

Detailed Syllabus for Junior Instructor (Computer Operator and Programming Assistant) in Industrial Training -Examination

(Cat.No: 043/2022, 148/2022)

*Module1: **Computer fundamentals** (10 Marks)*

History of Computer, Classifications of computer, Concepts of Hardware and Software, Types of software, Types of computer languages, Compiler, Interpreter, System unit and its components, Various input and output devices and their features, types of processors, Various types of computer Memories and their features. Booting process, Basic Hardware and software issues and their solutions.

Operating System- Functions and types, Features of Windows OS, DOS Internal and External Commands, Linux Operating System features, Structure, files and processes, Linux commands.

*Module2: **Computer Networking** (10 Marks)*

Basics of computer network communication, Application areas, Technologies, Reference models, Network devices, Internet connectivity, Wired and Wireless networks, Cables and Connectors, different Topologies, Network Protocols, reliable data transferring methods, Network security ,concept of Proxy server

*Module 3: **Programming language-Python** (10 Marks)*

Python History, Features, Basic Syntax, Comments, Variable, Data Types, Casting, Strings, Booleans, Operators ,Conditional Statements, Looping and Control Statements, String Manipulation, Lists, Tuples, sets, Dictionaries, Arrays, functions, classes, objects, inheritance, Iterators, modules, dates , math, Modules, File handling

*Module 4: **Database Concepts(MySQL)** (10 Marks)*

Concept of DBMS, RDBMS, Data Models, Concept of DBA, Database Users, ER Model & Diagram and Database Schema. Designing Database using Normalization Rules. Various data types, Data integrity, DDL, DML and DCL statements. Primary key and foreign key. My SQL Queries, Concepts of Transactions, ACID Property of Transaction Constraints, Joins and Functions. Stored Procedures. Triggers and Cursor.

Module 5: JAVA Language

(10 Marks)

OOP concept, JAVA programming language features, JVM byte code, JAVA - language elements, keywords, comments, data types, variables, Operators and expressions. Program Flow Control, Methods and Classes, Overloading and Inheritance, Multithreading and Exception Handling, Abstract Classes and Interfaces–Method Overriding, Polymorphism

Module 6: Web Design Concepts

(10 Marks)

Web programming languages, web sites and web pages, Static and Dynamic Webpages. HTML-Elements, Attributes, various Tags, Forms, Graphics and Media Concepts of CSS and applying CSS to HTML. CMS and Web authoring tools, Web Publishing, web Hosting.

Module 7: JavaScript

(10 Marks)

Scripting languages , Web Servers and their features, Java Script - Application, Syntax, Variables, Constants, Operators and Expression Operator precedence, Program Control Statements and loops, Arrays, User defined and Built in functions, Pop Up boxes ,cookies, Objects and Classes ,Concept of DOM, Error Handling , Animation and multimedia files in Java Script

Module 8: Application software

(10 Marks)

MS word, MS Excel, MS PowerPoint

Advanced Excel Concepts- Look up introduction and functions, Types of references and cell naming Excel Linkage, Custom Format and Excel Protection, Pivot table and chart, Advanced Graphs, Power Queries.

Module 9: Internet Concepts and Cyber Security

(10 Marks)

Internet Concepts- Concept of Internet, Web Browsers, internet servers and search engines. DNS and E mail communication. Video chatting tools and Social Networking concepts.

Cyber Security: Overview of Information Security. SSL, HTTPS, Security threats, vulnerability and Risk management. Directory Services, Access Control, Security, Privacy protection, Audit and Security. IT Act and penalties for cybercrimes.

Module 10: Cloud Computing and e-Commerce

(10 marks)

Cloud Computing- Basic Concepts of Cloud Computing, Benefits of cloud services, Cloud Infrastructure, Cloud Storage Management and Cloud Security.

e-Commerce- Advantages. Building business on the net, Payment and Order Processing, Authorization, Security issues

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.