Diagnostic CPC Syllabus

Production Engineering

2019-2023

Date: 28th November 2021

APTITUDE

- Logical Reasoning: Series completion, Coding and decoding, Patterns, Seating arrangement or order and ranking, Statement and assumptions/data sufficiency, Blood relations, Networks and routes.
- Verbal Ability: Reading Comprehension, Para-jumbles, Para-summary, Synonym / antonym, Fill in the blanks.
- Quantitative: Number systems, Progressions, Averages, Mixtures and Allegations, Percentages, Profit, loss and discount, SI & CI, Ratios, Time and work, Time, speed and distance, Geometry (Triangles, Circles, Quadrilaterals, Coordinate Geometry), Mensuration, Functions and inequalities, Quadratic equations, Logarithms, Permutations and combinations, Probability and set theory

ANALYTICS

- Python Basics (including Python libraries)
- SQL (theory and queries…W3Schools for reference)
- Machine learning basic terminology and models.
- Data Interpretation

SOFTWARE

- DSA: Arrays, Strings, Hashing, Stacks, Queues, Linked List, Binary Tree, Binary Search Tree, AVL Tree, Graphs, Heaps, Time and Space complexity analysis on Algorithms, Searching Algorithms, Sorting Algorithm, Greedy Algorithms, Bit Manipulation Algorithms, Divide and Conquer, Dynamic Programming, Backtracking
- C/C++: C - Basics, Variable Declaration, Definition and Scope, Data Types, Storage Classes, Type Qualifiers, Access Modifiers, Operators, Control Statements, Pre-processor, Macros, Functions, References, Pointers, Structures and Unions, Memory Management, C vs C++, C++ Basic syntax, OOPS Concepts, Classes and Objects, Constructors, Destructors, Function Overloading and Overriding, Operator Overloading, Inheritance, Virtual Functions and Polymorphism, Friend Functions, STL Function
- OS: Basic OS concepts, Processes vs Threads, Heap vs Stack, Multitasking, Multiprocessing, Parallel Processing, Concurrent Programming, Priority Inversion, Process Synchronisation, Critical Section, Mutex Locks, Semaphores, Deadlock, Resource Allocation Graph, Virtual Memory, Segmentation, Cache (L1, L2, L3)
- Database: SQL, ACID and BASE Properties, Relational Model, Document Model, Keys, Relational Algebra, Joins, Database connection
- Network: Types, Topologies, OSI/ISO Model, TCP/IP Model, Packet Switching and Circuit Switching, TCP, and UDP, TCP 3- way Handshake Process, Domain Name Server, HTTP and WWW, Ports, URL and URI
- Development: Frontend and Backend, REST, SOAP, Cloud Computing, Serverless Computing, GraphQL, System Design, LAMP stack, MERN Stack

CORE

- Casting, Welding, Forming, Machining
- Tooling
- Metallurgy & Material Sciences
- Industrial Engineering – Quality, Reliability and Safety Engineering, Supply Chain Management, Lean Manufacturing (basics), Operation Research, Work Design and Facility Planning, Product life cycle and forecasting
- Computer Integrated Manufacturing
- Strength of Materials
- Fluid Mechanics
- Thermal Engineering
- Theory of Machines
- Design of Machine Elements, GD & T
- Engineering Mechanics
- Vibrations
- Basic of Automobile Engineering – IC Engine concepts
- Power Engineering

ALL THE BEST!