SYLLABUS FOR TAMILNADU COMMON ENTRANCE TEST (TANCET)

PART – III

2. COMPUTER SCIENCE AND ENGINEERING AND INFORMATION TECHNOLOGY

Applied Probability And Operations Research: Random Processes, Probability Distributions, Queuing Models and Simulation, Testing of Hypothesis, Design of Experiments.

Discrete Mathematical Structures: Formal Language and Automata - Graph Theory.

Compiler Design: Optimization – Code Generation – Implementation – Principles of Programming Languages – Programming Paradigms.

Operating Systems And System Software: Process Management, Storage Management, I/O Systems, Design and Implementation of LINUX OS, assemblers, Loaders, Linkers, Macro Processors.

Distributed Systems: Communication and Distributed Environment, Distributed Operating Systems, Distributed Shared Memory, Protocols, Fault Tolerance and Distributed File Systems, Distributed Object Based Systems.

Programming And Data Structures: Problem Solving Techniques, Trees, Hashing and Priority Queues, Sorting, Graph, Heap Search.

Algorithm Analysis And Design Techniques: Dynamic Programming, Greedy Algorithms, Advanced Algorithms, NP Completeness and Approximation Algorithms.

Microprocessors And Microcontrollers - **Computer Architecture And Organization :** Digital Fundamentals, Combinational Circuits, Synchronous and Asynchronous Sequential Circuits, Instruction Set Architecture(RISC,CISC,ALU Design)**,** Instruction Level Parallelism, Processing Unit and Pipelining, Memory Organization.

Digital Signal Processing: FFT, Filter Design.

Computer Networks: Data Communication Systems, Applications.

Database Management Systems: Relational Model, Database Design, Implementation Techniques, Distributed Databases, Object Oriented Databases, Object Relational Databases, Data Mining and Data Warehousing.

Software Engineering Methodologies : Software Product and Processes - Software Requirements Management - Requirement Engineering, Elicitation, Analysis, Requirements Development and Validation, Requirements Testing - Object Oriented Analysis And Design – Modular Design, Architectural Design, User Interface Design, Real Time Software Design, System Design, Data acquisition System - Software Testing And Quality Assurance - SQA Fundamentals, Quality Standards, Quality Metrics, Software Testing Principles, Defects, Test Case Design Strategies, Software Quality and reusability, Software Project Management, Software Cost Estimation, Function Point Models, Software Configuration Management, Software Maintenance.

Artificial Intelligence: Intelligent Agents, Search Strategies, Knowledge Representation, Learning, Applications.

Mobile Computing: Wireless Communication Fundamentals, Telecommunication Systems, Wireless Networks.

Security In Computing : Program Security, Security in Operating Systems, Database and Network Security, Scientific Computing, Information Coding Techniques, Cryptography, Network Security.