

**MAHARASHTRA STATE BOARD OF VOCATIONAL EDUCATION EXAMINATION, MUMBAI -51**

1	Name of Syllabus	C. C. In Networking (101110)																																								
2	Max.Nos of Student	25 Students																																								
3	Duration	6 Month																																								
4	Type	Part Time																																								
5	Nos Of Days / Week	6 Days																																								
6	Nos Of Hours /Days	4 Hrs																																								
7	Space Required	Practical Lab = 200 Sq feet Class Room = 200 Sq feet TOTAL = 400 Sq feet																																								
8	Entry Qualification	S.S.C. appeared																																								
9	Objective Of Syllabus/ introduction	To prepare a student to <ul style="list-style-type: none"><li>• Understand operation of a Network.</li><li>• Installation of a LAN using different operation systems.</li><li>• Administration of that network.</li><li>• Installation of software's on network.</li><li>• Maintenance of the network.</li><li>• Internet access on LAN.</li><li>• Tackle various h/w problems.</li></ul>																																								
10	Employment Opportunity	A) Self employment : <ul style="list-style-type: none"><li>i. LAN set up contracts</li><li>ii. Installation of LAN</li><li>iii. Cyber café</li><li>iv. Marketing /sales/trading/of network related devices.</li></ul> B) Wage employment : <ul style="list-style-type: none"><li>v. As a Network Administrator in any govt./semi-govt./public/private sectors.</li><li>vi. Sales/market representatives.</li><li>vii. Installation jobs.</li><li>viii. Maintenance &amp; Administration of LAN.</li><li>ix. Card level servicing.</li></ul>																																								
11	Teacher's Qualification	Degree or Diploma holder in concern subject.																																								
12	Training System	<div>Training System Per Week</div> <table><tr><td>Theory</td><td>Practical</td><td>Total</td></tr><tr><td>06 hrs</td><td>18 hrs</td><td>24 hrs</td></tr></table>						Theory	Practical	Total	06 hrs	18 hrs	24 hrs																													
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13	Exam. System	<table><tr><td>Sr. No.</td><td>Paper Code</td><td>Name of Subject</td><td>TH/PR</td><td>Hours</td><td>Max. Marks</td><td>Min. Marks</td></tr><tr><td>1</td><td>10111011</td><td>Networking</td><td>TH- I</td><td>3 hrs.</td><td>100</td><td>35</td></tr><tr><td>2</td><td>10111021</td><td>Networking (Basic &amp; Advance)</td><td>PR-I</td><td>6 hrs.</td><td>200</td><td>100</td></tr><tr><td>3</td><td>10111022</td><td>Red Hat Linux</td><td>PR-II</td><td>3 hrs.</td><td>100</td><td>50</td></tr><tr><td></td><td></td><td>Total</td><td></td><td></td><td>400</td><td>185</td></tr></table>						Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Min. Marks	1	10111011	Networking	TH- I	3 hrs.	100	35	2	10111021	Networking (Basic & Advance)	PR-I	6 hrs.	200	100	3	10111022	Red Hat Linux	PR-II	3 hrs.	100	50			Total			400	185
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**Theory :- I**

i) Networking Basics-

Networking concepts, need, advantages of Networking of Network components (cables, connectors, hubs, switches, routers) specification. Fundamental study of network OSI models. Frames types & specifications, Types of Networks-LAN,MAN,WAN, types of network client ,server & peer to peer fundamental study of Network topology for LAN : Star, Bus & Token Ring. Different types of Network interfacing cards & installations, Network operating system. Difference betn Desk Top O.S. & Nos. hardware requirement of each nos.

ii) PEER TO PEER NETWORK

Difference betn nos. & Desk Top O.S., windows 98, window me, installation of Desk Top operating system. Configuring O.S. as novel server client & NT- server client, sharing resources & applying security, connecting to Internet through Internet & modem installing client 32 for Novell NetWare. Installing server management tools. Connecting to the Microsoft Network using netbeui & TCP/IP Protocol. Testing TCP/IP connectivity.

iii) CLIENT SERVER NETWORK –

(a) NOVELL NETWARE 4.X, 5.X

Preparing for installation, requirement of O.S., installing complete O.S. connect using remote boot procedure, installing NOVELL client s/w on window 9x , group & account management, login scripts, applying securities. Requirement of mapping, mapping network drives installing different s/w over network, NetWare file system & disk mirroring, y2k patches, print servers.

(b) WINDOW NT-SERVER AND WORKSTATIONS

Role of window NT server in the network, concepts of domain, concepts of user license installing in different roles, (PEDC, BDC, member server) creating boot diskettes, installing service packs, H/S configuration through NT, groups & user management, shared resources, user level & share level access kisk administration – mirror set, stripe sets & volumes, RAS & internet connectivity, gateway services, DHCP server, migrating with Novell network, implementing file synchronization & directory replication.

(c) WINDOWS 2000 PROFESSIONAL & SERVER

H/W requirements for windows 2000, configuring network components, creating secure user environment & groups, connecting to Netware servers, installing DHCP server adding active directory service, shared directories, user level & share level right using FAT FAT32, & NTFS file system, NTFS security & permission, installation & configuration of terminal services, RAS & dial up Networking, using internet sharing tool.

x. **INTERNET SHARING**

Installing Microsoft proxy server activating different Internet services. Installing proxy client S/W on 9x & NT, installing different proxy S/W (Wingate, spoon proxy, win proxy) for windows, configuring client to access internet through LAN installing internet server (Hardware)

Settings switch on autodial facility in Internet server. Different methods to accelerate Internet connection & download speed activating a new Internet account Internet browsing.

- xi. PRINTING TECHNIQUES  
Installing print server over network, defining queues setting up priorities, sharing printer over network, setting up network printers on 9x.
- xii. INSTALLATION OF BACK OFFICE SMALL BUSINESS SERVER 4.5  
Comparing back office small business server with NT server.
- xiii. SETTING UP ADVANCE NETWORKING BETWEEN WIN 2000 SERVER & PROFESSIONAL
- xiv. COMPLETE INSTALLATION OF RED HAT LINUX 6.0
- xv. COMMON FAULTS –HARDWARE AND O.S. BASED

### **Practical – I - Networking (Basic & Advance)**

Topic Name
<ol style="list-style-type: none"> <li>1) Study &amp; analysis of the existing network cabling &amp; design.</li> <li>2) Crimping cat 5 cables with RJ45 connectors.</li> <li>3) Study of different types of Network adapter cards.</li> <li>4) Study of configuring the Network adapter.</li> <li>5) Study of diff. Network component.</li> <li>6) Installation &amp; configuration of window98 as peer.</li> <li>7) Study of configuration of win98 as Novell client using windows.</li> <li>8) Components &amp; Novell client software. (Client32)</li> <li>9) Study of configuration of win98 as Windows NT server clients.</li> <li>10) Configuring shared directories in secured environment.</li> <li>11) Installation of modem &amp; connecting to Internet using modem/Network.</li> <li>12) Study of installation of server management tools for window NT.</li> <li>13) Assignment-creating a complete peer-to-peer Network using.</li> <li>14) Including connectivity, file &amp; print sharing.</li> <li>15) Novell Netware.</li> <li>16) Installation of Novell Netware 4.11.</li> <li>17) Installation of Novell Netware 5.0.</li> <li>18) Install DNS &amp;DHCP service.</li> <li>19) Study of generating workstation.</li> <li>20) Creating groups &amp; user accounts &amp; assigning rights.</li> <li>21) Managing users &amp; groups, home directory profiles.</li> <li>22) Creating system &amp; user login script.</li> <li>23) Installation of application S/W &amp; mapping.</li> <li>24) Installation of printer servers&amp; creating prints queues.</li> <li>25) NT server and workstations.</li> <li>26) Installation of window NT server in PDC mode.</li> <li>27) Installation of window NT server in BDC mode.</li> <li>28) Creating DHCP server with wins &amp; DNS.</li> <li>29) Study of creation of Boot diskettes &amp; emergency boot diskettes.</li> <li>30) Creating local &amp; global groups &amp; account with assigning rights.</li> <li>31) Sharing direcatories of fat &amp; NTFS &amp; assigning security.</li> <li>32) Study of creating values.</li> <li>33) Study of implementing stripe sets.</li> <li>34) Implementing strip set with parity.</li> <li>35) Installing RAS &amp; Internet connectivity.</li> <li>36) Installing gateway services for Novell Netware on NT.</li> </ol>

## Practical – II - RED HAT LINUX

Topic Name
<ol style="list-style-type: none"> <li>1. Connecting NT workstation to NT server domain.</li> <li>2. Connecting to workgroup &amp; domain.</li> <li>3. Implementing trust relationships.</li> <li>4. Windows 2000 pro &amp; server.</li> <li>5. Installation of Windows2000 professional.</li> <li>6. Implementing RAS &amp; Internet access.</li> <li>7. Installation of Windows2000 server.</li> <li>8. Configuring active directory service.</li> <li>9. Configuring active directory secured user &amp; groups.</li> <li>10. Configuring printing service on win 2000 server.</li> <li>11. Installing &amp; configuring terminal services.</li> <li>12. Implementing security &amp; rights.</li> <li>13. Implementing web sharing.</li> <li>14. Installation of back office small business server.</li> <li>15. Installation of proxy server on Window2000.</li> <li>16. Configuring different Internet utilities.</li> <li>17. Installation of red hat LINUX 6.0 &amp; connectivity.</li> </ol>

### LIST OF TOOLS / EQUIPMENTS / SOFTWARES

Sr. no.	Description of tools/equipments/software
1.	<p>A Local Area Network (LAN) having following configuration. Pentium based processor having minimum configuration.</p> <ol style="list-style-type: none"> <li>b) Min. 400 MHZ.</li> <li>c) 160 GB HDD</li> <li>d) 1 GB RAM.</li> <li>e) 1.44 MB Floppy drives.</li> <li>f) CD-ROM drive</li> <li>g) SVGA colour monitor with VGA (8MB).</li> </ol> <p>LAN cards (Ethernet &amp; PCI)            UTP hub            Network cables (UTP &amp; coaxial) &amp; Information outlets</p>
2.	External Modem
3.	Crimping tool
4.	Internet server/IP sharer (Hardware)
5.	UPS system
6.	LCD projector
7.	Digital multimeters
8.	Analog multimeters
9.	Electronics Technicians tools kit
10.	Dot Matrix Printer
11.	Desk/Inkjet printer or plotter
12.	DOS 6.22, Novell 4.11 & 5.0, Windows98 NT (server, workstation), Windows2000 (professional, server), LINUX 6.2, Back Office Small Business server, ms proxy server, proxy S/WS.

### REFERENCE BOOKS:

i.	i. Network essential study guides, MCSE old track-BPB Publications.
ii.	ii. MCSE study guide for Wwindows NT server, workstation, windows2000PRO, server-BPB Publications.
iii.	iii. Novell Netware 4.11- BPB Publications.
iv.	Complete reference of Windows98

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