BMIT3084 ENTERPRISE NETWORKING

Instructions to Candidates:
Answer **ALL** questions and provide your details below.

STUDENT'S DECLARATION OF ORIGINALITY

Course Code:	BMIT3084 ENTERPRISE NETWORKING		
Name of Student:		Signature:	
Student ID:		Programme_Tutorial Group:	

Learning Outcomes to be assessed:

CLO1: Employ routing concepts, network security, Access Control List (ACL), Dynamic Host Control Protocol (DHCP), Network Address Translation (NAT) for IPv4. (C3, PLO2)

Question 1

A network topology configured with IPv4 addressing is shown in Figure 1-1. Illustrate and configure various types of static routes by answering the following questions.

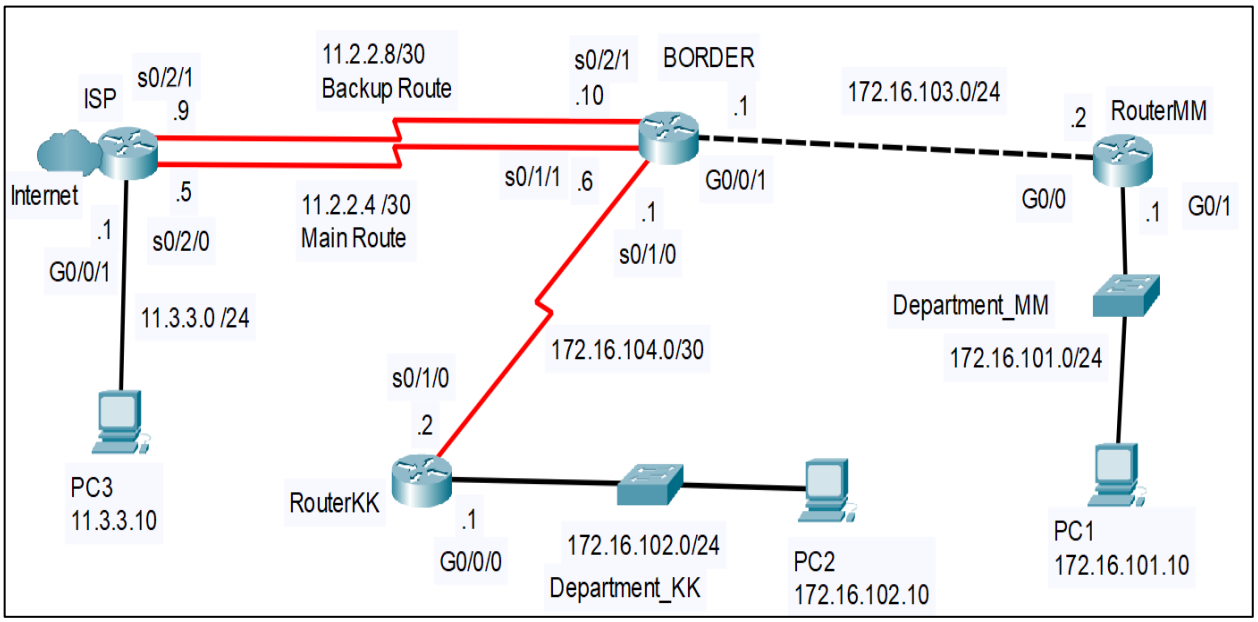

Figure 1-1: Network Topology

(a) (i) Configure a **Default static route** and a **Floating Default static route** in **BORDER** using next hop IP address to forward traffic to **ISP** and **Internet**. State your assumptions for the Floating Standard static route. (8 marks)

(ii) Configure a **Standard static route** and a **Floating Standard static route** using **exit interface** in **ISP** to forward packets to **Department_KK** and **Department_MM**. (14 marks)

(iii) Explain the differences between a **Default static route** and a **Floating Default static route** in **BORDER** router. (5 marks)

BMIT3084 ENTERPRISE NETWORKING

(b) (i) Configure a **Standard static route** using **exit interface** in **BORDER** to forward packets to **Department_KK.** (3 marks)

(ii) Configure a **Fully Specified Standard static route** in **BORDER** to forward packets to **Department_MM** respectively. (4 marks)

(iii) Explain the implementation of a **Fully Specified Standard static route** in Question 1 b) (ii). (6 marks)

(c) Illustrate in detail the steps to obtain a Summary static route for the following networks with the same next-hop IP address, which is 172.16.3.1.

192.168.21.0, 192.168.22.0, 192.168.23.0, 192.168.24.0 (10 marks)

[Total: 50 marks]

Question 2

a) (i) In your opinion, an Internal threat or External threat will cause greater damages for an organization network. (3 marks)

(ii) Explain **THREE (3)** impact of data loss for an organization network (6 marks)

b) Assume a default static route is configured in R1 and a static route is configured in **ISP** respectively.

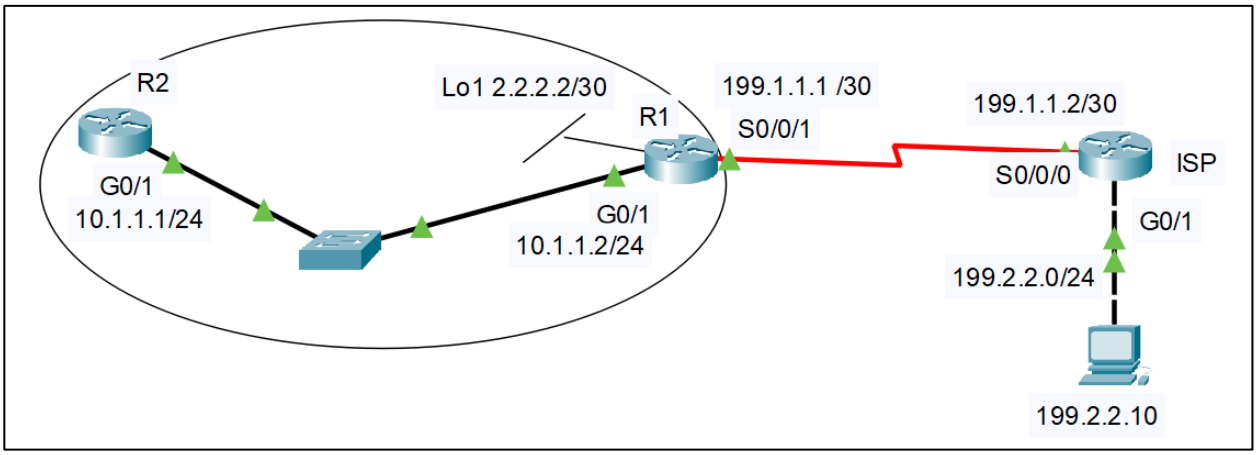

Figure 2: Network Topology

R1 and **R2** are configured with OSPF process-id **773** and area-id **0.**

(i) What is the router ID for R1 and R2? (2 marks)

(ii) Which routers are DR and BDR? (2 marks)

(iii) Write the OSPF configurations using the network command with a wildcard mask based on the subnet mask for R1 and R2. The default static route in **R1** is propagated to **R2**. (7 marks)

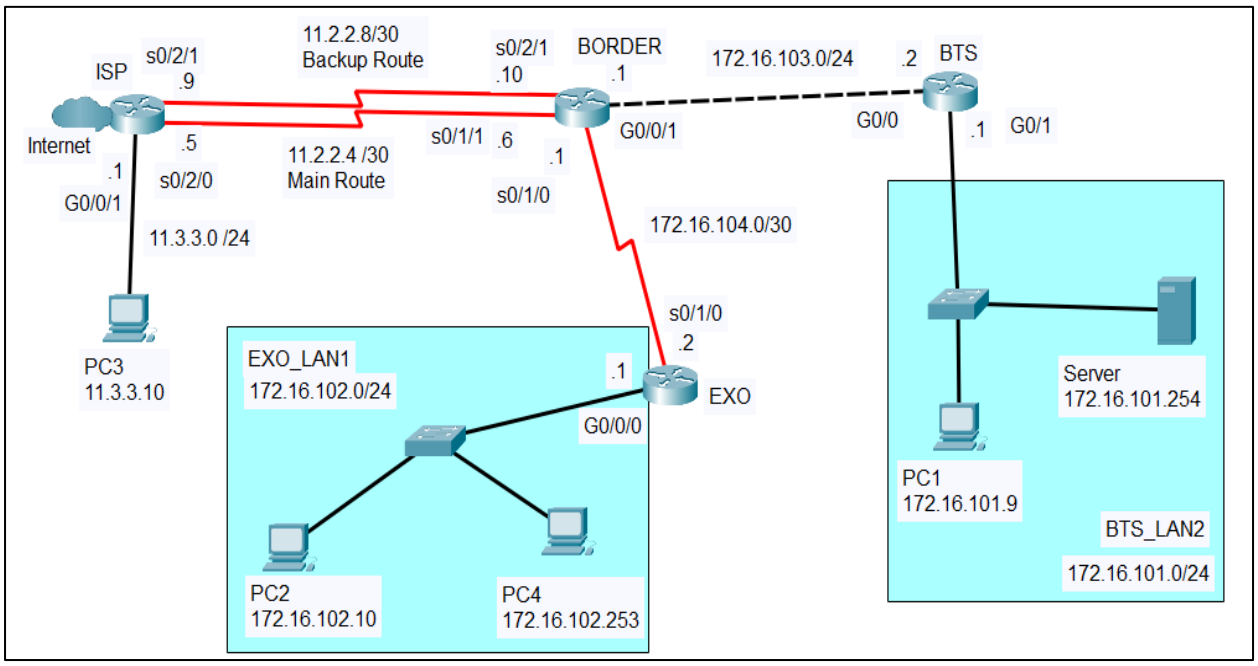

Figure 3: Network Topology

c) With reference to Figure 3, answer the following Access Control List (ACL) questions.

(i) Write a standard access list named **REMOTE_ACCESS** to allow only **PC1** to telnet into BTS router. Deny all other traffic, which must be explicitly written in your ACL. Use the keyword in your ACL. Indicate the **router**, **interface** and **direction** to apply the ACL. (7 marks)

(ii) Write an extended access list numbered 144 to allow the second half usable IP addresses of **EXO_LAN1** to access the **SERVER** via **HTTP.** Allow the **odd numbered** IP addresses of **EXO_LAN1** to ping the first half usable ip addresses of **BTS_LAN2**. Deny all other traffic, which must be explicitly written in your ACL. Use keywords in your ACL. Indicate the **router**, **interface** and **direction** to apply the ACL efficiently. (14 marks)

(iii) Propose **THREE (3)** applications of ACL on the network traffic in routers. (9 marks)

[Total: 50 marks]