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| **DIRECTORATE OF DISTANCE EDUCATION**  **Patna University, Patna – 800 005** |

**1. INTRODUCTION**

When India was under the British rule it had once been said that freedom is our birthright. Today we may say in the same vein that higher education is every India’s birthright. The question before us is: how far are we from attaining this goal? After more than fifty years of our freedom, what measures are being taken to make higher education available to those who want it?

The population of the country is multiplying very fast. The number of persons desirous of getting higher education is also increasing in the same proportion. But it is not possible for the government to provide traditional schools and colleges for all of them. For catering to the need of such persons the system of **Distance Education** has been evolved. Such informal education is being provided and propagated for the last 30-40 years. The system of distance education was adopted in western countries like England, America etc. when the problem of increasing population arose there. In our country too the system of distance education was adopted in similar situation. Distance Education or open learning has come a long way and in the process it has become a valuable supplement to traditional methods of education and training. From correspondence courses to E-mail, home learning has added an entirely new dimension to the concept of education which has proved to be a boon for millions of students worldwide.

The **Directorate of Distance Education, Patna University** was established in 1947 with the purpose of providing higher education through correspondence and distant learning method to such persons, who though possessing necessary educational qualifications, were unable to join any regular college. Those persons, who are engaged in some service or business, can also get themselves admitted to the Directorate and receive higher education.

The **Directorate of Distance Education, Patna University,** the first of its kind in Eastern India, has been imparting education through distance learning to thousands of students every year. Over the years; it has undergone several changes in order to benefit the students more so that they do not feel themselves alienated at any stage. During the last five years the Directorate has been making consistent Endeavour to add new career-oriented courses to its already existing list.

The latest in that direction is the launching of three year **B.A./B.Sc. (Vocational) Honors Course in Computer Application.**

The last decade has witnessed a revolution in computer science and its application in almost every sphere of one’s daily life. Globalization of economy has thrown open tremendous employment opportunities for trained/qualified computer personnel. To meet the growing demand and challenge of this need the **Directorate of Distance Education, Patna University** has started the three-year B.A. / B.Sc. (Vocational) Honors course in Computer Application from the session 2003. Along with the job potential of the course there is great scope for higher studies too in computer science/information technology in our country and abroad as well.

**2. DURATION OF THE COURSE**

The Course is spread over three academic years. On successful completion of the course, the candidate will be awarded the B.A./B.Sc. (Vocational) Honors degree in Computer Application of **Patna University.** The courses of study, duration of the course, the examination and the degree of B.A. / B. Sc. (Vocational) Honors in Computer Application are the same as those of the regular colleges of **Patna University.**

**3. ELIGIBILITY FOR ADMISSION**

(i) For admission in B.A. (Vocational) Honors in Computer Application a candidate must have passed I.A. / I. Sc. Math or Bio/I.Com. or +2 examination of any recognized Board or University.

(ii) For B.Sc. (Vocational) Honors in Computer Application a candidate must have passed +2 or I. Sc. Examination of any recognized Board or University with Physics, Chemistry and mathematics.

(iii) An I. Sc. Student who opts for Mathematics and Statistics as subsidiary subject will get a B.Sc. degree whereas candidates with English and Economics as subsidiary combination will get a B.A. degree. Only those with Mathematics at Intermediate Science level may opt for Mathematics and Statistics as subsidiary. To be eligible for admission to B.A./B.Sc. (Vocational) Honors course in Computer Application the candidate must have passed Intermediate Examination of a recognized Board or University or 12 year course of State or Central Board **with at least 55% marks in aggregate for general category** of applicants and **45% marks in case of candidates belonging to SC and ST category & BC-I.**

Admission to B.A. / B.Sc. (Vocational) Honors in Computer Application course shall be made **on the basis of marks obtained at the aptitude test followed by viva voce examination** conducted by the Directorate. Aptitude test will be of multiple choice/objective/subjective type of questions on logical and mathematical ability, general awareness, English and fundamentals of computers. (The syllabus of the same has been given elsewhere in this booklet).

**4. RESERVATION**

Reservation in admission of different categories of candidates will be applicable as per the Patna University rules. The applicants belonging to reserved categories must furnish the recent caste certificate to this effect from DM/SDO only along with application. At the time of admission original caste will have to be submitted.

**5. COURSE FEE**

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| Sl. No. | Item | 1st Installment at the time of admission in Part-I | 2nd Installment at the time of admission in Part-II | 3rd Installment at the time of Admission in Part-III |
| 1. | Course fee inclusive of admission, Tuition, Exam and Postage etc. | 10500/= | 10500/= | 10500/= |

Student who have passed from any other Board outside Bihar or have been admitted in any University other than Patna after passing Inter Council Examination will have to pay Rs. 100/= (Rs. One hundred only) as immigration fee with the first installment.

**6. HOW TO APPLY**

The applicants will be required to apply in the prescribed application form to the **Director, Directorate of Distance Education, Patna University, Patna – 800 005.** The application form and prospectus can be obtained from the office of the Directorate of Distance Education, Patna University **on payment of Rs. 300/-** (Rupees Three hundred fifty only) **by post** through demand draft payable to **“The Director, Directorate of Distance Education, BCA. A/c, Patna University”.**

No Candidate shall be admitted, who in opinion of the Vice-Chancellor should not be admitted in the best interest of the university.

No Candidate shall be admitted who has not applied for admission within specified time, or who, on being selected for admission does not get himself/herself enrolled within specified time except when the delay if condoned by the Vice-Chancellor.

**7. SYLLABUS AND STRUCTURE OF THE COURSE**

**First Year:**

**(Honors) Two Subsidiary Subjects**

(i) Computer Fundaments (i) Subsidiary one

(ii) Programming Techniques-C Language (ii) Subsidiary one

(iii) Office Automation – M.S. Office

(iv) Business Data Processing (Cobol+BDP)

**Second Year:**

**(Honors) Two Subsidiary Subjects**

(v) Data base Management systems-FoxPro (i) Subsidiary two

(vi) Information system-Visual Basic (ii) Subsidiary two

(vii) Operating system-Unix

(viii) Object oriented programming-C++ Programming

**Second Year:**

**(Honors) Two Subsidiary Subjects**

(ix) Advance Data based management systems (i) Entrepreneurship

(x) Data Structure Development

(xi) Advance topics in computers

(xii) On the job training for three months followed by the project report.

**Subsidiary Papers:**

For B.Sc. - Mathematics and Statistics.

For B.A. – Economics, Statistics and English

(Students will have to select any two subjects)

**(In no case subject will be changed after admission. As such, applicant must select the subject very carefully.)**

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|  | **Honors** | **Subsidiary** | **Compulsory** |
| B.A./B.Sc. (Vocational) Honors in Computer Application Part-I | 4 Papers | 2 Papers |  |
| B.A./B.Sc. (Vocational) Honors in Computer Application Part-II | 4 Papers | 2 Papers |  |
| B.A./B.Sc. (Vocational) Honors in Computer Application Part-III | 4 Papers |  | 1 Paper (E.D.) |
| **TOTAL** | **12 Papers** | **4 Papers** | **1 Papers** |

**8. IDENTITY CARD**

Blank Identity cards will be issued to students at the time of admission. Students must submit it duly filled in and after fixing 3 CM X 4 CM color photograph only **within one week** of admission for lamination. The laminated identity card will be made available to the students in person on production of money receipt. Students are advised **to preserve the Identity Card carefully till the completion of their course.** If the card is lost or damaged, a duplicate card may be issued on submission of an affidavit to that effect along with a fine of Rs. 50/- and one more 3 CM X 4 CM size color photograph only. Admit card for any examination will be issued to students **only on production of Identity Card** and not money receipt.

The Identity Card will have to be surrendered to the Directorate before the student leaves the Institution on transfer or on completion of the course. Identity Card issued at the time of admission in B.A. / B.Sc. (Vocational) Honors Part-I will be valid for Part-II and III also. No separate card is issued for Part-II and III.

**9. WORKING HOURS**

The office working hours in the **Directorate of Distance Education** will be as follow: April to June: 07:00 A.M. TO 12:00 Noon (Financial Transaction upto 11:00 A.M.)

July to March: 10:30 A.M. to 05:00 P.M. (Financial Transaction upto 01:30 P.M.0

**No Financial Transaction on any Saturday or Holidays.**

**10. ENQUIRIES AND CORRESPONDENCE**

If a student wants to make any enquiry, seek any information or make any comlaint he must write his Roll No., Class and Session below his Name, otherwise his application may not be attended to.

**11. EXAMINATION**

The centre of examination shall be at Patna. Hence all the students of the Directorate will have to come to Patna for their Examination.

Since the examination program of the course is not published in the newspapers, information regarding date of commencement and program of examination will be sent to the students by post. In case any student does not receive such letter in time due to postal lapses, the Directorate can not be held responsible for any loss that the student may have to suffer on account of non-receipt of that letter. Hence students are advised to get in touch with the office of the Directorate from time to time and look up the Notice Board. For practical and viva examination students must consult the Notice Board.

Again, if after the commencement of examination the university makes any change in the date of examination of any Papers; such information will have to be collected by the candidates themselves as they are normally expected to be at Patna during the examination.

**12. CLASSES**

Theory and Practical classes of only Honors subject will be arranged. No. Classes of subsidiary will be held. Hence students will have to prepare subsidiary subject on their own.

**13. SYLLABUS FOR ENTRANCE APTITUDE TEST FOR B.SC. COURSE**

Scalar and vector quantities, addition, multiplication, composition and resolution of vectors in plane, rectilinear motion, uniformly accelerated motion, circular motion, centripetal and Centrifugal forces, projectile motion, relative velocity, simple motion in three dimensions, Law of conservation of energy, Simple Harmonic Motion, expression for displacement velocity acceleration and time period of SHM, Moment of Inertia of a body about an axis, radius of gyration, theorems of parallel and perpendicular axes, calculation of M.I. of bodies of simple shapes, Newton’s Law of gravitation, modern concept of heat, thermal equilibrium, Zeroth law of thermodynamics, principles of thermometers, progressive concept of wave motion, longitudinal, stationary and transverse waves, superposition of waves, Doppler effect, refraction at spherical surfaces, combination of thin lenses in contact and separated by a distance, simple and compound microscopes, electric potential and field, Gauss’s theorem and its simple applications, Biot Savart’s law, magnetic induction due to straight wire and circular wire carrying current, forces on moving charge in a uniform magnetic induction and its laws, Lenz’s Law, self and mutual induction, induce emf in a coil rotating in uniform magnetic filed, alternating current, rms speak and average emf elementary current in AC circuit having (a) resistance only, (b) inductance only (c) capacitance only due to an applied AC voltage, reactance impedance in AC. Kirchoffs Law an their applications to Wheatsone’s bridge.

Protocell, Bohr’s model of atom, composition of nucleus, atomic mass, isotopes, radioactivity, mass energy relation, nuclear fusion and fission, energy bands in solids, conductors, insulators and semiconductors, pn junction, diodes, junction transistors, diodes as rectifier, transistor as an amplifier, Boolean algebra, binary and decimal systems Logic Gate (a) OR (b) Nor (c) AND (D) NAND.

**ALGEBRA**

Complex number, representation of complex numbers as points on Argand plane, algebra of complex number, square root of complex number, cube and fourth roots of unity, triangular inequality, simple application of A.P., G.P., H.P., quadratic equations with given roots, permutations and combinations, binomial theorem for positive integral index determinants, determinants of order two or three, their elementary properties, application of Creamer’s rule for the solution of consistent system of linear equations, matrix as a rectangular arrangement of numbers, types of matrices, equally of matrices, addition, scalar multiplication and multiplication of matrices, adjoin and inverse of a matrix. Mathematical induction and its application.

**TRIGONOMENTRY**

Graphs of sine, cosine and tangent and their reciprocal and other related functions, general solution of trigonometrically equations and inverse circular functions, properties of triangle, Logarithm, heights and distance, De Moiver’s extraction of roots, expansion of sin x and cos x.

Co-ordinates in rectangular system, distance formula, area of a triangle, condition of Co linearity of three point section formulae, centroid and incentre, standard equations of first degree, angle between two straight lines, parallel and perpendicular straight lines, concurrency of lines, pair of straight lines, angle between them, equation of a circle, general equations of a circle, conic section, equation of the conic section, (parabola ellipse, hyperbola) in the standard form. Events probability on a discrete sample space, addition and multiplication theorem, conditional probabilities (set theoretic approach only).

Function, notion of limits and continuity of a function, i8nterpretatin of dy / dx. Equation of tangent and normal, Rolle’s theorem and Lagrange’s mean value theorem, maximum and minimum values of function of one variable, intergration as the inverse process of differentiation, integration by substitution and by parts, definite-integral and its simple properties, determination of area enclosed by standard simple curves (Straight lines, circle, parabola, ellipse etc.

Uniform velocity, uniform acceleration, motion in straight line, motion under gravity, projectile, Newton’s Laws of Motion.

Addition of Vectors, multiplication by a scalar, scalar and cross product of two vectors and their geometrical meaning, scalar and vector triple product.

Elementary knowledge of Computer Hardware and Softwares.

**14. SYLLABUS FOR ENTRANCE APTITUDE TEST FOR B.A COURSE**

Question will be asked on the pattern of GMAT with the following sections :

1. Data Sufficiency (Reasoning)
2. Problem Solving (10th Level)
3. Proficiency in English Language (reading comprehension, antonyms, synonyms, word matching, fill in the blanks etc.)
4. General Awareness
5. Fundamentals of Computer.