Mumbai University

B.Sc. IT: Semester – VI

Question Paper

December – 2018

Geographic Information Systems

IDOL – Revised Course

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<table>
<thead>
<tr>
<th>Q. NO</th>
<th>Attempt Any Two Questions:</th>
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<tr>
<td>#1</td>
<td>(10 Marks)</td>
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| a) | What is Rasterization and Vectorization? |
| b) | Explain Raster Data Query. |
| c) | Explain the process of Map Production. |
| d) | Explain the difference between Ordinary and Universal Kriging Method. |
Attempt Any Three Questions:

Q. NO #2

(15 Marks)

a) Difference between Vector Data & Raster Data.
b) Short note on TIGER.
c) What is Geodatabase Model? Explain its advantage.
d) What is Projected Coordinate System? Explain Ant One System.
e) Explain the following terms of Object Based Data Model and give suitable example:
   1. Aggregation
   2. Association
f) List and explain GIS Operations related to Data Analysis.
Attempt Any Three Questions:

(15 Marks)

a) What are the existing GIS Data available? Explain any two.
b) Write a short note on Scanning.
c) Explain the various Data Conversion Techniques available in GIS Package.
d) List and explain the various Transformation Methods available.
e) Explain the Bilinear Interpolation Resampling Method with suitable example.
f) What is Root Mean Square Error in Geometric Transformation? Explain the role of RMS Error in Affine Transformation.
Attempt Any Three Questions:
(15 Marks)

a) What is Attribute Data? Explain how Attribute Data is represented in GIS.

b) What is Relational Database? Explain with an example.

c) Explain File and Hierarchical Database with suitable example.

d) Explain the importance of Layout in Map Designs.

e) List the various types of Maps available and explain any two in detail.

f) What is Cartography? Explain its Basic Element (Symbolization).
a) Define Data Exploration. What is Descriptive Statistics?

b) What are the different types of Graphs used for Data Exploration?

c) Explain SQL used for Attribute Data Query in GIS with the help of an example.

d) Explain with suitable example the Query by Cell Value Type of Raster Data Query.

e) Explain the various Spatial Feature Selection Processes in Spatial Data Query.

f) Explain the map Based Data Manipulation that is commonly used in GIS and Geovisualization.
a) What is Overlay and explain the Common Errors in it.
b) Explain the following Map Manipulation Operations with example:
   1. Clip
   2. Split
c) What is Raster data analysis environment? Explain.
d) Explain Zonal Operations and its Applications.
e) Write a short note on Distance Measurement.
f) Explain Local Operations and its applications.
a) Explain the Thiessen Polygons Method for spatial interpolation.
b) What is Kriging? Explain.
c) Explain the Density Estimation Local Method.
d) Explain the Global Methods used for Spatial Interpolation.
e) Describe how Semivariance can be used to Qualify the Spatial Dependence in a Data Asset.
f) Explain how one can use the Validation Technique for comparing Different Interpolation Methods.