2019-2020 Huawei ICT Competition

– Network Track Exam Outline

# Overview

## Network Track of Huawei ICT Competition Preliminary Stage Overview

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| --- | --- | --- | --- | --- | --- |
| Competition Stage | Exam type | Duration | Number of Questions | Question Types | Total Score |
| **Preliminary Stage** | Written | 90 min | 60 | True/False Questions, Single-Choice Question and Multiple-Choice Question | 1000 |

## Network Track of Huawei ICT Competition National Stage Overview

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| --- | --- | --- | --- | --- |
| Competition Stage | Exam type | Duration | Number of participants | Total Score |
| **National Stage** | Lab | 4 Hours | 1(Personal)/3(Team) | 1000 |

## Network Track of Huawei ICT Competition Regional Stage Overview

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| --- | --- | --- | --- | --- |
| Competition Stage | Exam type | Duration | Number of participants | Total Score |
| **Regional Stage** | Lab | 4 Hours | 3(Team) | 1000 |

## Network Track of Huawei ICT Competition Global Stage Overview

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| --- | --- | --- | --- | --- |
| Competition Stage | Exam type | Duration | Number of participants | Total Score |
| **Global Stage** | Lab | 8 Hours | 3(Team) | 1000 |

# Weighting

## Network Track of Huawei ICT Competition Preliminary Stage weighting

|  |  |  |
| --- | --- | --- |
| Competition Stage | Direction | Weight |
| **Preliminary Stage** | Routing & Switching | 50% |
| Security | 30% |
| WLAN | 20% |

## Network Track of Huawei ICT Competition National Stage weighting

|  |  |  |
| --- | --- | --- |
| Competition Stage | Direction | Weight |
| **National Stage** | Routing & Switching | 65% |
| Security | 20% |
| WLAN | 15% |

## Network Track of Huawei ICT Competition Regional Stage weighting

|  |  |  |
| --- | --- | --- |
| Competition Stage | Direction | Weight |
| **Regional Stage** | Routing & Switching | 50% |
| Security | 40% |
| WLAN | 10% |

## Network Track of Huawei ICT Competition Global Stage weighting

|  |  |  |
| --- | --- | --- |
| Competition Stage | Direction | Weight |
| **Global Stage** | Routing & Switching | 50% |
| Security | 40% |
| WLAN | 10% |

# Scope

## Overview of Exam Contents

The network track exam contents include but are not limited to the basic knowledge of routing & switching, security, and WLAN. Specific exam contents are as follows: basic principles and application of routing protocols, principles of the Layer 2 switching technology, IPv6 basics, Huawei firewall security strategy, principles of the VPN technology, WLAN networking and configuration, and principles and configuration of eSight and Agile Controller-Campus.

## Knowledge to Be Tested

**Routing & Switching:**

1. Routing & Switching (datacom) basics, TCP/IP protocol stack basics.
2. STP , RSTP and MSTP switching behavior, application and configuration.
3. TCP/IP protocol stack basics, principles of WAN (such as PPP) protocols, PPPoE implementation at the customer edge , and application of these protocols to Huawei routers.
4. Principles and application of Ethernet technologies, VLAN, Eth-Trunk, stacking, and trunking.
5. Principles and application of IPv6 basics, stateless auto-configuration, DHCPv6.
6. Principles and application of OSPF, OSPFv3, ISIS, ISISv6, BGP, and BGP4+.
7. Principles and configuration of MPLS, MPLS VPN, GRE VPN, L2TP, VRRP, and BFD.
8. Principles and configuration of SNMP, and functions and use of eSight, Agile Controller.

**Security:**

1. Information Security Standards and Specifications, Basic Network Concepts and Common Network Devices, Common Information Security Threats, and threat Defense and Information Security Development Trends.
2. Cyber security basics, and firewall basics. Basic Firewall technology and security policy.
3. Firewall principles such as redundancy technologies, packet filtering technologies, and NAT technologies, Different types of NAT technologies and configurations, such as NAT based on source IP, NAT based on target IP, NAT between or inside zones, bidirectional NAT, NAT server, target NAT. And the application of these technologies to Huawei firewalls.
4. Huawei firewall user management and authentication principles, VPN technologies such as IPSec, SSL, and the application of these technologies to Huawei firewalls.
5. Encryption and Decryption Mechanism. PKI Certificate System ,and application of Cryptographic Technologies
6. Introduction to Security Operations, Data Monitoring and analysis, digital Forensics, and Cybersecurity Emergency Response
7. Virtual gateway concept and configurations, Web proxy configurations, file sharing configurations, port forwarding configurations, network extension configurations.

**WLAN:**

1. WLAN basics and principles.
2. WLAN Topologies, 802.11 Protocol, 802.11 Physical Layer Technology, CAPWAP Fundamentals.
3. WLAN trunking and configuration, roaming, two-node cluster hot backup, and security configuration.
4. WLAN service quality and network optimization.

**Note:**  
**The content mentioned in this article provides a general exam guide; the exam may contain additional related content that is not included here.**

# Self-learning Resources

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| --- | --- |
| **Subject** | **Material** |
| Routing and Switching  (HCIA/HCIP/HCIE) | [Learning Material](http://support.huawei.com/learning/Certificate!showCertificate?lang=en&pbiPath=term1000025450&id=Node1000004560)  [Learning Material](https://support.huawei.com/learning/Certificate!showCertificate?lang=en&pbiPath=term1000025451&id=Node1000004605)  [Learning Material](https://support.huawei.com/learning/Certificate!showCertificate?lang=en&pbiPath=term1000025452&id=Node1000004627) |
| Security (HCIA/HCIP) | [Learning Material](http://support.huawei.com/learning/Certificate!showCertificate?lang=en&pbiPath=term1000025450&id=Node1000004562)  [Learning Material](https://support.huawei.com/learning/Certificate!showCertificate?lang=en&pbiPath=term1000025451&id=Node1000004606) |
| WLAN (HCIA/HCIP) | [Learning Material](http://support.huawei.com/learning/Certificate!showCertificate?lang=en&pbiPath=term1000025450&id=Node1000004598)  [Learning Material](https://support.huawei.com/learning/Certificate!showCertificate?lang=en&pbiPath=term1000025451&id=Node1000004868) |