

Syllabus for the Exam of JOA(IT) to be conducted by HPRCA

A. SUBJECTS AS PER ESSENTIAL QUALIFICATION

a) COMPUTER

I. FUNDAMENTALS OF COMPUTER:

- Definition & Characteristics of Computer
- History & Generation of Computers
- Types of Computers (Analog, Digital, Hybrid)
- Classification by Size (Micro, Mini, Mainframe, Super)
- Basic Computer Organization
- Block Diagram of Computer :Input → Process → Output concept
- Applications of Computer in Daily Life

II. COMPUTER HARDWARE:

- Input Devices — Keyboard, Mouse, Scanner, Microphone, Webcam, Light Pen.
- Output Devices — Monitor, Printer, Speaker, Projector.
- Types of Printers (Inkjet, Laser, Dot Matrix)
- System Unit — CPU, Motherboard
- CPU Components — ALU, CU, Registers
- Primary Memory — RAM & ROM (Types)
- Secondary Storage — HDD, SSD, Pen Drive, CD/DVD
- Memory Units — Bit, Byte, KB, MB, GB, TB

III. COMPUTER SOFTWARE:

- Definition & Need of Software
- Types of Software — System Software (OS, Device Drivers, Utilities)
- Application Software (Word Processor, Spreadsheet, etc.)
- Programming Language Software
- High Level Language, Assembly Level Language, Machine Level Language
- Difference between Hardware and Software Freeware, Shareware, Open Source Software
- Software Installation & Licensing Basics

IV. OPERATING SYSTEM:

- Definition & Functions of Operating System
- Types of OS — Single User, Multi User, Multitasking, Time Sharing
- Popular Operating Systems — Windows, Linux, MacOS, Android
- Windows Basics: Desktop, Taskbar, Start Menu, Icons
- File & Folder Management, Control Panel Settings
- Recycle Bin, Shortcut Keys
- Booting Process (Cold Boot & Warm Boot)
- Basic DOS Commands (Internal & External)

V. MICROSOFT OFFICE

a. MS Word:

- ✓ Features & application of Word Processing , Creating, Saving & Opening Documents
- ✓ Formatting Text , Short Cut Keys, Hot Keys, Find and Replace
- ✓ Paragraph Formatting (Alignment, Spacing, Indent)
- ✓ Page Setup (Margins, Orientation, Page Size)
- ✓ Header & Footer, File Protection, Creating Lists, Numbering

- ✓ Tables — Insert, Merge, Split
- ✓ Spelling & Grammar Check, Thesaurus, Mail Merge Basics, Macro
- ✓ Print Preview & Printing

b. MS Excel

- ✓ Features and benefits of Spreadsheet , Workbook & Worksheet Concepts
- ✓ Entering & Editing Data, Cell/Row/Column Operations
- ✓ Functions: Mathematical, Statistical, Logical & String Function
- ✓ Cell Formatting & Borders
- ✓ Charts & Graphs, Pivot Table, Goal Seek, Scenario
- ✓ Sorting & Filtering Data, Print Area & Page Setup

c. MS PowerPoint

- ✓ Creating & Saving Presentation, Adding Graphics, Multimedia
- ✓ Slide Layout & Design Themes
- ✓ Inserting Text, Images, Tables
- ✓ Slide Transitions & Animations Effects
- ✓ Slide Master, Hyperlinks and Action Button
- ✓ Slide Show View, Printing Slides & Handouts

VI. INTERNET & NETWORKING:

- Definition & Uses of Internet, History of Internet
- WWW, Website, Web Page, Web Browser
- Popular Browsers (Chrome, Firefox, Edge)
- URL, HTTP, HTTPS, IP Address, Domain Name
- Search Engines ,Emails,Social Media Basics
- Types of Networks — LAN, MAN, WAN
- Network Devices — Router, Modem, Switch, Hub
- Wired vs Wireless Networks, ISP (Internet Service Provider)

VII. CYBER SECURITY & DIGITAL LITERACY:

- Computer Virus, Worm, Trojan Horse
- Antivirus Software & Firewall
- Types of Cyber Crimes
- Safe Internet Browsing Practices
- Password Security & Data Protection
- Phishing & Spam Awareness
- Digital Payments Basics (UPI, Net Banking, e-Wallet)
- e-Governance & Government Online Services
- Cloud Computing (Basic Concept)
- Digital Footprints, Intellectual Property Rights

VIII. NUMBER SYSTEM:

- Different Number System
- The Decimal Number system
- The Binary Number System
- The Octal Number System
- The Hexadecimal Number System
- All Conversion between Number System
- ASCII Code
- Basic Logic Gates

IX. DBMS: Introduction to Database:

- DBMS purpose and advantages of DBMS, disadvantages
- Comparison between traditional file systems and DBMS.
- Data independence (logical and physical)
- Three-level architecture of DBMS.

- Entity, Tuple, Attribute, Domain, Degree, Cardinality, and different types of keys.
- Overview of MySQL, features of MySQL, uses of MySQL, Creating database, selecting database, deleting database, showing databases, data types, constraints.
- SELECT statement, WHERE clause, relational operators, logical operators, sorting data (ORDER BY), removing duplicate records (DISTINCT).

X. WEB Technologies:

a. HTML Introduction:

- ✓ Structure of HTML Program, Heading Styles, Text Styles,
- ✓ Lists : ordered and Unordered Lists
- ✓ Adding Images, Creating Tables
- ✓ Hyperlinks (internal & external)
- ✓ Form tags and its elements

b. Introduction to PHP:

- ✓ Important tools and software requirements (like Web Server, Database, Editors etc.)
- ✓ Scope of PHP, basic syntax, PHP variables and constants, data types , Expressions, PHP operator precedence and associativity.
- ✓ Control statements (conditional statements, switch case, loops, break & continue)
- ✓ Handling HTML form using various form control with PHP,
- ✓ PHP Functions: Function, Need of Function, declaration and calling of a function, call by value & call by reference.
- ✓ Arrays, Strings, Regular Expression.

b) MATHEMATICS:

Number System, Profit & Loss, Simplification, Simple & Compound Interest, Percentage, Time & Work, Ratio & Proportion, Time-Speed & Distance, Average, Data Interpretation, Algebra, Mensuration.

2. General Awareness

- i. **General knowledge**: General Knowledge including General knowledge of Himachal Pradesh.
- ii. **Current Affairs** .
- iii. **Everyday Science** .
- iv. **Logical Reasoning** .
- v. **ENGLISH** : Reading Comprehension Word Power, The Sentence, Subject And Predicates , Articles, Number, Gender, Punctuation, Comprehension, Noun, Pronoun, Verb, Finite and Non-finite Verb, Adverb, Adjective, Preposition, Conjunction, Interjection , Error Correction, Sentence Rearrangement, Vocabulary, Antonyms, Synonyms, Tenses, Subject-Verb Agreement, Idioms, Modals, Active Voice & Passive Voice, Change the narration: Direct and Indirect, Phrases and a Clauses , One word substitution, Transformation of Sentences.
- vi. **हिन्दी** भाषा—व्याकरण एवं लिपि का परिचय; वर्ण विचार एवं आक्षरिक खण्ड; शब्द विचार (क) परिभाषा के आधार पर (तत्सम्, तद्भव, देशज, विदेशी), रचना के आधार पर, प्रयोग के आधार पर, अर्थ के आधार पर।

(ख) विकारी- संज्ञा, सर्वनाम, क्रिया, विशेषण, अविकारी- क्रिया- विशेषण, सम्बन्ध बोधक, समुच्चय बोधक, विस्मयादि बोधक ; पद परिचय ; शब्द शक्तियां ; शब्द रूपान्तर- लिंग, वचन, कारक, काल, वाच्य ; संधि; समास; उपसर्ग; प्रत्यय ; वाक्य विचार, अर्थ विचार (पर्याय, विलोम, वाक्यांश के लिए एक शब्द, समानार्थी); विराम चिन्ह; शुद्धिकरण (शब्द शुद्धि, वाक्य शुद्धि) ; मुहावरे एवं लोकोक्तियां; अलंकार।

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