

Syllabus for Written Examination for Recruitment of Vocational Instructor.

Trade:- Computer Operator and Programming Assistant (COPA) / Information Communication Technology System Maintenance (ICTESM)

Syllabus:-

Basic Electrical Engineering- Definitions, Current, Voltage, Resistance, Power, Electromagnetic, Faraday’s laws, Effect of Current, Units and Symbols, Conductor, Resistor, Insulator, Semiconductor, Properties of electrical materials, Ohms Law and application, Kirchoff’s Laws and applications, Law of Resistance, Series, Parallel and series-parallel combinations of resistance, AC Current, DC current. Cell- Primary and secondary cell. Series and parallel combination of cell. Transformer.

Basic Electronic- Semiconductor energy level, atomic structure ‘P’ type and ‘N’ type. Type of materials –P-N-junction. Classification of Diodes – Reverse and Forward Bias, Specification of Diode PIV rating. Explanation and importance of D.C. rectifier circuit. Half wave, Full wave and Bridge circuit. Filter circuits-passive filter. Explanation of principle of working of a transistor & configuration. Types of transistors & its application. Specification and rating of transistors. Explanation of transistor. Capacitor, Inductor, LED,

Fundamentals and Basics Computer Fundamentals-

- History of Computer, Generations of Computer, Types of computer, Advantages and Applications of Computers. Central Processing Unit, Microprocessor
- Computer Hardware and Software.
- Input and Output devices and their features,
- **Storage Media (Memory Device)**- Types & principle of storing. Data organization 4 bit, 8 bit, word, **Semiconductor memories-** RAM, ROM, PROM, EMPROM, EEPROM, Static and dynamic
- **Types of software-** System & Application Software. Concepts, Bits, Bytes, RAM, ROM, ASCII etc
- **Operating System-** functions of an Operating System, Popular Operating Systems in Use. DOS, Windows, Linux, Features of Windows Operating System.
- **Word Processing,** Worksheet (MS Excel), MS Power Point, Data Base (MS Access)

Networking- Computer Networks, Necessity and Advantages, **Network topologies-** LAN, WAN and MAN. **Network components-** Modem, Hub, Switch, Router, Bridge, Gateway etc. Network Cables, Wireless networks and Blue Tooth technology. Client Server and peer to Peer networking concepts. Concept of Proxy Server and proxy firewall server. **Network**

protocols- TCP/IP, FTP, Telnet etc. Logical and Physical Addresses, Classes of Networks. Network Security & firewall concepts. Concept of DHCP Server.

Internet- Concept of Internet, uses of World Wide Web and Internet Browser, internet servers and search engines, Concepts of Domain naming Systems and E-mail communication, Internet Security, Threats and attacks, Malicious Software types, Internet security products and their advantages.

Web Design- Static and Dynamic Web pages, HTML and various tags in HTML, Concepts of Cascading Style Sheets (CSS) and applying CSS to HTML. Open source Content Management System (CMS)- Joomla, Wordpress etc. and Web authoring tools viz. Kompozer, FrontPage etc.

Digital Electronics- Number System, Boolean Algebra, Logic Gate, Data Converter,

Communication technology- Frequency, Amplitude, wavelength, electromagnetic wave, velocity of electromagnetic wave. Sound wave, velocity of sound wave, Modulation - types of modulation.

- **Analog Communication-** Amplitude Modulation (AM), Frequency Modulation (FM), Need of Modulation, Carrier wave, band width, side band, Modulation factor and percentage of modulation. De-modulation

Computer Programming-

- **Java Script-** JavaScript and its application for the web, **JavaScript Basics** – Data types, Variables, Constants. Conversion between data types, The Arithmetic, Comparison, Logical and String Operators in JavaScript. Operator precedence, Arrays in JavaScript – concepts, types and usage. ☑ Program Control Statements and loops in JavaScript. ☑ Introduction to Functions in JavaScript. ☑ Built in JavaScript functions overview. ☑ The String data type in JavaScript. Introduction to String, Math and Date Functions. ☑ Concepts of Pop Up boxes in JavaScript. ☑ Introduction to the Document Object Mode.
- **Visual Basic for Application (VBA)-** VBA features and applications. VBA Data types, Variables and Constants.
- **E Commerce-** Definition of E commerce, Types, scope and benefits of E commerce. Difference between E commerce and traditional commerce. Capabilities requirements and Technology issues for E commerce. Types of E commerce web sites. Building business on the net. Concepts of on line Catalogues, Shopping carts, Checkout pages. Payment and Order Processing, Authorization, Chargeback and other payment methods. Security issues and payment gateways.