INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal, Hyderabad -500 043

COMPUTER SCIENCE AND ENGINEERING

TUTORIAL QUESTION BANK

Course Name	Cisco Certified Network Associate (CCNA)
Course Code	ACS804
Class	B. Tech IV Semester
Branch	Computer Science and Engineering
Year	2018 – 2019
Course Faculty	Mr. P Anjaiah, Assistant Professor

COURSE OBJECTIVES (COs):
The course should enable the students to:

I.	Understanding of basic networking protocols and transport layer protocols
II.	Understanding of variable length subnet masks and Cisco's internetworking operating system (IOS)
III.	Managing a Cisco Internetwork, IP routing and Open Shortest Path First (OSPF)
IV.	Understanding of Switching , Spanning Tree Protocol (STP), Virtual LANS (VLANS) and Security
V.	Understanding of Network Address Translation (NAT), Cisco's Wireless Technologies and Internet Protocol Version 6 (ipv6)

TUTORIAL QUESTION BANK

UNIT – I		
Internetworking, Ethernet networking and data encapsulation and introduction to TCP/IP		
PART – A (Short Answer Questions)		
S. No	Questions	Bloom Taxonomy Level
1	What are the two types of IP addresses available?	Understand
2	Which IP address is used for loopback address and for what purpose?	Understand
3	Mention the layers OSI model.	Remember
4	Illustrate are the major functions of transport layer.	Remember
5	Why the different authentication methods used in VPNs?	Understand
6	Explain are the major functions of routers.	Remember
7	Describe the main purpose of DHCP.	Understand
8	Explain the different types of cables available.	Remember
9	Which registry key is used in normal mode of router and what registry key is used to recover password?	Understand
10	Define CDP and its functions.	Understand
11	Describe two types of routes available in routers.	Remember
12	What is distance vector? Explain with example.	Understand

13	What is meant by switching?	Understand
14	What is meant by VLAN and what is its purpose?	Remember
15	What are the two ports of switches?	Remember
16	What is WAN and what is the main purpose?	Understand
17	Show the several of modes in VTP.	Remember
18	Define STP. Why is it used?	Understand
19	What is EUI IPv6?	Remember
20	What do you mean by global unicast address in IPv6?	Understand
	Part - B (Long Answer Questions)	
1	What is broadcasting and which addresses are used for broadcasting? And how many collision domains, broadcast domains are available in router, switch and hub?	Remember
2	Explain the multicasting and which addresses are used for multicasting explain in detail.	Understand
3	What is SNMP and what are its main functions? Describe the functionality of various protocols in the application layer.	Understand
4	Explain the OSPF and in what ways can we choose DR in OSPF?	Understand
5	What is the subnet mask of 192.168.100.1/28? And calculate the IP addresses given for subnets.	Remember
6	Which router command is used to enable IPv6? And describe the difference between ipv4 and ipv6.	Understand
7	How do you ensure that employees working from home are securely connected to office network.	Remember
8	How can we ensure connectivity between 10 office sites with the headquarters, in the most optimal way?.	Remember
9	Distinguish the OSI and TCP/IP reference models	Understand
10	What are the three layers of the Cisco hierarchical model?	Understand
11	What is the purpose of the core layer in the Cisco hierarchical network design Model?	Understand
12	Describe the core layer. What are the three layers in backbone network design?	Remember
13	Explain about TCP/IP and the DoD Model in detail.	Remember
14	What are TCP/IP Router (Routing) Tables?	Understand
15	compare and contrast the Dynamic vs. Static Routing	Remember
16	What to do when your home network router is not working?	Understand
17	Describe the router residential gate way and How does it work?	Remember
18	Why is the port o special on TCP and UDP protocols?	Understand
19	Explain about Ethernet Networking and Data Encapsulation.	Understand
20	What is the default IP address for broad band router? How does it work?	Understand
	Part - C (Critical Thinking Questions)	
1	Show the various layers in TCP/IP model. And What are the protocols that are included by each layer of TCP/IP model?	Remember

2	Explain is the IP address, how many classes of IP addresses are there Explain in detail about classful and classless.	Understand
3	How to find a NETGEAR router's default IP address? Explain in detail.	Remember
4	How do work if with 192.168.1.101 and 192.168.1.x IP address ranges?	Understand
5	Determine the technology and media access control method for Ethernet networks.	Understand
6	Describe the function of the distribution layer of the three layer network design model.	Understand
7	Compare the major differences between IPv4 and IPv6 addressing.	Remember
8	What is the multicast addresses used in IPv4 and IPv6 by different protocols?	Remember
9	Which IP address is used for loopback address and for what purpose?	Understand
10	What is ACL and what are the major types available?	Remember

UNIT – II		
Easy sub netting, variable length subnet masks (VLSMS), summarization, and troubleshooting TCP/IP and Cisco's internetworking operating system (IOS)		
S. No	Questions	Bloom Taxonomy Level
Part – A (Short Answer Questions)		
1	Which subnet mask would you choose for sub netting?	Understand
2	How many hosts are allowed in each subnet? And show them?	Understand
3	How do you change entire network's subnet mask to 255.255.240.0?	Remember
4	Illustrate the broadcast address for the network 10.235.0.0 and 255.255.0.0:	Remember
5	Which subnet does host belong to IP adderesses172.28.156? 137 and 255.255.248.0?	Understand
6	How many hosts can be located on a network, where the IPv4 net mask is 27 bits?	Remember
7	What are two ways to represent a network mask that would allow 14 hosts?	Understand
8	How many hosts can be addressed on 10.0.0.0/16?	Remember
9	Suppose Network address = 192.168.10.0 Subnet mask = 255.255.255.192 How many subnets? How many hosts per Subnet are there?	Understand
10	Which subnet mask will allow for 128 hosts on a subnet?	Understand
11	Suppose Network address = 192.168.10.0 and Subnet mask = 255.255.255.192 What's the broadcast address for each subnet can be there?	Remember
12	What are the four distinct sectors of multifaceted enterprise internetworks?	Remember
13	Describe the process of summarization or route aggregation and its relationship to sub netting,	Understand
14	Describe the benefits of variable length subnet masks.	Remember
15	Identify and mitigate an IP addressing problem.	Understand
16	What are the troubleshooting tools that you can use from your host and a Cisco router?	Remember
17	What is the mask can be used on point-to-point WAN links in order to reduce the waste of IP addresses?	Understand
18	Explain the Management and Security Services of Cisco IOS.	Understand

19	What is the only connection type that can supports the use of the /30 mask?	Understand
20	When a ping to the loopback address fails, what can you assume?	Remember
	Part – B (Long Answer Questions)	
1	Differences between FLSM sub netting and VLSM sub netting.	Remember
2	What is the network ID portion of the IP address 191.154.25.66 if the default subnet mask is used?	Understand
3	What subnet mask meets the requirement for the minimum number of host IDs and provides the greatest number of subnets?	Remember
4	What is the Broadcast address for this network? (Please show the "interesting" octet in binary)	Understand
5	How to configure variable-length subnet masks?	Understand
6	What is the IP sub netting and variable length subnet masks (VLSMs)?	Remember
7	Explain the different modes of Cisco Internetwork Operating System.	Remember
8	Explain the value-added intelligence of the IOS and its four types of services in detail.	Understand
9	Name the framework that is used to construct application's user interface for IOS.	Remember
10	What happened if FastEthernet0 is up, line protocol is up and FastEthernet0 is down, line protocol is down explain in detail?	Understand
11	Explain What happened if FastEthernet0 is up, line protocol is down and Ethernet0 is administratively down, line protocol is down ?	Remember
12	Describe the Problems Between the Host and the Default Router.	Understand
13	Explain the Problems with Routing Packets Between Routers.	Understand
14	How to troubleshoot your connections with ping and trace route?	Understand
15	Describe the popular modes in Cisco switch/router.	Remember
16	What are the routing problems caused by incorrect addressing plans and explain them?	Remember
17	Explain the CLI command hierarchy in detail?	Understand
18	How to use the user-defined persistent CLI variables in scripts?	Remember
19	What are the few restrictions you need to consider when planning to use variable length sub net masks?	Understand
20	Explain the Classless and classful Routing Protocols.	Understand
	Part – C (Critical Thinking Questions)	
1	Explain the Cisco IOS advantages? and also discuss four cornerstones of the IOS?	Remember
2	Explain the dynamic host configuration protocol (DHCP).	Remember
3	Given the IP address of 172.16.1.1 with a mask of 255.255.255.0--How many total subnets could be created? (assume all subnets use the same subnet mask)	Understand
4	What are the valid hosts? These are the numbers between the subnet and broadcast address? And find the hosts is to write out the subnet address and the broadcast address.	Remember
5	What are the required things to implement an IP addressing scheme and IP Services to meet network requirements in a medium-size enterprise branch office network explain.	Understand
6	Explain the necessary commands to navigate between different switch command modes.	Remember
7	Describe TCP features and functions explained with examples.	Understand
8	Describe the five functions which are used in data delivery process in the internetworking.	Understand

9	Which layer is responsible for checking and determining the availability of communicating partners including necessary resources in making communication With example?	Understand
10	What are the drawbacks or disadvantages of ready/not ready signals method? Explain with example.	Remember

<div align="center">UNIT – III</div>

S. No	Questions	Bloom Taxonomy Level
<td colspan="3" align="center">Part – A (Short Answer Questions)</td>		
1	Explain the internal components of router.	Understand
2	A Cisco router is booting and has just completed the POST process. What function does the router perform next?	Remember
3	Describe the Routing Basics and The IP Routing Process.	Understand
4	To display information about configuration files. Write down the Required steps to be performed.	Understand
5	Write down the required steps for Modifying the Configuration File at the Command line interface?	Understand
6	Explain the required steps for Copying a Configuration File from the Router to a TFTP Server .	Understand
7	Describe the required steps for Copying a Configuration File from the Router to the FTP Server?	
8	Write down the required steps for Copying a Configuration File from a TFTP Server to the Router?	Understand
9	Describe the procedure for Compressing the Configuration File.	Remember
10	Explain the disabling Cisco discovery protocol on a supported device.	Understand
11	Define distance vector routing protocol.	Understand
12	Describe link state routing protocol.	Understand
13	Why routing is used in networking explain any two routing protocols?	Understand
14	Which routing protocols support VLSM and CIDR concepts?	Remember
15	What is meant by routing and routing protocols?	Understand
16	Describe the unicast routing protocols.	Understand
17	Show the difference between routing and routed protocol?	Understand
18	Illustrate the ISIS routing protocol.	Understand
19	What is the function of routing protocols?	Remember
20	Explain the disabling and enabling Cisco discovery protocol on a supported interface.	Understand
<td colspan="3" align="center">Part – B (Long Answer Questions)</td>		
1	Which routing protocol is best? Explain in detail?	Understand
2	Explain the in detail about the EIGRP Components?	Remember
3	Explain the licensing requirements for EIGRP. What is the need of it?	Understand
4	How to adjust the interval between hello packets and the hold time	Understand
5	What is the role of topology and routing table in OSPF?	Understand
6	What is the different activities neighbor router performs in OSPF?	Understand
7	On which algorithm OSPF depends? What is the principle behind it?	Remember

8	What are the different OSPF networks types? and give an example for each?	Understand
9	Briefly explain the functioning of OSPF? and name tables which OSPF maintains ?	Understand
10	What is a better routing protocol OSPF or EIGRP and why?	Understand
11	What are the advantages of IGRP over EIGRP? Is it outdated as well?	Understand
12	In the OSPF protocol, for a given prefix/length why does OSPF choose an external type 1 route rather than an external type 2 route.	Remember
13	Why metrics such as delay and queue size are not used as cost functions in OSPF?	Understand
14	Under what circumstances (either today or in the past) would you choose IS-IS ahead of some other routing protocol?	Remember
15	What are some key advanced features that OSPF routing has over RIP routing protocol?	Understand
16	Why do we need a router ID for OSPF and not for RIP and EIGRP?	Understand
17	What can a multilayer switch in Open swatch do? Does it support standard routing protocols, like OSPF or RIPv2.	Understand
18	How do I measure the power consumed by routing protocols (EIGRP and OSPF) and relate it to the CPU utilization?	Understand
19	Are there any new protocols after OSPF and EIGRP been developed for routing in IP networks?	Remember
20	Why is BGP protocol very slow not like OSPF fast convergence?	Understand
	Part – C (Critical Thinking Questions)	
1	How do I measure the power consumed by routing protocols (EIGRP and OSPF) and relate it to the CPU utilization?	Remember
2	What are the steps required to change the neighbor-ship into adjacency? Describe them in detail.	Understand
3	Why is BGP protocol is very slow not like OSPF Fast convergence? and When does full adjacency happen in a stable OSPF network?	Understand
4	What are the measurements are there when power consumed by routing protocols (EIGRP and OSPF) and relate it to the CPU utilization?	Understand
5	Describe the boot sequence for router/switch and its configuration register settings.	Understand
6	Describe the steps needed for managing a Cisco internetwork.	Remember
7	What are the differences between distance vector and link state routing Protocols?	Understand
8	What is load balancing? Describe four different types of load balancing techniques in detail.	Remember
9	Explain how an SPF algorithm works? and How do areas benefit a link state Internetwork.	Understand
10	What is trace route? Explain how to set a default router and how to add statistic Routes.	Understand

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