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SCHEDULE I / ITEM 5
SPATIAL DATA BASE MANAGEMENT SYSTEMS (INFORMATICS)

February 2001
(1990 Regulations)
This examination consists of __6__ questions on __1__ page **(Closed Book)**

Q. No. **Time: 3 hours** **Marks**

1.	a) What is UML ? b) How can you use UML schemas for geospatial database analysis and design ? c) What are the basic constructs of an UML class schema? d) Give an example of an object-oriented class schema and identify the basic constructs. e) What is a CASE tool (Computer-Assisted Software Engineering)?	25
2.	a) What is a database management system (DBMS) ? b) What are its main characteristics? c) Name five commercial DBMS.	15
3.	a) What is a geospatial data warehouse ? b) What are its main characteristics? c) Identify five differences with transactional databases (OLTP). d) How is it used for On-Line Analytical Processing and for Data Mining?	20
4.	a) What are the basic commands of the SQL language when it is used to query a database? b) Give an example of a simple query using SQL. c) Give a second example, this one including a spatial operator.	15
5.	With a relational DBMS, explain how we create a data structure supporting: a) one to one relationships (1:1), b) one to many relationships (1:N), c) many to many relationships (N:N) d) recursive relationships.	20
6.	Give an example of a web site or application that uses a geospatial database and explain what types of geospatial services it offers.	5

Total Marks: 100