BITSAT-2008 Brochure

A Computer Based Online Test for admission to Integrated First Degree programmes of BITS, Pilani; I Semester 2008-09

The Birla Institute of Technology and Science (BITS) Pilani is a University established under Section 3 of the UGC Act. Admissions to all the Integrated First Degree programmes of BITS, Pilani, at Pilani campus, Goa campus, and Hyderabad Campus for the academic year 2008-09 will be made on the basis of a Computer based Online Test conducted by BITS, Pilani. This test will be referred to as 'BITS Admission test – 2008', in short as **BITSAT-2008** hereafter in this document.

1. Integrated First Degree Programmes to which admissions will be made on the basis of BITSAT-2008:

(i) at BITS, Pilani – Pilani Campus:

B.E.(Hons.): Chemical; Civil; Computer Science; Electrical and Electronics; Electronics & Instrumentation; Mechanical;

B.Pharm.(Hons.);

M.Sc.(Hons.): Biological Sciences; Chemistry; Economics; Mathematics; Physics; and

M.Sc.(Tech.): General Studies; Engineering Technology; Finance; Information Systems.

(ii) at BITS, Pilani – Goa Campus:

B.E.(Hons.): Chemical; Computer Science; Electrical and Electronics; Electronics & Instrumentation; Mechanical;

M.Sc.(Hons.): Biological Sciences; Chemistry; Economics; Mathematics; Physics; and

M.Sc.(Tech.): Information Systems.

(iii) at BITS, Pilani – Hyderabad Campus :

B.E.(Hons.): Chemical; Civil; Computer Science; Electronics & Communication, Electrical and Electronics; Electronics & Instrumentation; Mechanical;

B.Pharm.(Hons.);

M.Sc.(Hons.): Biological Sciences; Chemistry; Economics; Mathematics; Physics; and

M.Sc.(Tech.): Information Systems

2. Eligibility:

(i) **For admission to all the above programmes except B.Pharm.(Hons.) and M.Sc.(Hons.) Biological Sciences:** Candidates should have passed the 12th examination of 10+2 system from a recognized Central or State board or its equivalent with Physics, Chemistry, and Mathematics and adequate proficiency in English.

(ii) **For admission to B.Pharm.(Hons.) and M.Sc.(Hons.)**: **Biological Sciences programmes**: Candidates should have passed the 12th examination of 10+2 system from a recognized Central or State board or its equivalent with Physics, Chemistry, and Biology or Mathematics and adequate proficiency in English. Candidates having both Mathematics and Biology in 10+2 have to decide whether they wish to appear in Mathematics or Biology subjects in BITSAT-2008.

Admission to all the programmes is subject to the conditions given below.

The candidate should have obtained a minimum of aggregate 80% marks in Physics, Chemistry and Mathematics subjects (if he/she has taken Mathematics in BITSAT) or a minimum of aggregate 80% marks in Physics, Chemistry and Biology subjects (if he/she has taken Biology in BITSAT) subjects in 12th examination, with at least 60% marks in each of the Physics, Chemistry, and Mathematics / Biology subjects.

Students who are appearing for 12th examination in 2008 or who have passed 12th Examination in 2007 only are eligible to appear in the BITSAT-2008 test. Students who have passed 12th examination in 2006 or earlier are NOT eligible to appear in BITSAT-2008. Students who are presently studying in BITS at any of its campuses are not eligible to appear in BITSAT test.

Admissions will be made purely on merit. The merit position of the candidate for admission will be based on the score obtained by the candidate in the BITSAT-2008. However, their eligibility for admission is subject to fulfilling the requirement of minimum marks in 12th examination, as mentioned above.

Direct Admission to Board Toppers:

In the past, admission process of the Institute always ensured guaranteed admission to all the students who obtained first ranks in their respective board examinations. This has given a very vital input of highly meritorious students from all over India. First rank students of all the central and state boards in India for the year 2008 will be given direct admission to the program of their choice, irrespective of their BITSAT-2008 score as per the eligibility criteria mentioned above. Further details about this scheme will be available at BITS website.

3. Details of BITSAT-2008:

'Computer Based Online test' means the candidate sits in front of a computer and the questions are presented on the computer monitor and the candidate submits the answers through the use of keyboard or mouse. Each computer is connected to a server, which prepares the question set and delivers it to the candidate on the computer. This is unlike the traditional paper-pencil based test, which is generally offered on a single day to all candidates. BITSAT-2008 will be offered over a period of time and the candidate can choose the center, the day and time of his/her convenience to take the test, as described in the later sections.

BITSAT-2008 Test Format:

BITSAT-2008 will be of total 3-hour duration (without break). The test consists of four parts:

Part I	:	Physics
Part II	:	Chemistry
Part III	:	(a) English Proficiency and (b) Logical Reasoning
Part IV	:	Mathematics OR Biology

Students who have taken Mathematics and not Biology in 10+2 have to appear for Mathematics in Part IV. Students who have taken Biology in 10+2 and not Mathematics have to appear for Biology in Part IV. Students who have taken both Mathematics and Biology in 10+2 can opt for either Mathematics or Biology in Part IV. Candidates who appear in Biology in Part IV will be eligible for admission to M.Sc. (Hons.) Biological Sciences and B.Pharm. (Hons.) only. Candidates who appear in Mathematics in Part IV will be eligible for admission to any of the Integrated First degree programmes, including M.Sc.(Hons.) Biological Sciences and B.Pharm.(Hons.).

All questions are of objective type (multiple choice questions); each question with choice of four answers, only one being correct choice. Each correct answer fetches 3 marks, while each incorrect answer has a

penalty of 1 mark. No marks are awarded for not attempted questions. While the candidate can skip a question, the computer will not allow the candidate to choose more than one option as correct answer.

There will be 150 questions in all. The number of questions in each part is as follows:

	Subject	**No of questions**
Part I	Physics	40
Part II	Chemistry	40
Part III	(a) English Proficiency	15
	(b) Logical Reasoning	10
Part IV	Mathematics OR Biology	45
	Total:	**150**

There is no time limit for individual parts of the test. The candidate can go back and change any of his/her answers among the 150 questions.

If a candidate answers all the 150 questions (without skipping any question), the candidate will have an option of attempting 12 (twelve) extra questions, if there is still time left. These extra questions will be from Physics, Chemistry, Mathematics / Biology only; four questions from each part. Further, once the candidate has opted for extra questions, he cannot go back for correction of any of the earlier answered 150 questions.

The questions are so designed that a good student will be able to answer 150 questions in 180 minutes. The extra questions (a maximum of 12) will give a chance to highly meritorious candidates to score higher. However, candidates should keep in mind the fact that there is negative marking for wrong answers and any attempt to answer the questions by pure guessing of the answers is not likely to have any advantage, but may result in a reduction in the total score.

The questions will be selected at random from a large question bank. Different candidates will get different question sets. An expert committee will ensure that the question sets are of comparable difficulty level, content, question type etc. In this matter, the decision of the expert committee will be final and binding on the candidate.

All the questions and instructions of the test will be in English only.

Each candidate who registers for BITSAT-2008 will be issued a 'Hall Ticket'. Candidates with the hall ticket only will be allowed inside the test centers. Candidates should bring a pen for the purpose of rough work, signing etc. Blank sheets for rough work will be provided, if required. Calculators and logarithmic tables are not allowed in the test centers. Candidates are not allowed to bring any other personal belongings such as mobiles.

All centers are closely monitored for security and candidates' identity and activities will be recorded using web cameras and/or closed circuit TV cameras. Anyone violating the rules of the test center will not be allowed to continue with the test and will be automatically disqualified.

Syllabus:

The BITSAT-2008 test will be conducted on the basis of NCERT syllabus for 11^{th} and 12^{th} class. The detailed syllabus is given in the Annexure. Candidates may refer to the NCERT textbooks for the contents. A sample test will be made available to the registered candidates at the BITS website on which he/she can practice as many times as desired.

4. BITSAT score report:

At the completion of the test, the computer will announce the result to the candidate in terms of number of total correct answers and wrong answers, with the score. The candidate can also check and print his score report at the BITS website after all the tests are completed. No student will be allowed to repeat the test in the same year.

5. Merit List for Admission:

As explained earlier, a candidate who has appeared in BITSAT-2008 will be eligible for admission only if he/she gets the required minimum marks in the Physics, Chemistry and Mathematics or Biology subjects of 12^{th} examination as per the eligibility criteria described already. All candidates who have appeared in BITSAT-2008 and are interested in admission will be required to submit an application with 12^{th} marks and preferences to different degree programmes offered, on or before 30^{th} June 2008, as detailed later in this brochure.

The merit position of such eligible candidates (i.e., those who have appeared in BITSAT-2008 and have submitted the application for admission in the prescribed form(s) with 12^{th} marks, preferences and the required fees) will be prepared on the basis of their scores in BITSAT-2008. There will be two separate merit lists prepared for admission. One for all the programmes except the B.Pharm.(Hons.) and M.Sc.(Hons.) Biological Sciences, the other only for B.Pharm.(Hons.) and M.Sc.(Hons.) Biological Sciences. The cases of bracketing, if any, will be dealt with as described below.

When the score of two candidates are the same, first their scores obtained in Mathematics (if he/she has taken Mathematics in BITSAT) or Biology (if he/she has taken Biology in BITSAT) will be considered for separating them. If the scores obtained in Mathematics/Biology are equal, then their scores in Physics in BITSAT will be considered for separating them. If the scores obtained in Physics are also equal, then their scores in Chemistry in BITSAT will be considered for separating them. If still there is a tie, their PCM (if he/she has taken Mathematics in BITSAT) or PCB (if he/she has taken Biology in BITSAT) total marks in 12^{th} examination will be considered for their separation.

6. Test Centers for BITSAT-2008:

In order to facilitate a large number of students all over India to participate in this test, **apart from Pilani and Goa** where it is expected that a large number of students will take the test, the Institute is also planning to offer the tests at dedicated test centers in several cities. The planned test centers are in the following cities.

1. Pilani	2. Goa	
3. Ahmedabad	4. Bangalore	5. Bhubaneswar
6. Chandigarh	7. Chennai	8. Coimbatore
9. Delhi	10. Gurgaon	11. Hyderabad
12. Indore	13. Kolkatta	14. Lucknow
15. Madurai	16. Mumbai	17. Nagpur
18. Noida	19. Visakhapatnam	20. Vijayawada

The final list of centers and the operating days at each center will depend on the number of applicants and their preferences and will be announced only after all the applications are received and candidates will be informed of the same through BITS website, so that the candidates can choose their date for the test as per their convenience and availability of slots in any of these centers.

7. Important dates and deadlines:

Deadline to apply for BITSAT-2008	:	31st January 2008
Test center allotment and announcement to candidates	:	by 15th February 2008
Candidates to reserve Test dates	:	18th Feb. – 10th March 2008
Candidates to download the Hall tickets with instructions:		20th – 31st March 2008
BITSAT Online tests	:	9th May – 12th June 2008
Candidates to apply for admission with 12th marks and preferences to Degree programmes	:	20th May – 30th June 2008
Admit List and Wait List announcement	:	1st July 2008

8. How to Apply:

Interested candidates should register their names for BITSAT-2008 by applying in the prescribed application form in one of the following modes:

(i) Complete the application form Online at *http://www.bitsadmission.com/BITSAT/* and take the print out of the filled form. The completed application form along with the prescribed fees of Rs. 800/- (Rs. 400/- for female candidates) should be sent to Admissions Officer, BITS, Pilani – 333 031. Details for payment of fees are available at the website while applying online.

or

(ii) Obtain the application form by post from the under-mentioned by sending a request on plain paper giving the candidate's name, and gender with complete postal address, accompanied by a crossed demand draft for Rs. 900/- (Rs. 500/- for Female candidates). This amount includes the prescribed fees and Rs. 100/- towards postal and handling charges. The form will be sent by Speed Post / Registered Post. Requests by post will be accepted only till 21st January 2008. Demand drafts should be drawn in favour of '*Birla Institute of Technology & Science*' payable at State Bank of India, Zuari Nagar, Goa (code: 1976) Or State Bank of Bikaner & Jaipur, Pilani (Code: 10398) or UCO Bank, Vidya Vihar, Pilani (Code: 0150).

Special provision for Female candidates: The BITSAT application fee for female candidates is Rs. 400/- only instead of Rs. 800/-. Further, the Institute will try its best to accommodate all female candidates at their first preference of test centers.

Deadline to apply for BITSAT-2008 by submitting the completed form to the under-mentioned is 5.00 PM on 31st January 2008.

Those who register for the test and reserve test dates have to download the 'Hall ticket', along with instructions, from BITS website as per the schedule given earlier. The tests will be conducted during 9th May – 12th June 2008.

Procedure for Applying for admission:

In addition to applying for and appearing in BITSAT-2008, candidates have to also apply for admission to BITS giving details of their 12th marks and preferences to different degree programmes offered. The prescribed application form(s) for admission, the detailed application procedure and the final list of Degree programmes offered will be available at the BITS website, by 20th May 2008. There will be two separate application forms as per details given below.

1. Application form for admission to all programmes except B.Pharm.(Hons.) and M.Sc.(Hons.) Biological Sciences.
2. Application form for admission to B.Pharm.(Hons.) and M.Sc.(Hons.) Biological Sciences.

If the candidates with PCM subjects also wish to apply for B.Pharm.(Hons.) and M.Sc.(Hons.) Biological Sciences programmes in addition to other programmes, they have to fill both the forms and a fee of Rs. 200/- has to be submitted with each form. The completed form with the required application fee of Rs. 200/- has to be submitted so as to reach the under-mentioned on or before 5.00 PM on 30th June 2008.

Completed application forms for BITSAT-2008 and for admission are to be sent by registered post/speedpost or personally submitted to the under-mentioned so as to reach him before the announced deadlines:

The Admissions Officer,

BITS

Pilani – 333 031

Rajasthan

Important Note:

(i) The tests are generated from a large question bank and different candidates will get different question sets. An expert committee will ensure that the question sets are of comparable difficulty level, content, question type etc. In this matter, the decision of the expert committee will be final and binding on the candidate.

(ii) The test assumes that the candidate has basic familiarity with use of computers like use of keyboard and mouse operation. It is the responsibility of the candidate to acquire these skills before appearing in the test and the Institute cannot take responsibility for the same.

(iii) The Institute is planning to operate test centers in different cities other than Pilani and Goa as previously stated. The final list of centers will be announced to candidates through the BITS website. The Institute cannot guarantee that test centers will be set up in all these centers. Further, the Institute reserves the right to cancel any test center if such situation arises. In such cases, those candidates allotted to these centers will be accommodated in alternate test centers including Pilani/Goa.

(iv) The candidate must fully obey the rules of the test centers; otherwise he/she will be automatically debarred from the test.

(v) In all matters in the conduct of BITSAT-2008, the decision of the Vice Chancellor of BITS will be final.

(vi) All disputes pertaining to BITSAT-2008 shall fall within the jurisdiction of Pilani only.

Syllabus for BITSAT-2008

Part I: Physics

1. Units & Measurement

1.1 Units (Different systems of units, SI units, fundamental and derived units)

1.2 Dimensional Analysis

1.3 Precision and significant figures

1.4 Fundamental measurements in Physics (Vernier calipers, screw gauge, Physical balance etc)

2. Kinematics

2.1 Properties of vectors

2.2 Position, velocity and acceleration vectors

2.3 Motion with constant acceleration

2.4 Projectile motion

2.5 Uniform circular motion

2.6 Relative motion

3. Newton's Laws of Motion

3.1 Newton's laws (free body diagram, resolution of forces)

3.2 Motion on an inclined plane

3.3 Motion of blocks with pulley systems

3.4 Circular motion – centripetal force

3.5 Inertial and non-inertial frames

4. **Impulse and Momentum**

4.1 Definition of impulse and momentum

4.2 Conservation of momentum

4.3 Collisions

4.4 Momentum of a system of particles

4.5 Center of mass

5. Work and Energy

5.1 Work done by a force

5.2 Kinetic energy and work-energy theorem

5.3 Power

5.4 Conservative forces and potential energy

5.5 Conservation of mechanical energy

6. Rotational Motion

6.1 Description of rotation (angular displacement, angular velocity and angular acceleration)

6.2 Rotational motion with constant angular acceleration

6.3 Moment of inertia, Parallel and perpendicular axes theorems, rotational kinetic energy

6.4 Torque and angular momentum

6.5 Conservation of angular momentum

6.6 Rolling motion

7. Gravitation

7.1 Newton's law of gravitation

7.2 Gravitational potential energy, Escape velocity

7.3 Motion of planets – Kepler's laws, satellite motion

8. Mechanics of Solids and Fluids

8.1 Elasticity

8.2 Pressure, density and Archimedes' principle

8.3 Viscosity and Surface Tension

8.4 Bernoulli's theorem

9. Oscillations

9.1 Kinematics of simple harmonic motion

9.2 Spring mass system, simple and compound pendulum

9.3 Forced & damped oscillations, resonance

10. Waves

10.1 Progressive sinusoidal waves

10.2 Standing waves in strings and pipes

10.3 Superposition of waves, beats

10.4 Doppler Effect

11. Heat and Thermodynamics

11.1 Kinetic theory of gases

11.2 Thermal equilibrium and temperature

11.3 Specific heat

11.4 Work, heat and first law of thermodynamics

11.5 2^{nd} law of thermodynamics, Carnot engine – Efficiency and Coefficient of performance

12. Electrostatics

12.1 Coulomb's law

12.2 Electric field (discrete and continuous charge distributions)

12.3 Electrostatic potential and Electrostatic potential energy

12.4 Gauss' law and its applications

12.5 Electric dipole

12.6 Capacitance and dielectrics (parallel plate capacitor, capacitors in series and parallel)

13. Current Electricity

13.1 Ohm's law, Joule heating

13.2 D.C circuits – Resistors and cells in series and parallel, Kirchoff's laws, potentiometer and Wheatstone bridge,

13.3 Electrical Resistance (Resistivity, origin and temperature dependence of resistivity).

14. Magnetic Effect of Current

14.1 Biot-Savart's law and its applications

14.2 Ampere's law and its applications

14.3 Lorentz force, force on current carrying conductors in a magnetic field

14.4 Magnetic moment of a current loop, torque on a current loop, Galvanometer and its conversion to voltmeter and ammeter

15. Electromagnetic Induction

15.1 Faraday's law, Lenz's law, eddy currents

15.2 Self and mutual inductance

15.3 Transformers and generators

15.4 Alternating current (peak and rms value)

15.5 AC circuits, LCR circuits

16. Optics

16.1 Laws of reflection and refraction

16.2 Lenses and mirrors

16.3 Optical instruments – telescope and microscope

16.4 Interference – Huygen's principle, Young's double slit experiment

16.5 Interference in thin films

16.6 Diffraction due to a single slit

16.7 Electromagnetic waves and their characteristics (only qualitative ideas), Electromagnetic spectrum

16.8 Polarization – states of polarization, Malus' law, Brewster's law

17. Modern Physics

17.1 Dual nature of light and matter – Photoelectric effect, De Broglie wavelength

17.2 Atomic models – Rutherford's experiment, Bohr's atomic model

17.3 Hydrogen atom spectrum

17.4 Radioactivity

17.5 Nuclear reactions : Fission and fusion, binding energy

Part II: Chemistry

1. States of Matter

1.1 Measurement: Physical quantities and SI units, Dimensional analysis, Precision, Significant figures.

1.2 Chemical reactions: Laws of chemical combination, Dalton's atomic theory; Mole concept; Atomic, molecular and molar masses; Percentage composition & molecular formula; Balanced chemical equations & stoichiometry

1.3 Gaseous state: Gas Laws, Kinetic theory – Maxwell distribution of velocities, Average, root mean square and most probable velocities and relation to temperature, Diffusion; Deviation from ideal behaviour – Critical temperature, Liquefaction of gases, van der Waals equation.

1.4 Liquid state: Vapour pressure, surface tension, viscosity.

1.5 Solid state: Classification; Space lattices & crystal systems; Unit cell – Cubic & hexagonal systems; Close packing; Crystal structures: Simple AB and AB2 type ionic crystals, covalent crystals – diamond & graphite, metals. Imperfections- Point defects, non-stoichiometric crystals; Electrical, magnetic and dielectric properties; Amorphous solids – qualitative description.

2. Atomic Structure

2.1 Introduction: Subatomic particles; Rutherford's picture of atom; Hydrogen atom spectrum and Bohr model.

2.2 Quantum mechanics: Wave-particle duality – de Broglie relation, Uncertainty principle; Hydrogen atom: Quantum numbers and wavefunctions, atomic orbitals and their shapes (s, p, and d), Spin quantum number.

2.3 Many electron atoms: Pauli exclusion principle; Aufbau principle and the electronic configuration of atoms, Hund's rule.

2.4 Periodicity: Periodic law and the modern periodic table; Types of elements: s, p, d, and f blocks; Periodic trends: ionization energy, atomic and ionic radii, electron affinity, electro negativity and valency.

2.5 Nucleus: Natural and artificial radioactivity; Nuclear reactions.

3. Chemical Bonding & Molecular Structure

3.1 Ionic Bond: Lattice Energy and Born-Haber cycle

3.2 Molecular Structure: Lewis picture & resonance structures, VSEPR model & molecular shapes

3.3 Covalent Bond: Valence Bond Theory- Orbital overlap, Directionality of bonds & hybridistaion (s & p orbitals only), Resonance; Molecular orbital theory- Methodology, Orbital energy level diagram, Bond order, Magnetic properties for homonuclear diatomic species.

3.4 Metallic Bond: Qualitative description.

3.5 Intermolecular Forces: Polarity; Dipole moments; Hydrogen Bond.

4. Thermodynamics

4.1 Basic Concepts: Systems and surroundings; State functions; Intensive & Extensive Properties; Zeroth Law and Temperature

4.2 First Law of Thermodynamics: Work, internal energy, heat, enthalpy, heat capacities; Enthalpies of formation, phase transformation, ionization, electron gain; Thermochemistry; Hess's Law. Bond dissociation, combustion, atomization, sublimation, dilution

4.3 Second Law: Spontaneous and reversible processes; entropy; Gibbs free energy related to spontaneity and non-mechanical work; Standard free energies of formation, free energy change and chemical equilibrium; Third Law and Absolute Entropies.

5. Physical and Chemical Equilibria

5.1 Concentration Units: Mole Fraction, Molarity, and Molality

5.2 Solutions: Solubility of solids and gases in liquids, Vapour Pressure, Raoult's law, Relative lowering of vapour pressure, depression in freezing point; elevation in boiling point; osmotic pressure, determination of molecular mass.

5.3 Physical Equilibrium: Equilibria involving physical changes (solid-liquid, liquid-gas, solid-gas), Adsorption, Physical and Chemical adsorption, Langmuir Isotherm.

5.4 Chemical Equilibria: Equilibrium constants (K_P, K_C), Le-Chatelier's principle.

5.5 Ionic Equilibria: Strong and Weak electrolytes, Acids and Bases (Arrhenius, Lewis, Lowry and Bronsted) and their dissociation; Ionization of Water; pH; Buffer solutions; Acid-base titrations; Hydrolysis; Solubility Product of Sparingly Soluble Salts; Common Ion Effect.

5.6 Factors Affecting Equilibria: Concentration, Temperature, Pressure, Catalysts, Significance of ΔG and ΔG^0 in Chemical Equilibria.

6. Electrochemistry

6.1 Redox Reactions: Oxidation-reduction reactions (electron transfer concept); Oxidation number; Balancing of redox reactions; Electrochemical cells and cell reactions; Electrode potentials; Idea of heterogeneous equilibria on the surface of the electrode; EMF of Galvanic cells; Nernst equation; Factors affecting the electrode potential; Gibbs energy change and cell potential; Concentration cells; Secondary cells; Fuel cells; Corrosion and its prevention.

6.2 Electrolytic Conduction: Electrolytic Conductance; Specific, equivalent and molar conductivities; Kolhrausch's Law and its application, Faraday's laws of electrolysis; Coulometer; Electrode potential and electrolysis, Commercial production of the chemicals, NaOH, Na, Al_2,Cl_2 , & F_2

7. Chemical Kinetics

7.1 Aspects of Kinetics: Rate and Rate expression of a reaction; Rate constant; Order and molecularity of the reaction; Integrated rate expressions and half life for zero and first order reactions; Determination of rate constant and order of reaction

7.2 Factor Affecting the Rate of the Reactions: Concentration of the reactants, size of particles; Temperature dependence of rate constant; Activation energy; Catalysis, Surface catalysis, enzymes, zeolites; Factors affecting rate of collisions between molecules; Effect of light.

7.3 Mechanism of Reaction: Elementary reactions; Complex reactions; Reactions involving two/three steps only; Photochemical reactions; Concept of fast reactions.

7.4 Radioactive isotopes: Half-life period; Radiochemical dating.

8. Hydrogen and s-block elements

8.1 Hydrogen: Element: unique position in periodic table, occurrence, isotopes; Dihydrogen: preparation, properties, reactions, and uses; Molecular, saline, interstitial hydrides; Water: Properties; Structure and aggregation of water molecules; Heavy water; Hydrogen peroxide; Hydrogen as a fuel.

8.2 s-block elements: Abundance and occurrence; Anomalous properties of the first elements in each group; diagonal relationships.

8.3 Alkali metals: Lithium, sodium and potassium: occurrence, extraction, reactivity, and electrode potentials; Biological importance; Reactions with oxygen, hydrogen, halogens and liquid ammonia; Basic nature of oxides and hydroxides; Halides; Properties and uses of compounds such as NaCl, Na_2CO_3, $NaHCO_3$, NaOH, KCl, and KOH.

8.4 Alkaline earth metals: Magnesium and calcium: Occurrence, extraction, reactivity and electrode potentials; Reactions with non-metals; Solubility and thermal stability of oxo salts; Biological importance; Properties and uses of important compounds such as CaO, $Ca(OH)_2$, plaster of Paris, $MgSO_4$, $MgCl_2$, $CaCO_3$, and $CaSO_4$; Lime and limestone, cement.

9. p- d- and f-block elements

9.1 General: Abundance, distribution, physical and chemical properties, isolation and uses of elements; Trends in chemical reactivity of elements of a group;.

9.2 Group 13 elements: Boron; Properties and uses of borax, boric acid, boron hydrides & halides. Reaction of aluminum with acids and alkalis;

9.3 Group 14 elements: Carbon: Uses, Allotropes (graphite, diamond, fullerenes), oxides, halides and sulphides, carbides; Silicon: Silica, silicates, silicone,.Zeolites.

9.4 Group 15 elements: Dinitrogen; Reactivity and uses of nitrogen and its compounds; Industrial and biological nitrogen fixation; Ammonia: Haber's process, properties and reactions; Oxides of nitrogen and their structures; Ostwald's process of nitric acid production; Fertilizers – NPK type; Production of phosphorus; Allotropes of phosphorus; Preparation, structure and properties of hydrides, oxides, oxoacids and halides of phosphorus.

9.5 Group 16 elements: Isolation and chemical reactivity of dioxygen; Acidic, basic and amphoteric oxides; Preparation, structure and properties of ozone; Allotropes of sulphur; Production of sulphur and sulphuric acid; Structure and properties of oxides, oxoacids, hydrides and halides of sulphur.

9.6 Group 17 and group 18 elements: Structure and properties of hydrides, oxides, oxoacids of chlorine; Inter halogen compounds; Bleaching Powder; Preparation, structure and reactions of xenon fluorides, oxides, and oxoacids.

9.7 d-block elements: General trends in the chemistry of first row transition elements; Metallic character; Oxidation state; Ionic radii; Catalytic properties; Magnetic properties; Interstitial compounds; Occurrence and extraction of iron, copper, silver, zinc, and mercury; Alloy formation; Steel and some important alloys; preparation and properties of $CuSO_4$, $K_2Cr_2O_7$, $KMnO_4$, Mercury halides; Silver nitrate and silver halides; Photography.

9.8 f-block elements: Lanthanides and actinides; Oxidation states and chemical reactivity of lanthanide compounds; Lanthanide contraction; Comparison of actinides and lanthanides.

9.9 Coordination Compounds: Coordination number; Ligands; Werner's coordination theory; IUPAC nomenclature; Application and importance of coordination compounds (in qualitative analysis, extraction of metals and biological systems e.g. chlorophyll, vitamin B12, and hemoglobin); Bonding: Valence-bond approach, Crystal field theory (qualitative); Stability constants; Shapes, color and magnetic properties; Isomerism including stereoisomerisms; Organometallic compounds.

10. Principles of Organic Chemistry and Hydrocarbons

10.1 Classification: Based on functional groups, trivial and IUPAC nomenclature.

10.2 Electronic displacement in a covalent bond: Inductive, resonance effects, and hyperconjugation; free radicals; carbocations, carbanion, nucleophile and electrophile; types of reactions.

10.3 Alkanes and cycloalkanes: Structural isomerism and general properties.

10.4 Alkenes and alkynes: General methods of preparation and reactions, physical properties, electrophilic and free radical additions, acidic character of alkynes and (1,2 and 1,4) addition to dienes.

10.5 Aromatic hydrocarbons: Sources; Properties; Isomerism; Resonance delocalization; polynuclear hydrocarbons; mechanism of electrophilic substitution reaction, directive influence and effect of substituents on reactivity.

10.6 Haloalkanes and haloarenes: Physical properties, chemical reactions.

10.7 Petroleum: Composition and refining, uses of petrochemicals.

11. Stereochemistry

11.1 Introduction: Chiral molecules; Optical activity; Polarimetry; R,S and D,L configurations; Fischer projections; Enantiomerism; Racemates; Diastereomerism and meso structures.

11.2 Conformations: Ethane, propane, n-butane and cyclohexane conformations; Newman and sawhorse projections.

11.3 Geometrical isomerism in alkenes

12. Organic Compounds with Functional Groups Containing Oxygen and Nitrogen

12.1 General: Electronic structure, important methods of preparation, important reactions and physical properties of alcohols, phenols, ethers, aldehydes, ketones, carboxylic acids, nitro compounds, amines, diazonium salts, cyanides and isocyanides.

12.2 Specific: Effect of substituents on alpha-carbon on acid strength, comparative reactivity of acid derivatives, basic character of amines and their separation, importance of diazonium salts in synthetic organic chemistry

13. Biological , Industrial and Environmental chemistry

13.1 The Cell: Concept of cell and energy cycle.

13.2 Carbohydrates: Classification; Monosaccharides; Structures of pentoses and hexoses; Anomeric carbon; Mutarotation; Simple chemical reactions of glucose, Disaccharides: reducing and non-reducing sugars – sucrose, maltose and lactose; Polysaccharides: elementary idea of structures of starch and cellulose.

13.3 Proteins: Amino acids; Peptide bond; Polypeptides; Primary structure of proteins; Simple idea of secondary , tertiary and quarternary structures of proteins; Denaturation of proteins and enzymes.

13.4 Nucleic Acids: Types of nucleic acids; Primary building blocks of nucleic acids (chemical composition of DNA & RNA); Primary structure of DNA and its double helix; Replication; Transcription and protein synthesis; Genetic code.

13.5 Lipids, Hormones, Vitamins: Classification, structure, functions in biosystems.

13.6 Polymers: Classification of polymers; General methods of polymerization; Molecular mass of polymers; Biopolymers and biodegradable polymers; Free radical, cationic and anionic addition polymerizations; Copolymerization: Natural rubber; Vulcanization of rubber; Synthetic rubbers. Condensation polymers.

13.7 Pollution: Environmental pollutants; soil, water and air pollution; Chemical reactions in atmosphere; Smog; Major atmospheric pollutants; Acid rain; Ozone and its reactions; Depletion of ozone layer and its effects; Industrial air pollution; Green house effect and global warming; Green Chemistry.

13.8 Chemicals in medicine, health-care and food: Analgesics, Tranquilizers, antiseptics, disinfectants, anti-microbials, anti-fertility drugs, antihistamines, antibiotics, antacids; Cosmetics: Creams, perfumes, talcum powder, deodorants; Preservatives, artificial sweetening agents, antioxidants, and edible colours.

13.9 Other Industrial Chemicals: Dyes: Classification with examples – Indigo, methyl orange, aniline yellow, alizarin, malachite green; Advanced materials: Carbon fibers, ceramics, micro alloys; Detergents; Insect repellents, pheromones, sex attractants; Rocket Propellants.

14. Theoretical Principles of Experimental Chemistry

14.1 Volumetric Analysis: Principles; Standard solutions of sodium carbonate and oxalic acid; Acid-base titrations; Redox reactions involving KI, H_2SO_4, Na_2SO_3, $Na_2S_2O_3$and H_2S; Potassium permanganate in acidic, basic and neutral media; Titrations of oxalic acid, ferrous ammonium sulphate with $KMnO_4$, $K_2Cr_2O_7/Na_2S_2O_3$, $Cu(II)/Na_2S_2O_3$

14.2 Qualitative analysis of Inorganic Salts: Principles in the determination of the cations Pb^{2+}, Cu^{2+}, As^{3+}, Mn^{2+}, Zn^{2+}, Co^{2+}, Ca^{2+}, Sr^{2+}, Ba^{2+}, Mg^{2+}, NH_4^+, Fe^{3+}, Ni^{2+} and the anions CO_3^{2-}, S^{2-}, SO_4^{2-}, SO_3^{2-}, NO_2^-, NO_3^-, Cl^-, Br^-, I^-, PO_4^{3-}, CH_3COO^-, $C_2O_4^{2-}$.

14.3 Physical Chemistry Experiments: crystallization of alum, copper sulphate, ferrous sulphate, double salt of alum and ferrous sulphate, potassium ferric sulphate; Temperature vs. solubility; pH measurements; Lyophilic and lyophobic sols; Dialysis; Role of emulsifying agents in emulsification. Equilibrium studies involving (i) ferric and thiocyanate ions (ii) $[Co(H_2O)_6]^{2+}$ and chloride ions; Enthalpy determination for (i) strong acid vs. strong base neutralization reaction (ii) hydrogen bonding interaction between acetone and chloroform; Rates of the reaction between (i) sodium thiosulphate and hydrochloric acid, (ii) potassium iodate and sodium sulphite (iii) iodide vs. hydrogen peroxide, concentration and temperature effects in these reactions;

14.4 Purification Methods: Filtration, crystallization, sublimation, distillation, differential extraction, and chromatography. Principles of melting point and boiling point determination; principles of paper chromatographic separation – R_f values.

14.5 Qualitative Analysis of Organic Compounds: Detection of nitrogen, sulphur, phosphorous and halogens; Detection of carbohydrates, fats and proteins in foodstuff; Detection of alcoholic, phenolic, aldehydic, ketonic, carboxylic, amino groups and unsaturation.

14.6 Quantitative Analysis of Organic Compounds: Basic principles for the quantitative estimation of carbon, hydrogen, nitrogen, halogen, sulphur and phosphorous; Molecular mass determination by silver salt and chloroplatinate salt methods; Elementary idea of mass spectrometer for accurate molecular mass determination; Calculations of empirical and molecular formulae.

14.7 Principles of Organic Chemistry Experiments: Preparation of iodoform, acetanilide, p-nitro acetanilide, di-benzyl acetone, aniline yellow, beta-naphthol; Preparation of acetylene and study of its acidic character.

Part III: (a) English Proficiency and (b) Logical Reasoning

(a) English Proficiency

This test is designed to assess the test takers' general proficiency in the use of English language as a means of self-expression in real life situations and specifically to test the test takers' knowledge of basic grammar, their vocabulary, their ability to read fast and comprehend, and also their ability to apply the elements of effective writing.

1. Grammar

1.1 Agreement, Time and Tense, Parallel construction, Relative pronouns

1.2 Determiners, Prepositions, Modals, Adjectives

1.3 Voice, Transformation

1.4 Question tags, Phrasal verbs

2. Vocabulary

2.1 Synonyms, Antonyms, Odd Word, One Word, Jumbled letters, Homophones, Spelling

2.2 Contextual meaning.

2.3 Analogy

3. Reading Comprehension

3.1 Content/ideas

3.2 Vocabulary

3.3 Referents

3.4 Idioms/Phrases

3.5 Reconstruction (rewording)

4. Composition

4.1 Rearrangement

4.2 Paragraph Unity

4.3 Linkers/Connectives

(b) Logical Reasoning

The test is given to the candidates to judge their power of reasoning spread in verbal and nonverbal areas. The candidates should be able to think logically so that they perceive the data accurately, understand the relationships correctly, figure out the missing numbers or words, and to apply rules to new and different contexts. These indicators are measured through performance on such tasks as detecting missing links, following directions, classifying words, establishing sequences, and completing analogies.

5. Verbal Reasoning

5.1 Analogy

Analogy means correspondence. In the questions based on analogy, a particular relationship is given and another similar relationship has to be identified from the alternatives provided.

5.2 Classification

Classification means to assort the items of a given group on the basis of certain common quality they possess and then spot the odd option out.

5.3 Series Completion

Here series of numbers or letters are given and one is asked to either complete the series or find out the wrong part in the series.

5.4 Logical Deduction – Reading Passage

Here a brief passage is given and based on the passage the candidate is required to identify the correct or incorrect logical conclusions.

5.5 Chart Logic

Here a chart or a table is given that is partially filled in and asks to complete it in accordance with the information given either in the chart / table or in the question.

6. Nonverbal Reasoning

6.1 Pattern Perception

Here a certain pattern is given and generally a quarter is left blank. The candidate is required to identify the correct quarter from the given four alternatives.

6.2 Figure Formation and Analysis

The candidate is required to analyze and form a figure from various given parts.

6.3 Paper Cutting

It involves the analysis of a pattern that is formed when a folded piece of paper is cut into a definite design.

6.4 Figure Matrix

In this more than one set of figures is given in the form of a matrix, all of them following the same rule. The candidate is required to follow the rule and identify the missing figure.

6.5 Rule Detection

Here a particular rule is given and it is required to select from the given sets of figures, a set of figures, which obeys the rule and forms the correct series.

Part IV: Mathematics

1. Algebra

1.1 Complex numbers, addition, multiplication, conjugation, polar representation, properties of modulus and principal argument, triangle inequality, roots of complex numbers, geometric interpretations.

1.2 Theory of Quadratic equations, quadratic equations in real and complex number system and their solutions, relation between roots and coefficients, nature of roots, equations reducible to quadratic equations.

1.3 Arithmetic, geometric and harmonic progressions, arithmetic, geometric and harmonic means, arithmetico-geometric series, sums of finite arithmetic and geometric progressions, infinite geometric series, sums of squares and cubes of

the first n natural numbers.

1.4 Logarithms and their properties.

1.5 Exponential series.

1.6 Permutations and combinations, Permutations as an arrangement and combination as selection, simple applications.

1.7 Binomial theorem for a positive integral index, properties of binomial coefficients.

1.8 Matrices and determinants of order two or three, properties and evaluation of determinants, addition and multiplication of matrices, adjoint and inverse of matrices, Solutions of simultaneous linear equations in two or three variables.

1.9 Sets, Relations and Functions, algebra of sets applications, equivalence relations, mappings, one-one, into and onto mappings, composition of mappings.

1.10 Mathematical Induction

1.11 Linear Inequalities, solution of linear inequalities in one and two variables.

2. Trigonometry

2.1 Trigonometric ratios, functions and identities.

2.2 Solution of trigonometric equations.

2.3 Properties of triangles and solutions of triangles

2.4 Inverse trigonometric functions

2.5 Heights and distances

3. Two-dimensional Coordinate Geometry

3.1 Cartesian coordinates, distance between two points, section formulae, shift of origin.

3.2 Straight lines and pair of straight lines: Equation of straight lines in various forms, angle between two lines, distance of a point from a line, lines through the point of intersection of two given lines, equation of the bisector of the angle between two lines, concurrent lines.

3.3 Circles and family of circles : Equation of circle in various form, equation of tangent, normal & chords, parametric equations of a circle , intersection of a circle with a straight line or a circle, equation of circle through point of intersection of two circles, conditions for two intersecting circles to be orthogonal.

3.4 Conic sections : parabola, ellipse and hyperbola their eccentricity, directrices & foci, parametric forms, equations of tangent & normal, conditions for y=mx+c to be a tangent and point of tangency.

4. Three dimensional Coordinate Geometry

4.1 Direction cosines and direction ratios, equation of a straight line in space and skew lines.

4.2 Angle between two lines whose direction ratios are given

4.3 Equation of a plane, distance of a point from a plane, condition for coplanarity of three lines.

5. Differential calculus

5.1 Domain and range of a real valued function, Limits and Continuity of the sum, difference, product and quotient of two functions, Differentiability.

5.2 Derivative of different types of functions (polynomial, rational, trigonometric, inverse trigonometric, exponential, logarithmic, implicit functions), derivative of the sum, difference, product and quotient of two functions, chain rule.

5.3 Geometric interpretation of derivative, Tangents and Normals.

5.4 Increasing and decreasing functions, Maxima and minima of a function.

5.5 Rolle's Theorem, Mean Value Theorem and Intermediate Value Theorem.

6. Integral calculus

6.1 Integration as the inverse process of differentiation, indefinite integrals of standard functions.

6.2 Methods of integration: Integration by substitution, Integration by parts, integration by partial fractions, and integration by trigonometric identities.

6.3 Definite integrals and their properties, Fundamental Theorem of Integral Calculus and its applications.

6.4 Application of definite integrals to the determination of areas of regions bounded by simple curves.

7. Ordinary Differential Equations

7.1 Variables separable method.

7.2 Solution of homogeneous differential equations.

7.3 Linear first order differential equations

8. Probability

8.1 Addition and multiplication rules of probability.

8.2 Conditional probability

8.3 Independent events

8.4 Discrete random variables and distributions

9. Vectors

9.1 Addition of vectors, scalar multiplication.

9.2 Dot and cross products of two vectors.

9.3 Scalar triple products and their geometrical interpretations.

10. Statistics

10.1 Measures of dispersion

10.2 Measures of skewness and Central Tendency

11.Linear Programming

11.1 Formulation of linear Programming

11.2 Solution of linear Programming, using graphical method.

Part IV: Biology

1: Diversity in Living World

1.1 Biology – its meaning and relevance to mankind

1.2 What is living; Taxonomic categories and aids; Systematics and Binomial system of nomenclature.

1.3 Introductory classification of living organisms (Two-kingdom system, Five-kingdom system);

1.4 Plant kingdom – Salient features of major groups (Algae to Angiosperms);

1.5 Animal kingdom – Salient features of Nonchordates up to phylum, and Chordates up to class level.

2: Cell: The Unit of Life; Structure and Function

2.1 Cell wall; Cell membrane; Endomembrane system (ER, Golgi apparatus/Dictyosome, Lysosomes, Vacuoles); Mitochondria; Plastids; Ribosomes; Cytoskeleton; Cilia and Flagella; Centrosome and Centriole; Nucleus; Microbodies.

2.2 Structural differences between prokaryotic and eukaryotic, and between plant and animal cells.

2.3 Cell cycle (various phases); Mitosis; Meiosis.

2.4 Biomolecules – Structure and function of Carbohydrates, Proteins, Lipids, and Nucleic acids.

2.5 Enzymes – Chemical nature, types, properties and mechanism of action.

3: Genetics and Evolution

3.1 Mendelian inheritance; Chromosome theory of inheritance; Gene interaction; Incomplete dominance; Co-dominance; Complementary genes; Multiple alleles;

3.2 Linkage and Crossing over; Inheritance patterns of hemophilia and blood groups in humans.

3.3 DNA –its organization and replication; Transcription and Translation;

3.4 Gene expression and regulation; DNA fingerprinting.

3.5 Theories and evidences of evolution, including modern Darwinism.

4: Structure and Function – Plants

4.1 Morphology of a flowering plant; Tissues and tissue systems in plants; Anatomy and function of root, stem (including modifications), leaf, inflorescence, flower (including position and arrangement of different whorls, placentation), fruit and seed; Types of fruit; Secondary growth;

4.2 Absorption and movement of water (including diffusion, osmosis and water relations of cell) and of nutrients; Translocation of food; Transpiration and gaseous exchange; Mechanism of stomatal movement.

4.3 Mineral nutrition – Macro- and micro-nutrients in plants including deficiency disorders; Biological nitrogen fixation mechanism.

4.4 Photosynthesis – Light reaction, cyclic and non-cyclic photophosphorylation; various pathways of carbon dioxide fixation; Photorespiration; Limiting factors.

4.5 Respiration – Anaerobic, Fermentation, Aerobic; Glycolysis, TCA cycle; Electron transport system; Energy relations.

5: Structure and Function - Animals

5.1 Human Physiology – Digestive system – organs, digestion and absorption; Respiratory system – organs, breathing and exchange and transport of gases.

5.2 Body fluids and circulation – Blood, lymph, double circulation, regulation of cardiac activity; Hypertension, Coronary artery diseases.

5.3 Excretion system – Urine formation, regulation of kidney function

5.4 Locomotion and movement – Skeletal system, joints, muscles, types of movement.

5.5 Control and co-ordination – Central and peripheral nervous systems, structure and function of neuron, reflex action and sensory reception; Role of various types of endocrine glands; Mechanism of hormone action.

6: Reproduction, Growth and Movement in Plants

6.1 Asexual methods of reproduction;

6.2 Sexual Reproduction – Development of male and female gametophytes; Pollination (Types and agents); Fertilization; Development of embryo, endosperm, seed and fruit (including parthenocarpy and elminth).

6.3 Growth and Movement – Growth phases; Types of growth regulators and their role in seed dormancy, germination and movement;

6.4 Apical dominance; Senescence; Abscission; Photo- periodism; Vernalisation;

6.5 Various types of movements.

7: Reproduction and Development in Humans

7.1 Male and female reproductive systems;

7.2 Menstrual cycle; Gamete production; Fertilisation; Implantation;

7.3 Embryo development;

7.4 Pregnancy and parturition;

7.5 Birth control and contraception.

8: Ecology and Environment

8.1 Meaning of ecology, environment, habitat and niche.

8.2 Ecological levels of organization (organism to biosphere); Characteristics of Species, Population, Biotic Community and Ecosystem; Succession and Climax. Ecosystem – Biotic and abiotic components; Ecological pyramids; Food chain and Food web;

8.3 Energy flow; Major types of ecosystems including agroecosystem.

8.4 Ecological adaptations – Structural and physiological features in plants and animals of aquatic and desert habitats.

8.5 Biodiversity and Environmental Issues – Meaning, types and conservation strategies (Biosphere reserves, National parks and Sanctuaries), Air and Water Pollution (sources and major pollutants); Global warming and Climate change; Ozone depletion; Noise pollution; Radioactive pollution; Methods of pollution control (including an idea of bioremediation); Deforestation; Extinction of species (Hot Spots).

9: Biology and Human Welfare

9.1 Animal husbandry – Livestock, Poultry, Fisheries; Major animal diseases and their control. Pathogens of major communicable diseases of humans caused by fungi, bacteria, viruses, protozoans and elminthes, and their control.

9.2 Cancer; AIDS.

9.3 Adolescence and drug/alcohol abuse;

9.4 Basic concepts of immunology.

9.5 Plant Breeding and Tissue Culture in crop improvement.

10: Biotechnology and its Applications

10.1 Microbes as ideal system for biotechnology**;**

10.2 Microbial technology in food processing, industrial production (alcohol, acids, enzymes, antibiotics), sewage treatment and energy generation.

10.3 Steps in recombinant DNA technology – restriction enzymes, NA insertion by vectors and other methods, regeneration of recombinants

10.4 Applications of R-DNA technology in human health –Production of Insulin, Vaccines and Growth hormones, Organ transplant, Gene therapy.

10.5 Applications in Industry and Agriculture – Production of expensive enzymes, strain improvement to scale up bioprocesses, GM crops by transfer of genes for nitrogen fixation, herbicide-resistance and pest-resistance including Bt crops.

Last date of Receipt: 5.00 PM on 31st January 2008

Application form for BITSAT-2008

Application Number:

Read instructions given in the brochure. Use Capital letters only.

BITS, PILANI

1. Full Name: *(as it appears in 12th examination marksheet)* _____

2. Gender (*tick √ appropriate box*): ☐ Male ☐ Female

3. Date of Birth: (*dd/mm/yyyy*) ☐☐ ☐☐ ☐☐☐☐

Paste a Passport size photo

4. Father's Name: _____

5. Mother's Name: _____

6. Address for Correspondence: _____

_____

_____

State: _____ PIN: _____

Email ID (if any): _____ Phone No. (with STD code): _____

7. Name of Institution presently studying in/ last attended: _____

8. Test Center Preferences (*write the city code only. See instruction No.5*): Pref. 1: ☐☐ Pref. 2: ☐☐ Pref. 3: ☐☐

9. Details of 12th Examination: Year of Appearing/passing: (*tick √ appropriate box*) 2008 ☐ 2007 ☐

Name of the Board: _____ Board Code : ☐☐☐☐

(*See Instruction No. 6*)

10 Tick the subjects taken in 10+2 from the following list

☐ PHYSYICS ☐ CHEMISTRY ☐ MATHEMATICS ☐ BIOLOGY

If you have taken both Mathematics and Biology in 10+2, Choose the subject to be taken for Part IV of BITSAT from the following: (Tick only one. If you tick both Mathematics and Biology, your form will become invalid. See Instruction No 9 for details)

☐ MATHEMATICS ☐ BIOLOGY

10. Declaration by the candidate: I have fully read and understood all the instructions and conditions attached with this form and those contained in BITSAT-2008 brochure and I agree to abide by the contents of BITSAT-2008 brochure and the application form.

Date: _____

Place: _____ _____

(Signature)

This form should be sent to 'The Admissions Officer, BITS, Pilani – 333 031 (Rajasthan)' so as to reach him on or before 5.00 PM on 31st January 2008. After submission, you should check the status of your application at BITSAT website:

http://www.bitsadmission.com/BITSAT/

This application should be accompanied by two passport size photographs as explained below:

1. Paste one photograph in the space provided on the top of this form. 2. Write your name and application number on the backside of the second photo and send it in a separate envelope and enclose it with this form.

Enclosure: 1. One passport size photograph ☐

For official use:

Amount Paid: Rs.

Instructions for filling the form:

1. Fill the form in English only. The handwriting should be neat and legible.
2. Read the BITSAT-2008 brochure supplied along with this form.
3. Please note that the application fee is different for male and female candidates. If the amount paid is Rs. 500/-, the form is valid only for female candidates.
4. The filled form, along with enclosures, should reach "The Admissions Officer, BITS, Pilani – 333 031" latest by 5.00 pm on 31st January 2008.
5. Test Centers and codes:

City	Code
Pilani	PL
Goa	GA
Ahmedabad	AD
Bangalore	BG
Bhubaneswar	BH
Chandigarh	CG
Chennai	CH
Coimbatore	CB
Delhi	DL
Gurgaon	DG
Hyderabad	HD
Indore	ID
Kolkata	KK
Lucknow	LK
Madurai	MD
Mumbai	MB
Nagpur	NG
Noida	DN
Vijayawada	VJ
Visakhapatnam	VP

Note: (i) While BITSAT-2008 tests are scheduled to be held during the period 9th May – 12th June 2008, some of the test centers may operate only for a limited duration during this period depending on the number of applications received. The final list of the centers will be announced at BITS website after all the applications are received.

(ii) The preferences that you give are only indicative and is to guide the Institute for deciding the number of centers. The Institute cannot guarantee that you will get your first preference. Further, if the Institute is unable to allot any center of your choice, you will be allotted a center either at Pilani or at Goa. The exact center where you will be appearing for the test will be announced at BITS website. However, the Institute will try its best to accommodate all female candidates at their first preference of test centers.

6. (a) From the codes given below, choose the board code for the name of the board from which you have passed/ appearing in the 12th examination:

	Name of the Board and Examination	**Board Code**
i)	Central Board of Secondary Education - All India Senior School Certificate Examination	CBAT
ii)	Council for the Indian School Certificate Examination - Indian School Certificate (Year-12) Examination	ISCT

	Name of the Board and Examination	Board Code
	(Year-12) Examination	
iii)	Board of Intermediate Education, Andhra Pradesh - Intermediate Examination	APBT
iv)	Assam Higher Secondary Education Council - Higher Secondary (+2) Examination	ASBT
v)	Bihar Intermediate Council, Bihar Intermediate Examination	BICT
vi)	Board of Secondary Education, Chhatisgarh - Higher Secondary School Certificate Examination	CGBT
vii)	Goa Board of Secondary and Higher Secondary Education - Higher Secondary School Certificate Examination	GDBT
viii)	Gujarat Secondary Education Board, Gujarat - Higher Secondary Certificate Examination (10+2 Pattern)	GJBT
ix)	Board of School Education, Haryana - Senior Secondary Certificate Examination	HRBT
x)	Himachal Pradesh Board of School Education - Senior Secondary (+2) examination	HPBT
xi)	The Jammu & Kashmir State Board of School Education - Higher Secondary Part II Examination, Jammu/Kashmir Region	JKBW
xii)	Jharkhand Intermediate Council, Jharkhand Intermediate Examination	JHCT
xiii)	Board of Pre-University Examination, Karnataka - Second Year Pre-University Examination	KART
xiv)	Board of Higher Secondary Examination, Kerala - Higher Secondary Examination	KERT
xv)	Board of Secondary Education, Madhya Pradesh - Higher Secondary School Certificate Examination (10+2)	MPBT
xvi)	Maharashtra State Board of Secondary and Higher Secondary Education - Higher Secondary Certificate Examination	MSBT
xvii)	Council of Secondary Education, Manipur – Higher Secondary Examination	CHMT
xviii)	Meghalaya Board of School Education - Higher Secondary School Leaving Certificate Examination	MEGT
xix)	Mizoram Board of School Education – Higher Secondary School Leaving Certificate Examination	MZBT
xx)	Nagaland Board of School Education - Higher Secondary School Leaving Certificate Examination;	NAGT
xxi)	Council of Higher Secondary Education, Orissa - Higher Secondary Examination	CHOT
xxii)	Punjab School Education Board - Senior Secondary Certificate Examination (Part II)	PNBT

	Name of the Board and Examination	Board Code
xxiii)	Board of Secondary Education, Rajasthan - Senior Secondary Examination	RJBT
xxiv)	Board of Higher Secondary Examination, Tamil Nadu - Higher Secondary Exam.	TNBT
xxv)	Tripura Board of Secondary Education - Higher Secondary (+2 Stage) Examination	TRBT
xxvi)	Board of Intermediate Examination, Uttaranchal - Intermediate Examination	UABT
xxvii)	Board of Intermediate Examination, Uttar Pradesh - Intermediate Examination	UPBT
xxviii)	West Bengal Council of Higher Secondary Examination - Higher Secondary Examination	WBBT
xxix)	Foreign Qualifications	FORW
xxx)	Any Other Board/ University (not covered above)	AOBW

7. The application form should be accompanied by two passport size photographs: (i) Paste (using gum) one photograph in the space provided in the form. (ii) write your name and application number on the backside of the second photo and send it in a separate envelope enclosed with the application form.

8. A candidate can submit only one filled form for BITSAT-2008. However, if a candidate discovers any mistake in the form submitted by him, he can submit a second application form duly completed before the last date, indicating on the top of the second application form that his first application form (giving its number) should be cancelled. In such cases, the second application has to be accompanied by a fresh application fee.

9. Candidates who appear in Biology in Part IV of BITSAT will be eligible for admission to M.Sc. (Hons.) Biological Sciences and B.Pharm. (Hons.) only. Candidates who appear in Mathematics in Part IV of BITSAT will be eligible for admission to any of the Integrated First degree programmes, including M.Sc.(Hons.) Biological Sciences and B.Pharm.(Hons.).

10. In addition to applying for and appearing in BITSAT-2008, candidates have to also apply for admission to BITS giving details of their 12^{th} marks and preferences to different degree programmes offered. The prescribed application form for admission will be available at the BITS website, by 20^{th} May 2008, for those who appear in BITSAT-2008. The completed form with the required application fee of Rs. 200/- has to be submitted so as to reach the Admissions Office on or before 5.00 PM on 30^{th} June 2008.