**PhD (Computer Science / Bioinformatics) Entrance Test, 2015-2016**

**Syllabus for Part-B**

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<th>Multiple-Choice Questions</th>
<th>Compulsory Component: 50 Questions</th>
<th>50 Marks</th>
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<td>Subjective Questions</td>
<td>Elective Component: 5 Questions out of 10</td>
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**COMPULSORY COMPONENT**

- Measuring Central Tendency and Dispersion of Data, Correlation Analysis, Regression Analysis, Analysis of Variance, Hypothesis Testing, Probability and Distributions - Sample Space and Events, Types of Events, Addition and Multiplication Rules, Conditional Probability and Bayes Theorem.
- Logic Gates, Boolean Functions, Combinational and Sequential Circuits, Number System, Integer/Real Data Representation, Instruction Formats, Addressing Modes, Memory Organization, I/O Organization. Von-Neumann Architecture, Number System, Complements, Binary Arithmetic, Numeric and Character Data Representation, Memory and I/O Devices.
- Programming in C: Identifiers, Variables and Constants, Data Types, Operators, Control Structures, Structured Data Types: Array, Struct, Union, String, Enum, and Pointers. File Handling in C.
- OOP using C++: Class, Object, Inheritance, Polymorphism, and Overloading; Constructors and Destructors; Virtual Functions, Templates and Exception Handling.
- DBMS and Types; Database Concepts, Data Models, ER Diagram, Design of Relational Database, Functional Dependency, Database Decomposition and Normalization, Relational Algebra and Structured Query Language.

**ELECTIVE COMPONENT**


4. Computer Networks, OSI and TCP/IP Model, TCP and UDP, IP, Datagram, Addressing, Subnetting and Masking; ARP, RARP, ICMP, IGMP. Client-Server Model: BOOTP and DHCP. Domain Name System (DNS), Internet and Intranet, Internet Services: E-mail, World Wide Web (WWW) etc. Asynchronous Transmission Mode (ATM): Architecture, Switching, Layers, and Applications.


