Mumbai University

May - 2019

B.Sc.IT: Semester – VI

(Question Paper)

[CBCS – Choice Based]

Principles

Of

GIS

Time: 2 ½ Hours   **Total Marks:** 75

NOTE:

   (1) *All questions (Q.1 to Q.5) are compulsory.*

   (2) *Figures on the right indicate total marks. All sub-questions carry equal marks.*

   (3) *Write the question numbers clearly as mentioned in the Question Paper.*

   (4) *Mixing of sub-questions is not allowed.*

   (5) *Draw diagrams and give examples whenever necessary.*

   (6) *Use of calculator or any other electronic gadget is not allowed.*

Q.1   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

   (A)   Define GIS. Briefly explain any two capabilities of GIS.   **(5)**
   (B)   What is GI System, GI Science and GIS Application? Explain.   **(5)**
   (C)   How Modeling helps in representing Real World? Explain.   **(5)**
   (D)   Define Geographic Field. Explain different Data Types and Values.   **(5)**
   (E)   Write a note on Topology and Spatial relationships.   **(5)**
   (F)   Explain the Temporal Dimension using suitable example.   **(5)**

Q.2   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

   (A)   List the functional components of GIS. Explain any two of them in details.   **(5)**
   (B)   Explain the various reasons for using DBMS in GIS.   **(5)**
   (C)   Write a note on Spatial Data functionality.   **(5)**
   (D)   Explain the Relational Data Model using suitable example.   **(5)**
   (E)   Differentiate between Vector Data and Raster Data.   **(5)**
   (F)   Write a note on Spatial Data Infrastructure.   **(5)**

Q.3   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

   (A)   What are the different classifications of Map Projections? Explain any two.   **(5)**
   (B)   Write a note on GPS.   **(5)**
   (C)   Explain 2D Geographic Coordinate System using suitable example.   **(5)**
   (D)   What is Trend Surface Fitting? Explain.   **(5)**
   (E)   How Root Mean Square is used to Mean Location Accuracy? Explain.   **(5)**
   (F)   Write a note on Krigging.   **(5)**

Q.4   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

   (A)   List the four classifications of Analytical Functions of GIS. Explain any one in details.   **(5)**
   (B)   Write a note on Automatic Classification.   **(5)**
   (C)   Explain Vector Overlay Operations using suitable diagram.   **(5)**
   (D)   Perform the raster overlay operation R3 = CON(R1=3 AND (R2 => 45 and R2 < = 60) , 1 , 0)   **(5)**
   (E)   Explain using example how Raster overlay operation can be performed using Decision Table?   **(5)**

(F)   List any five examples where advanced computations on continuous fields are required.   **(5)**

Q.5   **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A)   What is the relationship between Map and GIS?   **(5)**

(B)   Explain the Visualization process in GIS.   **(5)**

(C)   What are Bertin's six categories of Visual Variables?   **(5)**

(D)   How to Map Terrain Elevation? Explain.   **(5)**

(E)   How to distinguish between three Temporal Cartographic Techniques? Explain.   **(5)**

(F)   Write a note on Map Cosmetics.   **(5)**