

**M - SCHEME DETAILED SYLLABUS**

**34061 COMPUTER HARDWARE SERVICING AND NETWORKING**

**UNIT I MOTHERBOARD COMPONENTS AND MEMORY STORAGE DEVICES**

**Introduction:** Hardware, Software and Firmware Mother board, IO and memory expansion slots, SMPS Drives, front panel and rear panel connectors.

**Processors:** Architecture and block diagram of multicore Processor, Features of new processor (Definition only)-chipsets (Concepts only) 16

**Bus Standards:** Overview and features of PCI, AGP, PCMCIA

**Primary Memory:** Introduction-Main Memory, Cache memory – DDR2, DDR3 and Direct RDRAM.

**Secondary Storage:** Hard Disk – Construction – Working Principle Specification of IDE, Ultra ATA, Serial ATA; HDD Partition - Formatting.

**Removable Storage:** CD-R,CD-RW,DVD –ROM and DVD –RW: construction and reading & writing operations; Blue-ray – Introduction –Disc Parameters

**UNIT II I/O DEVICES AND INTERFACE**

**Keyboard:** Signals – operation of membrane and mechanical keyboards–troubleshooting; wireless Keyboard

**Mouse:** types, connectors, operation of Optical mouse and Troubleshooting.

**Printers:** Introduction – Types of printers- Dot Matrix, Inkjet, Laser, MFP (Multi-Function Printer) and Thermal printer – Operation, Construction and Features-Troubleshooting 16

**I O Ports /:** Serial, Parallel, USB, Game Port and HDMI.

**Displays:** Principles of LED, LC Dand TFT Displays

**Graphic Cards:** VGA and SVGA card

**Modem:** Working principle

**Power Supply:** Servo Stabilizers, online and offline UPS – working principles SMPS Principles of Operation and block diagram of ATX Power supply, Connector Specifications.

### **UNIT III MAINTENANCE AND TROUBLE SHOOTING OF DESKTOP AND LAPTOPS**

**Bios-setup:** Standard CMOS setup, Advanced BIOS setup, Power management, advanced chipset features, PC Bios communication – upgrading BIOS, Flash BIOS – setup

**POST:** Definition – IPL hardware – POST Test sequence – beep codes

**Diagnostic Software and Viruses:** Computer Viruses – Precautions –Anti-virus Software – identifying the signature of viruses – Firewalls and latest diagnostic software's

**Laptop:** Types of laptop –block diagram – working principles– configuring laptops and power settings -SMD components, ESD and precautions

**Laptop components:** Adapter – types, Battery – types, Laptop Mother Board - block diagram, Laptop Keyboard and Touchpad

**Installation and Troubleshooting:** Formatting, Partitioning and Installation of OS – Trouble Shooting Laptop Hardware problems - Preventive maintenance techniques for laptops.

### **UNIT IV COMPUTER NETWORK DEVICES AND OSI LAYERS**

**Data Communication:** Components of a data communication

**Data flow:** simplex – half duplex – full duplex; Topologies: Star, Bus, Ring, Mesh, Hybrid – Advantages and Disadvantages of each topology

**Networks:** Definition -Types of Networks: LAN – MAN – WAN – CAN – HAN – Internet –Intranet –Extranet, Client-Server, Peer To Peer Networks

**Network devices:** Features and concepts of Switches – Routers(Wired and Wireless) – Gateways

**Network Models:** Protocol definition - standards - OSI Model – layered architecture – functions of all layers.

### **UNIT V 802.X AND TCP/IP PROTOCOLS**

**Overview of TCP / IP:** TCP/IP – Transport Layers Protocol –connection oriented and connectionless Services – Sockets - TCP & UDP.

**802. X Protocols:** Concepts and PDU format of CSMA/CD (802.3) – Token bus (802.4) – Token ring (802.5) – Ethernet – type of Ethernet (Fast Ethernet, gigabit Ethernet) – Comparison between 802.3, 802.4 and 802.5

**Network Layers Protocol:** IP –Interior Gateway Protocols (IGMP, ICMP, ARP, RARP Concept only).

**IP Addressing:** Dotted Decimal Notation –Subnetting & Supernetting

**Application Layer Protocols:** FTP– Telnet – SMTP– HTTP – DNS –pop

### **TEXT BOOKS**

1. IBM PC and CLONES, B.Govindrajalu, Tata McGrawhill Publishers, IBM PC and CLONES
2. Computer Installation and Servicing, D.Balasubramanian, Tata McGraw Hill
3. Computer Installation and Servicing
4. The complete PC upgrade and Maintenance, Mark Minasi, BPB Publication, The complete PC upgrade and Maintenance
5. Troubleshooting, Maintaining and Repairing PCs, Stephen J Bigelow ,Tata MCGraw Hill Publication ,Troubleshooting Maintaining and Repairing PCs
6. Upgrading and repairing laptops, Scott Mueller, QUE Publication, Upgrading and repairing laptops.