SYLLABUS FOR Ph D ENTRANCE TEST – 2016

Computer Science and Engineering

Discrete Mathematical Structures: Set theory, properties of integers, relations and functions, groups.

Graph Theory: Trees, optimization and matching, counting, inclusion and exclusion, generating functions, reference functions.

Computer Organization and Architecture: Memory system, arithmetic unit, processing unit.

Logic Design and Microprocessors: Digital and combinational logic circuits, flip-flops, registers and counters, cup-sequential circuits, Microprocessor architecture, programming, and memory organization.

Data Structures and Algorithms: Arrays, stacks, queues and linked lists, trees.

Object Oriented Programming: OOPs concepts, classes, objects, inheritance, polymorphism, exception handling.

System Software and Operating Systems: Machine architectures, assemblers, loaders and linkers, editors and debuggers. Operating system concepts, types, process management, process synchronization, memory management.

Data Base Management Systems: ER model, relational algebra, SQL, database design.

Computer Networks: OSI reference model, multiple accesses and either net, routing, TCP/IP model.

Software Engineering: Software processes and critical systems, requirements, system models, software design, development, verification and validation, management.