Huawei ICT Competition 2022-2023 Exam Outline

Cloud Track

1. Overview

1.1. Cloud Track of Huawei ICT Competition Preliminary Stage Overview

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

1.2. Cloud Track of Huawei ICT Competition National Stage Overview

Competition Stage	Exam Type	Duration	Number of Questions	Question Types	Total Score
National Stage	Written	90 Minutes	90	True/False Question, Single-Choice Question and Multiple-Choice Question	1000

Note: From the date of successful registration to the end date of the national preliminary, 10 bonus points will be acquired for passing any of HCIA-Cloud/Storage/Big Data/AI certifications, 30 bonus points for any of HCIP-Cloud/Storage/Big Data/AI certifications, and 50 bonus points for any of HCIE-Cloud/Storage/Big Data/AI certifications. These bonus points can be combined up to a maximum of 100 points.

1.3. Cloud Track of Huawei ICT Competition Regional Stage Overview

Competition Stage	Exam Type	Duration	Number of Questions	Question Type	Number of Contestants	Total Score
Regional Stage	Written	60 Minutes	60	True/False question, single-choice question	3(Personnel)	1000

			and multiple-choice question			
	Lab	4 Hours	/	/	3 (as a team)	1000

Remark: The final score=30% * the average score of the written exam of 3 examinees in the same team + 70% * the score of the lab exam of the team.

1.4. Cloud Track of Huawei ICT Competition Global Stage Overview

Competition Stage	Exam Type	Duration	Number of Contestants	Question Type	Total Score
Global stage	Lab	8 Hours	3 (as a team)	/	1000

2. Weighting

2.1. Cloud Track of Huawei ICT Competition Preliminary Stage Weighting

Competition Stage	Direction	Weight
Preliminary Stage	Cloud	50%
	Storage	20%
	Big data	15%
	AI	15%

2.2. Cloud Track of Huawei ICT Competition National Stage Weighting

Competition Stage	Direction	Weight
National Stage	Cloud	50%
	Storage	20%
	Big data	15%
	AI	15%

2.3. Cloud Track of Huawei ICT Competition Regional Stage Weighting

Competition Stage	Direction	Weight
Regional Stage	Cloud	45%

	Storage	20%
	Big Data	20%
	AI	15%

2.4. Cloud Track of Huawei ICT Competition Global Stage Weighting

Competition Stage	Direction	Weight
Global Stage	Cloud	45%
	Storage	20%
	Big data	20%
	AI	15%

3. Scope

3.1. Overview of Exam Contents

The Cloud Track exam contents cover cloud, storage, AI and big data. Main exam contents include but are not limited to the knowledge of cloud computing, HUAWEI CLOUD products and services, HUAWEI CLOUD solutions, basic principles of storage, storage product knowledge, storage solutions, machine learning, deep learning, computer vision, and natural language processing, basic knowledge of big data, basic principles and working mechanisms of big data components.

3.2. Knowledge to Be Tested

Cloud

1. Cloud computing related concepts, including definitions, features, modes, benefits, scenarios, and future trends.
2. Cloud computing technologies, including storage, network, virtualization, and containers.
3. Scenarios of HUAWEI CLOUD products, including cloud services and Huawei Cloud Stack.
4. HUAWEI CLOUD solutions, including planning and design, application deployment in the cloud, and application migration to the cloud.
5. Concepts, technical principles, and usage of HUAWEI CLOUD computing services, including ECS, IMS, and AS.
6. Concepts, technical principles, and usage of HUAWEI CLOUD storage services, including OBS, EVS, SFS, and CBR.
7. Concepts, technical principles, and usage of HUAWEI CLOUD network services, including VPC, EIP, and ELB.

8. Concepts, technical principles, and usage of HUAWEI CLOUD management & governance services, including CTS, Cloud Eye, IAM, and LTS.
9. Concepts, technical principles, and usage of HUAWEI CLOUD security services, including HSS, WAF, and DBSS.
10. Concepts, technical principles, and usage of Huawei database services, including RDS and DDS.
11. Concepts, technical principles, and usage of HUAWEI CLOUD container services, including CCE and AOS.
12. Concepts, technical principles, and usage of application development and governance services, including CSE and ServiceStage.

Storage

1. Basics of storage, including product classification, components, technical principles, and application scenarios.
2. RAID technologies, including RAID data protection and technical principles of traditional RAID (RAID 0, RAID 1, RAID 5, RAID 6, RAID 10, RAID 50) and RAID 2.0+.
3. Data storage, including the composition of a data storage system, and concepts, features, technologies, and architectures of DAS, SAN, and NAS.
4. Common storage system protocols, including SCSI, FC, iSCSI, CIFS, and NFS.
5. Introduction to Huawei storage products, including OceanStor Dorado and OceanStor Pacific, and their typical applications.
6. Product features, functions, hardware, interfaces, and typical networks of OceanStor Dorado V6.
7. Distributed storage technologies and applications, including the features of block, object, HDFS, and file services.
8. Basic storage workload configuration, including creating storage pools, LUNs, hosts, and mapping; installation of Huawei UltraPath software; configuration of the host connectivity between Linux/Windows hosts and storage devices for blocks/files.
9. Technical principles, configuration process, and typical application scenarios of advanced technologies of Huawei OceanStor Dorado V6 products (Smart series and Hyper series).
10. Common storage solutions, including active-passive DR, active-active DR, and data migration.
11. Storage system operation and O&M management, including O&M methods and common O&M tools (DeviceManager, CLI, SmartKit, DME, eService, and eSight, etc.)

Big data

1. Basic big data components, including HDFS, ZooKeeper, Hive, HBase, MapReduce, YARN, Flink, Kafka, and Elasticsearch.
2. Scenario-specific big data solutions, including offline processing, real-time retrieval, and real-time stream processing.
3. Data pre-processing, including data ETL, data cleansing, feature processing, and imbalanced data processing.
4. Feature selection and dimensionality reduction, including the Filter, Wrapper, and Embedded methods.

5. Supervised learning, including linear regression, logistic regression, KNN, Naive Bayes, SVM, decision tree, and integration algorithm.
6. Unsupervised learning, including prototype-based clustering, density-based clustering, hierarchical clustering, and association algorithms.
7. Model evaluation and optimization, including the optimal model, model selection, and regularization.
8. Spark MLlib data mining, including matrix vector, basic statistical analysis, feature extraction and conversion, classification and regression, clustering and dimensionality reduction, association rules and recommendation algorithms, and evaluation matrix.

AI

1. AI overview, including AI development history, technology fields, application areas, and future outlook.
2. Machine learning, including basic concepts, overall process, and common algorithms.
3. Deep learning, including fully-connected neural networks, activation functions, gradient descent, back propagation algorithms, optimizers, regularization, convolutional neural networks, recurrent neural networks, and generative adversarial networks.
4. Huawei full-stack all-scenario AI, including ModelArts, MindSpore, Ascend, and Atlas.
5. Ascend inference application development, including Ascend AI processors, Atlas AI computing solution, and CANN inference application development workflow.
6. MindSpore network migration, distributed training, and device-cloud inference and deployment.
7. Computer vision, including digital image processing, deep learning convolutional neural networks, image classification, image segmentation, object detection tasks, and capability of completing image processing tasks using MindSpore.
8. Speech processing, including speech signal pre-processing, speech recognition, and speech synthesis.
9. Natural language processing (NLP), including tasks and methods of NLP, applications of recurrent neural networks and transformers, and capability of completing NLP tasks using MindSpore.

Note:

This Exam Outline is for general use only. It does not cover all exam details.