UNIVERSITY COMPUTING CENTRE
END OF SEMESTER TWO EXAMINATION
ORDINARY DIPLOMA IN COMPUTING AND INFORMATION TECHNOLOGY
(NTA LEVEL 6) EXAMINATIONS

CIT 06103: SCALING NETWORKS

TIME: 3 HOURS **DATE: 05-07-2016**

Instructions

(a) This examination consists of sections "A" and "B".
(b) Section "A" comprises One (1) multiple choice question, one (1) short answer question; candidates are required to answer ALL.
(c) Section "B" consists of Three (3) Describe and essay answer type questions and candidates are required to answer any two questions.
(d) Section "A" weighs 30 marks while in section B, weighs 30 marks.
(e) Cellular phones and calculators are NOT allowed in the examination room.
(f) Write your examination number on every page of your answer booklet.

Section A: Attempt all Questions from this Section– The bolded and hand commented represents the respective answers

1. Select the correct answers to the following questions.
   i. When the duplicate unicast frames arrive at a destination device due to multiple active alternative physical paths, what could be the effect?
      a. Frame collisions increase.
      b. The number of broadcast domains increases.
      c. Application protocols malfunction.
      d. The number of collision domains increases. **1 Mark**

   ii. Which components are combined to form a bridge ID? (choose three)
      a. Port ID
      b. IP Address
      c. Extended system ID
      d. MAC address
      e. Bridge priority
      f. cost

      1 Mark

   iii. Which load balancing methods can be implemented with EtherChannel technology? (Choose two.)
      a. Destination MAC to destination IP
      b. Destination IP to destination MAC
      c. Source MAC to destination MAC
      d. Source IP to destination IP
      e. Destination MAC to source MAC
      f. Destination IP to source IP

      1 Mark

   iv. A network administrator needs to configure a router with a distance-vector protocol that allows classless routing. Which of the following satisfies those requirements?
      a. EIGRP
      b. OSPF
      c. IS-IS
      d. IGRP
      e. None of the above **1 Mark**

v. Which protocols are link aggregation protocols? (Choose two.)
   a. 802.3ad
   b. PAgP
   c. STP
   d. EtherChannel
   e. RSTP **1 Mark**

vi. Follow a link failure, when does STP allow ports to move to the forwarding state?
   a. In less than a second
   b. In two seconds
   c. 30 to 50 seconds
   d. In 90 seconds
   e. None of the above

1 Mark

vii. Which of the following is true regarding the distance-vector routing protocols?
   a. Shortest pat first is mechanism used to calculate best path in distance vector protocols
   b. Distance vector does not send updates to all directly connected routers
   c. Distance vector sends updates containing the state of its own links to all routers in the internetwork
   d. Distance vector sends its complete routing table out all active interfaces on periodic time intervals

1 Mark

viii. For which discovery mode will an AP generate the most traffic on a WLAN?
   a. Passive mode
   b. open mode
   c. mixed mode
   d. mixed mode
   e. generated mode

1 Mark

ix. If an EIGRP route goes down and a feasible successor is not found in the topology table, how does DUAL flag the route that has failed?
   a. recomputed
   b. passive
   c. active
   d. down
   e. unreachable
   f. successor

1 Mark

x. What elements will exist in a converged switched network running spanning tree?
   a. Two root bridges per network
   b. all non-designated ports forwarding
   c. one root port per non-root bridge
   d. multiple designated ports per segment
   e. one designated port per network

1 Mark

2. Provide the correct answers to the following questions (2 Marks each)
   i. Briefly explain what is importance of the following:-
      (a) SSID cloaking
      (b) The passive-interface command
      (c) Route summarization

ii. Summarize the following IPv6 addresses (3 marks)
   a. 2001:DB8:ACAD::/48,
   b. 2001:DB8:9001::/48,
   c. 2001:DB8:8752::/49

iii. list at least three features of OSPF (3 marks)

iv. What are four network documentations?
Network documentation: (3 Marks)

v. What is service level Agreement? (2 Marks)

vi. Explain how Root Bridge is elected within the STP Topology? (3 Marks)

Section B: Attempt any two Questions from this Section

3.

i. Clearly define the following terms
   a. classless routing
   b. classfull routing (4 marks)

ii. VLSM allows us to use one class address to design a networking scheme to meet the network requirement, clearly study the table below showing VLSM addressing scheme, fill in the blanks for Branch A, B and C

Name /hosts Required	Subnet address	Address Range	Broadcast Address	Subnet mask
Main Branch (60)	192.168.12.0/26	.1 - 62	192.168.12.63	255.255.255.192
Branch A(28)				
Branch B(12)				
Branch C(5)				

[5 **marks**]

4.

i. What is Access control list? (1 Mark)

ii. Describe any four Access list processing and creation Guidelines (4 Marks)

iii. A network administrator wants to add a line to an access list that will block only https traffic by the hosts on subnet 192.168.1.128/28 to the server at 192.168.1.5. What command should be issued to accomplish this task? (2 Marks)

iv. Refer to the exhibit. What will happen to HTTP traffic coming from the Internet that is destined for 172.16.12.10 if the traffic is processed by this ACL? (2 Marks)

```
router#show access-lists
Extended IP access list 110
10 deny tcp 172.16.0.0 0.0.255.255 any eq telnet
20 deny tcp 172.16.0.0 0.0.255.255 any eq smtp
30 deny tcp 172.16.0.0 0.0.255.255 any eq http
```

v. Describe the three Access Control List (ACL) types

(6 Marks)

5.

i. In order for the switches to be ready to forward frames, they need to build MAC Tables. Explain how does the switch work to build MAC table?

(3 marks)

ii. What is VLAN? What are the advantages of creating them?

(3 marks)

iii. Show how VLANs can be configured in two switch ports where by the ports are to be used as follows:

Interface	VLAN name	VLAN ID
Fa0/1	administration	1
Fa0/2	finance	2

VLAN	IP ADDRESS
1	192.168.1.0
2	192.168.2.0

(4 Marks)

iv. Describe the working of a router
(2 marks)

v. Assume that a router port fa0/0 is connected to the switch. write down the configurations you will need to do in your router for inter-VLAN routing
(3 marks)