**AACS2034 Fundamentals of Computer Networks**

**Skills-Based Assessment**

| **Course Code:** | AACS2034 |
| --- | --- |
| **Course Title:** | Fundamentals of Computer Networks |
| **Name:** |  |
| **Student ID:** |  |
| **Programme:** |  |
| **Group:** |  |
| **Date:** |  |
| **Signature:** |  |

**Instruction to Candidates: Answer ALL the questions in the answer template.**

* Answer PART A and PART B questions within 60 minutes. (30 min for each part)
* Answer PART C questions within 60 minutes.

**PART A: SUBNETTING (10 MARKS)**

You are given the network address of **150.10.0.0** to subnet and provide the IP addressing for a network. Design for a minimum of 1000 subnets.

1. How many bits must be borrowed to this number of subnet? [2 marks]

1. How many subnets does this create? [2 marks]
2. What address class is this network address? [1 mark]
3. What is the custom subnet mask for the subnet in prefix format? [1 mark]
4. How many total usable hosts does this create per subnet? [2 marks]
5. What is the 2nd last usable address in the fifth subnet? [2 marks]

**PART B: VLSM (10 MARKS)**

Design the subnets for the branches using VLSM, according to the required minimum hosts as shown. Design also the subnet for **ONE** WAN link.

| **Network address 20.0.0.0** | |
| --- | --- |
| **Branch** | **Number of usable hosts** |
| Branch A | 5000 |
| Branch B | 1000 |
| Branch C | 2000 |

1. Compute and list ALL the subnets information in the table below. Write your answer in dotted decimal format. [8 marks]

| **No** | **Branch** | **Prefix for new Subnet Mask** | **Subnet Network Address** | **Range of Usable IP addresses** | **Subnet Broadcast Address** |
| --- | --- | --- | --- | --- | --- |
| 0 |  |  |  |  |  |
| 1 |  |  |  |  |  |
| 2 |  |  |  |  |  |
| 3 |  |  |  |  |  |

1. What is the 2nd last usable address in Branch A subnet? [1 mark]

1. What is the 1st usable address in Branch C subnet? [1 mark]

**PART C:  ESTIMATED DURATION: 60 MINUTES**

**Instructions**

**1. Enter the following info into the User Profile Dialog:   
Your name, Programme, Tutorial Group and Student ID.**

Graphical user interface, text, application

Description automatically generated

**2.Save your packet tracer file as YourName\_YourProgrammeYourTutGroup.pka**

E.g.: TanAhKao\_RIT1G2.pka

**PART C:**

1. **Print screen your ping results and paste in the answer template:**

|  | **Screen capture of Ping results**  **NOTE: ping result MUST be 100%)** |
| --- | --- |
| **Ping Test 1**  **From RTA to SwitchB VLAN 1** |  |
| **Ping Test 2**  **From RTA to IPv6 of Management** |  |
| **Ping Test 3**  **From Management to IPv6 ServerHQ** |  |
| **Ping Test 4**  **From Management to Services** |  |

***Successful ping test contributes to final PT marks.***

1. **Screen capture the PT screen with marks and paste in the answer template**.

| ***Sample of screen captured for final mark and profile information***  Graphical user interface, application, Word  Description automatically generated |
| --- |
| **PASTE HERE!!** |

***Gentle reminder: 5 marks will be deducted if you forgot to capture the marks page.***

***-- Good Luck--***