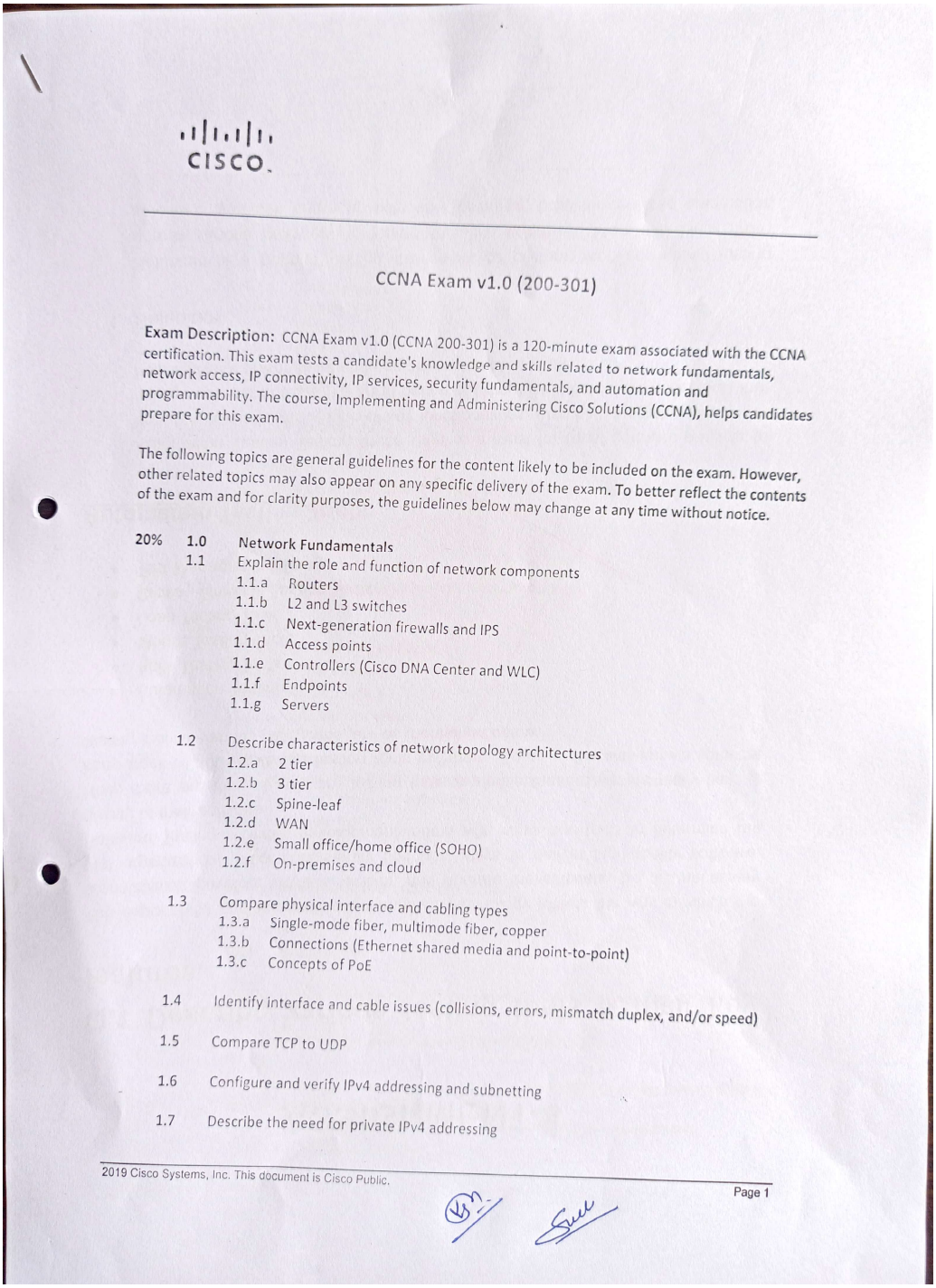
Medi-Caps University, Indore

Department of Computer Science and Engineering

Value Added course on CCNAv7: Introduction to Network

Course Content



CCNA Exam v1.0 (200-301)

Exam Description: CCNA Exam v1.0 (CCNA 200-301) is a 120-minute exam associated with the CCNA certification. This exam tests a candidate's knowledge and skills related to network fundamentals, network access, IP connectivity, IP services, security fundamentals, and automation and programmability. The course, Implementing and Administering Cisco Solutions (CCNA), helps candidates prepare for this exam.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. To better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

20% 1.0 Network Fundamentals

1.1 Explain the role and function of network components
- 1.1.a Routers
- 1.1.b L2 and L3 switches
- 1.1.c Next-generation firewalls and IPS
- 1.1.d Access points
- 1.1.e Controllers (Cisco DNA Center and WLC)
- 1.1.f Endpoints
- 1.1.g Servers

1.2 Describe characteristics of network topology architectures
- 1.2.a 2 tier
- 1.2.b 3 tier
- 1.2.c Spine-leaf
- 1.2.d WAN
- 1.2.e Small office/home office (SOHO)
- 1.2.f On-premises and cloud

1.3 Compare physical interface and cabling types
- 1.3.a Single-mode fiber, multimode fiber, copper
- 1.3.b Connections (Ethernet shared media and point-to-point)
- 1.3.c Concepts of PoE

1.4 Identify interface and cable issues (collisions, errors, mismatch duplex, and/or speed)

1.5 Compare TCP to UDP

1.6 Configure and verify IPv4 addressing and subnetting

1.7 Describe the need for private IPv4 addressing

1.8 Configure and verify IPv6 addressing and prefix

1.9 Compare IPv6 address types
- 1.9.a Global unicast
- 1.9.b Unique local
- 1.9.c Link local
- 1.9.d Anycast
- 1.9.e Multicast
- 1.9.f Modified EUI 64

1.10 Verify IP parameters for Client OS (Windows, Mac OS, Linux)

1.11 Describe wireless principles
- 1.11.a Nonoverlapping Wi-Fi channels
- 1.11.b SSID
- 1.11.c RF
- 1.11.d Encryption

1.12 Explain virtualization fundamentals (virtual machines)

1.13 Describe switching concepts
- 1.13.a MAC learning and aging
- 1.13.b Frame switching
- 1.13.c Frame flooding
- 1.13.d MAC address table

20% **2.0 Network Access**

2.1 Configure and verify VLANs (normal range) spanning multiple switches
- 2.1.a Access ports (data and voice)
- 2.1.b Default VLAN
- 2.1.c Connectivity

2.2 Configure and verify interswitch connectivity
- 2.2.a Trunk ports
- 2.2.b 802.1Q
- 2.2.c Native VLAN

2.3 Configure and verify Layer 2 discovery protocols (Cisco Discovery Protocol and LLDP)

2.4 Configure and verify (Layer 2/Layer 3) EtherChannel (LACP)

2.5 Describe the need for and basic operations of Rapid PVST+ Spanning Tree Protocol and identify basic operations
- 2.5.a Root port, root bridge (primary/secondary), and other port names
- 2.5.b Port states (forwarding/blocking)

2.5.c PortFast benefits

2.6 Compare Cisco Wireless Architectures and AP modes

2.7 Describe physical infrastructure connections of WLAN components (AP, WLC, access/trunk ports, and LAG)

2.8 Describe AP and WLC management access connections (Telnet, SSH, HTTP, HTTPS, console, and TACACS+/RADIUS)

2.9 Configure the components of a wireless LAN access for client connectivity using GUI only such as WLAN creation, security settings, QoS profiles, and advanced WLAN settings

25% 3.0 IP Connectivity

3.1 Interpret the components of routing table
- 3.1.a Routing protocol code
- 3.1.b Prefix
- 3.1.c Network mask
- 3.1.d Next hop
- 3.1.e Administrative distance
- 3.1.f Metric
- 3.1.g Gateway of last resort

3.2 Determine how a router makes a forwarding decision by default
- 3.2.a Longest match
- 3.2.b Administrative distance
- 3.2.c Routing protocol metric

3.3 Configure and verify IPv4 and IPv6 static routing
- 3.3.a Default route
- 3.3.b Network route
- 3.3.c Host route
- 3.3.d Floating static

3.4 Configure and verify single area OSPFv2
- 3.4.a Neighbor adjacencies
- 3.4.b Point-to-point
- 3.4.c Broadcast (DR/BDR selection)
- 3.4.d Router ID

3.5 Describe the purpose of first hop redundancy protocol

10% 4.0 IP Services

4.1 Configure and verify inside source NAT using static and pools

	4.2	Configure and verify NTP operating in a client and server mode
	4.3	Explain the role of DHCP and DNS within the network
	4.4	Explain the function of SNMP in network operations
	4.5	Describe the use of syslog features including facilities and levels
	4.6	Configure and verify DHCP client and relay
	4.7	Explain the forwarding per-hop behavior (PHB) for QoS such as classification, marking, queuing, congestion, policing, shaping
	4.8	Configure network devices for remote access using SSH
	4.9	Describe the capabilities and function of TFTP/FTP in the network
15%	**5.0**	**Security Fundamentals**
	5.1	Define key security concepts (threats, vulnerabilities, exploits, and mitigation techniques)
	5.2	Describe security program elements (user awareness, training, and physical access control)
	5.3	Configure device access control using local passwords
	5.4	Describe security password policies elements, such as management, complexity, and password alternatives (multifactor authentication, certificates, and biometrics)
	5.5	Describe remote access and site-to-site VPNs
	5.6	Configure and verify access control lists
	5.7	Configure Layer 2 security features (DHCP snooping, dynamic ARP inspection, and port security)
	5.8	Differentiate authentication, authorization, and accounting concepts
	5.9	Describe wireless security protocols (WPA, WPA2, and WPA3)
	5.10	Configure WLAN using WPA2 PSK using the GUI
10%	**6.0**	**Automation and Programmability**
	6.1	Explain how automation impacts network management
	6.2	Compare traditional networks with controller-based networking
	6.3	Describe controller-based and software defined architectures (overlay, underlay, and fabric)
		6.3.a Separation of control plane and data plane
		6.3.b North-bound and south-bound APIs
	6.4	Compare traditional campus device management with Cisco DNA Center enabled device management
	6.5	Describe characteristics of REST-based APIs (CRUD, HTTP verbs, and data encoding)
	6.6	Recognize the capabilities of configuration management mechanisms Puppet, Chef, and Ansible
	6.7	Interpret JSON encoded data

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OBJECTIVE

To obtain a challenging position with an Institution/organization that will allow me to use my management and technical skills to help in the growth of the company.

PROFESSIONAL EXPERIENCE

07th Nov 2017 to Present –Medicaps University Indore

01st Jan'2014 to 06th Nov 2017-Chameli Devi Group Of Institutions

Associate professor

- Academic development
- Complete LAN Management.
- Complete Audio and Video Management.
- Cultural Head
- National Conference Management
- Management of Network Security, Analysis of IT Problems and its solutions.
- Creation of all documentations related with IT and Networking.
- Project handling related with MOODLE and IIT-MUMBAI online courses.

Dec'2008 to 31st Dec 2013 – Software Technology Parks of India, Pune

Deputy Director

1. Maintaining the Network Operation Centre and POP's, Managing ISP Operations and IT Infrastructure, Resolving Customer Issues.

2. Handling IT Data center at NOIDA and PUNE for NCR and Maharashtra jurisdiction.
3. Heading the promotion body of IT/ITES Industry. EXIM solutions, import and export, policy management and promotion for STP/EHTP/SEZ/ISP bodies.
4. Heading activities of IT/ITES, SEZ, EHTP, ISP related to import/export, CST, new set up, exit form scheme.
5. Star Rating of Units.
6. All rules and regulations of Ministry of Corporate Affairs, Reserve Bank Of India rules and regulations, FEMA, DGFT, Customs and Central Excise and other departments.
7. Committee in forming rules related to EXIM related to STP/EHTP units.
8. Member in Board of Cyber Laws and Security in Maharashtra.

2008 Military College of Telecommunication Engg. Ministry Of Defence-MHOW(M.P.)

Senior Lecturer-Computer Science

- As a Instructor ranging from Lieutenants to Colonel

July'1999 – Dec'2000 Institute Of Engineering & Technology, Devi Ahilya University, Indore(M.P.)

- **As a lecturer in** U.G. and P.G. Courses. Central Valuation In charge, Member in Designing of Curriculum of Graduate and Post-Graduate Courses.

ADDITIONAL PROFESSIONAL ACTIVITIES

Result driven professional with a progressive career in managing IT Projects. Highly effective communicator and team leader with proven ability to build long term relationships with customers by establishing a high level of confidence and trust. Visionary leader with a keen understanding of Business Priorities and demonstrated expertise in rapidly advancing business goals to revenue producing activities. Other major involvements :

Team Building / Leadership; Staff Training & Development

Business Planning & Development Major Account Management

Operations Management, Risk Management, Project Management

Purchase Coordinator as per GFR guidelines.

Administration Officer

SUMMARY OF QUALIFICATIONS

2004 School of Computer Science, DAVV,
M.Tech(Computer Science) Indore(M.P.)

1998 S.G.S.I.T.S., DAVV, Indore(M.P.)
B.E.(Elex. & Instr.)

TRAINING DETAILS

1 FUZZY CONTROL FROM ANALYTICAL FOUNDATION TO ANALYTICAL FOUNDATIONS TO APPLICATION CHAOS IN FUZZY LOGIC FROM 02-AUG-2004 TO 14-AUG-2004 IN CHOTU RAM STATE ENGINEERING COLLEGE – MURTHAL(HARYANA)

2 STOCHASTIC MODELLING IN ELECTRONICS AND COMPUTER ENGINEERING FROM 01-JUN-2006 TO 25 JUNE 2006 AT DEVI AHILYA UNIVERSITY- INDORE

3 APPLICATION OF ARTIFICIAL ENGINEERING IN BIOMEDICAL INSTRUMENTATION FROM 15-FEB-2007 TO 28-FEB-2007 AT MADHAV INSTITUTE OF ENGINEEIRNG AND TECHNOLOGY-GWALIOR

4 “MANAGEMENT IN SEZS IN INDIA" FROM 14-JUN-2010 TO 18- JUN-2010 NEW DELHI

INTERESTS AND ACTIVITIES

Listening Old music, Cooking, Interior Decoration, stitching

Responsibilities:

- Monitoring of All over India Network through NMS.
- Providing Support for Wireline & Wimax customers.
- Customer co-ordination to resolve the issues & to achieve better uptime.
- Technical support like installation and configurations of Cisco Routers, Switches to customer.
- Familiar with protocols (RIP, EIGRP, OSPF, STP, VTP,etc).
- Configuration & troubleshooting of the Cisco routers (1800, 2800, 7600)
- Configuration & troubleshooting of LAN & VLAN on switch (2950, 3750, 6500).
- Password recoveries of routers.
- Notification and escalation of the Network service outages for resolution of faults.
- Coordination with field operations and other teams for the resolution of faults
- Execution and approval of planned event of respective region.
- Technical support to PCMC project.

OA&MIG : Migration and enhancement of the organizational web site. Configuration, Installation and Maintenance of DNS, Mail, FRMS, & MRTG Servers. Configure outlook express. Microsoft outlook express. Solve Internal Lan connectivity issue. Install printer, share printer etc.

Business Solutions Group: Approaching Datacom Customers (IT Companies, ISPs), Need Assessments, Design, and Provision of Connectivity Solutions (Shared & Premium Internet Services) via Leased Line, Fiber and Radio connectivity.

COMMUNITY ACTIVITIES

Red Cross Society.

SAATH