GISCI Geospatial Core Technical Exam ® Knowledge Categories

	Knowledge Categories	Weight
1.	Conceptual Foundations	10%
2.	Geospatial Data Fundamentals	15%
3.	Cartography and Visualization	10%
4.	Data Acquisition	11%
5.	Data Manipulation	11%
6.	Analytical Methods	11%
7.	Database Design and Management	10%
8.	Application Development	7%
9.	Systems Design and Management	7%
10.	Professional Practice	8%
	Total	*100%*

Knowledge, Skills & Ability Areas

	1. Conceptual Foundations
101	Understanding of datums, coordinate systems, and projections
102	Understanding of representation of discrete features and continuous phenomena in GIS
103	Knowledge of earth geometry and its approximations
104	Knowledge of basic geomatics and relationships to GIS

	2. Geospatial Data Fundamentals
201	Understanding of spatial data models and their associated planar geometries
202	Understanding of spatial data relationships
203	Understanding of data quality
204	Understanding of data resolution
205	Understanding of data validation and uncertainty
206	Understanding of metadata
207	Knowledge of temporal data
208	Knowledge of spatial data standards, including ISO, FGDC, and OGC

	3. Cartography and Visualization
301	Understanding of graphic representation techniques and implications
302	Understanding of map design principles and essential map elements
303	Understanding of surface interpretation and representation
304	Understanding of 2D and 3D visualization

	4. Data Acquisition
401	Understanding of digitization and other manual data collection and conversion methods
402	Knowledge of field data collection
403	Knowledge of automated data collection and conversion methods
404	Knowledge of remotely sensed data sources and collection methods
405	Knowledge of acquisition, use, and limitations of crowdsourced and open source data and services

	5. Data Manipulation
501	Understanding of georeferencing, data format conversion, and data transformation
502	Understanding of spatial data generalization operations and methods
503	Understanding of spatial file types and their applications and limitations
504	Understanding of data integration
	6. Analytical Methods
601	Understanding of data selection queries and views
602	Understanding of techniques and implications of data classification
603	Understanding of analytical operations and methods
604	Knowledge of map algebra
605	Knowledge of descriptive and spatial statistics

	7. Database Design and Management
701	Understanding of relationships among database objects
702	Understanding of database design
703	Knowledge of database management and administration
704	Knowledge of data security

	8. Application Development
801	Knowledge of data transfer protocols
802	Knowledge of coding, scripting, and modeling basics

803	Awareness of basic application development methods

	9. Systems Design and Management
901	Knowledge of systems architecture and design, including various GIS softwares, platforms, and environments
902	Knowledge of systems and application security
903	Awareness of trends in geospatial technology

	10. Professional Practice
1001	Understanding of appropriate interpretation of work-related policies and procedures
1002	Understanding of ethics related to technical GIS work
1003	Knowledge of managing, documenting, and communicating GIS work
1004	Awareness of how GIS is used across other professions
1005	Awareness of GIS-related professional organizations and certification

Effective July 2019