UNIVERSITY COLLEGE TATI

UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET	
COURSE CODE	: BNS 2023
COURSE	: ROUTING & SWITCHING
SEMESTER/SESSION	: 1-2023/2024
DURATION	: 3 HOURS

Instructions:

1. This booklet contains **5** questions. Answer **ALL** questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise your hands and ask the invigilator.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 7 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

a) Briefly explain the concepts of a broadcast domain in the context of network communication. (4 marks)

b) Give **FOUR (4)** ways how switches can help to reduce network congestion. (4 marks)

c) Based on Figure 1, configure full duplex mode and speed, between Switch 0 and Switch 1. (8 marks)

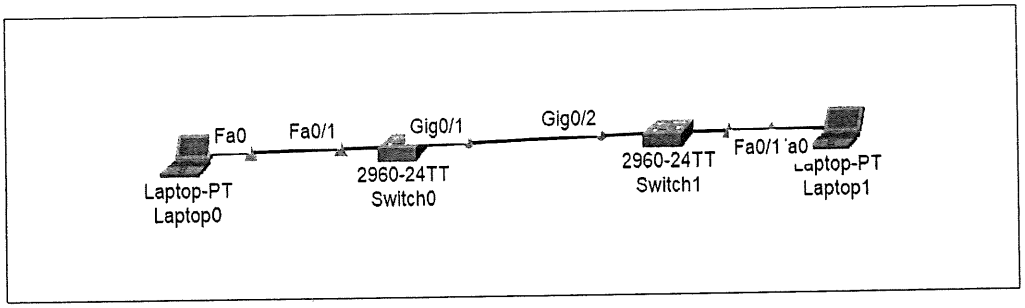

Figure 1

d) Configure Router on Stick Inter VLAN Routing on R1 based Figure 2 below. (8 marks)

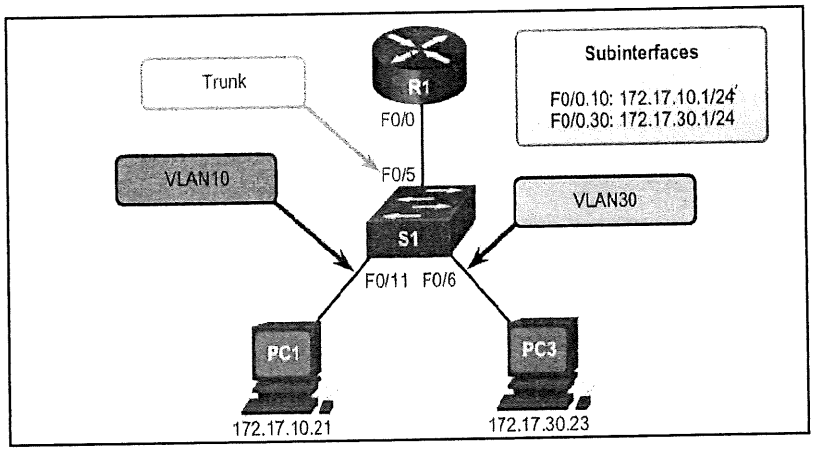

Figure 2

QUESTION 2

a) Based on Figure 3 and Table 1, identify Spanning Tree Protocol (STP) port role name to their appropriate switch port in the topology. (8 marks)

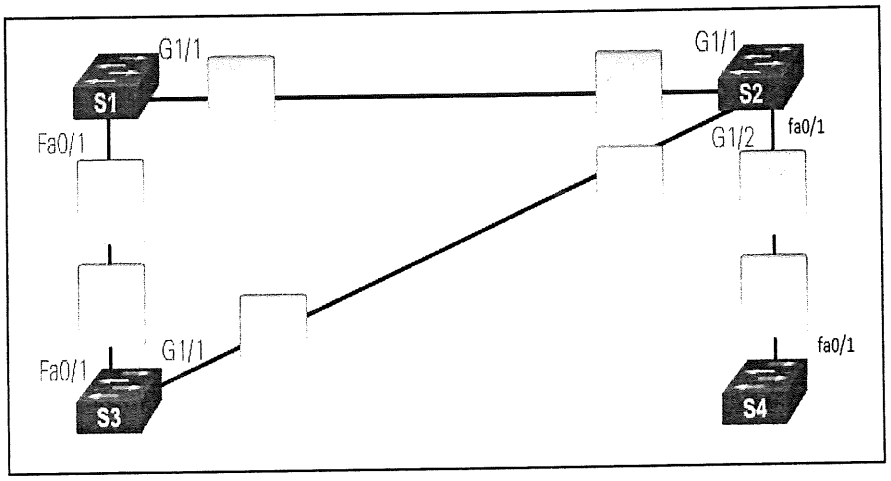

Figure 3

Table 1

	Priority	MAC Address
S1	32769	000A00111111
S2	24577	000A00222222
S3	32769	000A00333333
S4	32769	000A00444444

b) Give port states and port roles respectively for Rapid Spanning Tree Protocol (RSTP). (7 marks)

QUESTION 3

a) Answer all question based Figure 4 below.

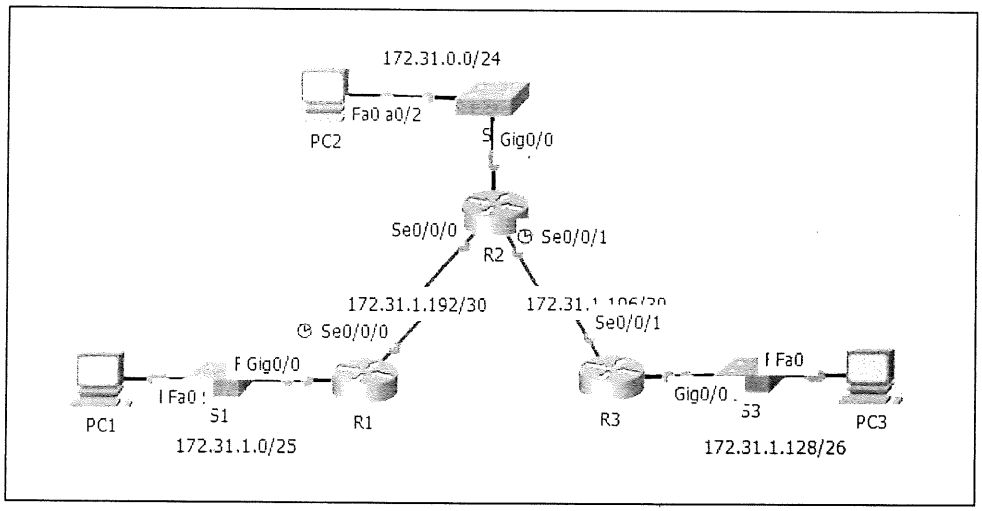

Figure 4

i. How many static routes are required by R1 dan R2? (2 marks)

ii. Write a set of commands to configure a recursive static route for R1. (6 marks)

iii. Write a set of commands to configure a directly attached static route from R2. (4 marks)

b) States **THREE (3)** disadvantages of using static routing. (3 marks)

c) Give **TWO (2)** examples for each Link State and Distance Vector Routing Protocol. (4 marks)

d) Provide **THREE (3)** advantages of using Link State Routing Protocol. (3 marks)

e) Write a set of commands to configure Router Information Protocol (RIP) on R2 based Figure 5 below.

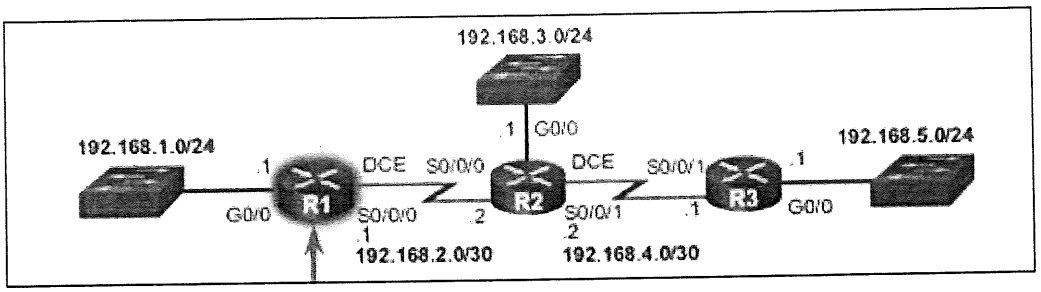

Figure 5

(8 marks)

QUESTION 4

a) Figure 6 is the network topology that using OSPF routing protocol and OSPF process id 10. Using right command, execute OSPF routing protocol single area for Router 1 **ONLY**.

(8 marks)

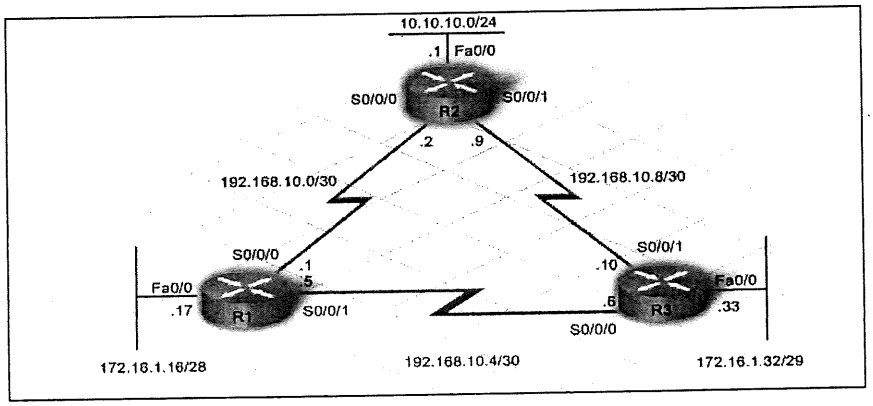

Figure 6

b) Briefly explain **TWO (2)** issues of EIGRP. (4 marks)

c) Distinguish **TWO (2)** features of routing protocol EIGRP and RIP respectively.

(4 marks)

QUESTION 5

a) State **FOUR (4)** benefits for creation of Access Control List (ACL). (8 marks)

b) Based on Table 2 and Figure 7 below, create a standard numbered ACL on R3 that allows traffic from all hosts on the 192.168.10.0/24 network and all hosts on the 192.168.20.0/24 network to access all hosts on the 192.168.30.0/24 network.

(7 marks)

Table 2

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	G0/1	192.168.10.1	255.255.255.0	N/A
	Lo0	192.168.20.1	255.255.255.0	N/A
	S0/0/0 (DCE)	10.1.1.1	255.255.255.252	N/A
ISP	S0/0/0	10.1.1.2	255.255.255.252	N/A
	S0/0/1 (DCE)	10.2.2.2	255.255.255.252	N/A
	Lo0	209.165.200.225	255.255.255.224	N/A
R3	G0/1	192.168.30.1	255.255.255.0	N/A
	Lo0	192.168.40.1	255.255.255.0	N/A
	S0/0/1	10.2.2.1	255.255.255.252	N/A
S1	VLAN 1	192.168.10.11	255.255.255.0	192.168.10.1
S3	VLAN 1	192.168.30.11	255.255.255.0	192.168.30.1
PC-A	NIC	192.168.10.3	255.255.255.0	192.168.10.1
PC-C	NIC	192.168.30.3	255.255.255.0	192.168.30.1

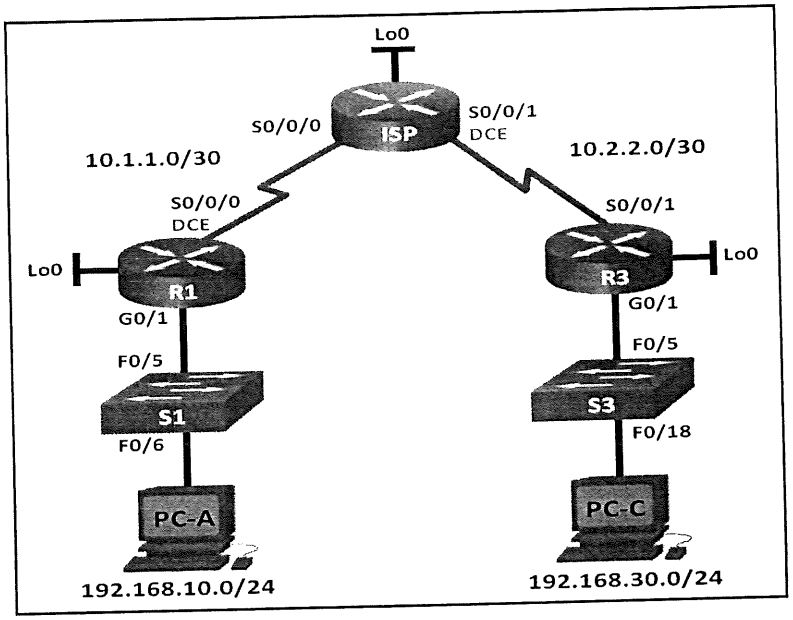

Figure 7

----------End of questions----------

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