along with completed online application form Rs. 1,100/-
(Non Refundable)
Rajiv Gandhi Institute of I. T. & Biotechnology