Houdini Generalist Exam: Topic Outline

The Houdini Generalist Exam demonstrates and validates the competent skills needed for success as a Houdini user. A candidate for the Houdini Generalist Exam is an intermediate-level Houdini user with a comparable skill set of 3-5 years of industry experience using Houdini in a professional setting (i.e. in VFX, Games, Art installation, Universities, etc.).

Candidates should possess a general understanding of how Houdini is implemented in a professional environment and basic system administration. They should have an understanding of the underlying principles of Houdini and a general idea of proceduralism as it's presented in Houdini. It is expected that all candidates for the exam have a strong familiarity with Houdini as well as a working knowledge of computer graphics theory and implementation.

The following list contains some of the topics and software features that may be included in the exam:

- **General** - These questions focus on a wide range of topics, from UI/UX to the Licensing system used in Houdini. These topics are crucial to productive and effective work within the Houdini environment.
    - Houdini Concepts
    - UI / UX
    - Pipeline
    - Optimization
    - Licensing
    - Houdini Environment
- **OBJ** - Questions in this section will touch on concepts like transformations and parenting objects. Exam questions may also include such topics as geometry objects, lighting, and cameras.
- **SOPs** – Questions that focus on SOPs will touch on topics like generating and manipulating geometry and creating attributes.
    - Geometry
    - Modeling
    - Attributes

- **LOPs/USD** – The LOPs questions in this section will look at the workflows for lighting, camera manipulation, shading, and rendering. Given that USD is the basis for LOPs, familiarity with the fundamentals of USD is necessary.
    - Cameras
    - Lighting
    - Shading
    - Rendering

- **COPs** - These questions will focus on the Copernicus context, or COPs. Topics will touch on foundational image manipulation nodes, basic texture synthesis, and the 3D nature of COPs.

- **TOPs** – Questions about TOPs will not only focus on automating parallel processes within Houdini, but will also touch on the unique UI of this context. You may be asked about running processes on a local machine, or a server farm.

- **VOPs** - These questions will ask about the node-based VEX scripting environment named VOPs. Questions about the function of certain nodes, or more general conceptual ideas about how the nodes are compiled into VEX code may be presented.

- **Dynamics/Simulation – DOPs** is a prominent part of using Houdini, and various simulation types will be touched upon in these questions. Conceptual questions about how these different types of simulations work, ways to optimize or improve the results of a simulation, or simply the purpose and functional use of key nodes are included in this topic.
    - RBD
    - Pyro
    - FLIP
    - Crowd
    - POPs
    - Vellum

- **Scripting** - Scripting questions will focus on two of the main languages that users interact with in Houdini: VEX and Python. Topics will touch on practical use cases of VEX code, high level concepts of using Python, and different use cases for these languages within Houdini.
    - VEX
    - Python

- **HDA / Tool Development** - These questions will focus on the details of writing HDAs to disk and the basic technical skills needed to successfully share tools with other DCCs/artists.
- **Animation** – Animation questions will touch on KineFX workflows and procedural animation with CHOPs. KineFX questions will focus on its core concepts of skeleton building, binding meshes to the skeleton, and manipulating the joints as points. CHOPs questions will focus more on what nodes would help you achieve specific results.
    - KineFX
    - CHOPs
- **Grooming** - In this section, questions about hair, fur, feathers, and the common ways that they are manipulated to create a character's groom will be presented.
- **Realtime / Game Engine** - These questions will focus on Houdini's use within realtime game engines. Questions about transferring data in/out of Houdini, using HDAs, or general conceptual considerations when bringing Houdini data over to a game engine may be included in this section.