TIME: 2½ Hours **Total Marks: 75**

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt *any three* of the following: **15**

a. Write short note of section 80of the Acte-2000 a weapon or Farce?
b. Write a short note on FIR.
c. Explain cognizable and non-cognizable offense.
d. What is hacker? What are the different types of hackers?
e. What are the peculiar characteristics of Cyber-crime?
f. Explain the term defamation and cyber pornography with example.

2. Attempt *any three* of the following: **15**

a. Explain the contract Formation under the Indian Contract Act 1872.
b. Explain the sub-sections (3), (4) and (5) of section 13 of the IT Act 2000.
c. Describe Click-Wrap and Shrink-Wrap contract.
d. Explain Civil law of Jurisdiction in India.
e. Write a short note on "Contractual and IPR disputes."
f. Explain the exclusion clauses in contracts.

3. Attempt *any three* of the following: **15**

a. What is cyber-squatting?
b. Explain section 17, 18 and 19 with respect to copyright ownership and assessment in the Copyright Act, 1957.
c. Explain computer software piracy.
d. Write Short note on Meta-Tagging.
e. Explain "The Napster and its cousins: A Revolution on the internet but a crises for Copyright owners".
f. Write Short note on Downloading for viewing on the Internet, Hyper-Linking and Framing.

4. Attempt *any three* of the following: **15**

a. Write a short note on The United Nation Model Tax Treaty.
b. What is the Impact of Internet on Custom Duties? Explain in detail.
c. Explain the concept of PE under the OECD Model Treaty.
d. Why do we use digital signature? What are the advantages of using digital signatures?
e. Discuss the difference between Business income and Royalty.
f. Explain the Section 4, 5, 6, 7, 8 and 9 of IT Act, 2000E-Governance.

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5. Attempt *any three* of the following: **15**

a. Write a short note on the concept of Relevancy and Admissibility.
b. Explain the proof of Electronic Agreements.
c. How a Digital signature is provided?
d. What are the Reliefs under CPA?
e. Explain the mode of supply of information to a computer and production of a computer output as per section 65B.
f. Explain applicability of CPA to Manufacturers, distributors, retailers, and service providers.

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1. Attempt any three of the following: **15**

a. What is topology? Explain spatial relationships with the help of suitable diagram.
b. What is GIS? Give any five GIS applications of real life.
c. What is map? Explain how modelling helps in representing real world?
d. Write short note on i) Spatial databases and spatial analysis, ii) Data types and values
e. Explain regular tessellation with the help of diagrams.
f. State and explain the a set of rules defines the topological consistency for simplex of that space with the help of suitable diagrams.

2. Attempt any three of the following: **15**

a. Distinguish between Vector data and Raster Data.
b. Explain Raster encoding with the help of example.
c. Explain the functional components in GIS architecture and functionality with the help of suitable diagram.
d. Write short note on:
i) Spatial data capture and preparation ii) Spatial data storage and maintenance
e. Explain the linking GIS and DBMS.
f. Explain the relational data model using suitable example.

3. Attempt any three of the following: **15**

a. Explain 2D geographic coordinate system using suitable example.
b. Explain Root Mean Square used to mean location accuracy.
c. Write short notes on i) Vectorization ii) Lineage
d. Explain Geoid and ellipsoid with suitable diagram.
e. What is Kriging? Explain.
f. Explain the Map projection with it's types with the help of diagrams.

4. Attempt any three of the following: **15**

a. Explain the various Neighbourhood functions.
b. Perform the raster overlay operation to find:
R1:=CON((A="F")AND(B<5), 1, 0)
R2:=CON((A="F")XOR(B<5), 1, 0)

A=

F	F	F		F
F	F	F		
	F	F		F
	F	F	F	F
F			F	F

B=

7	6	7	7	4
7	7	6	7	4
4	4	6	4	4
6	6	4	4	4
6	7	6	6	7

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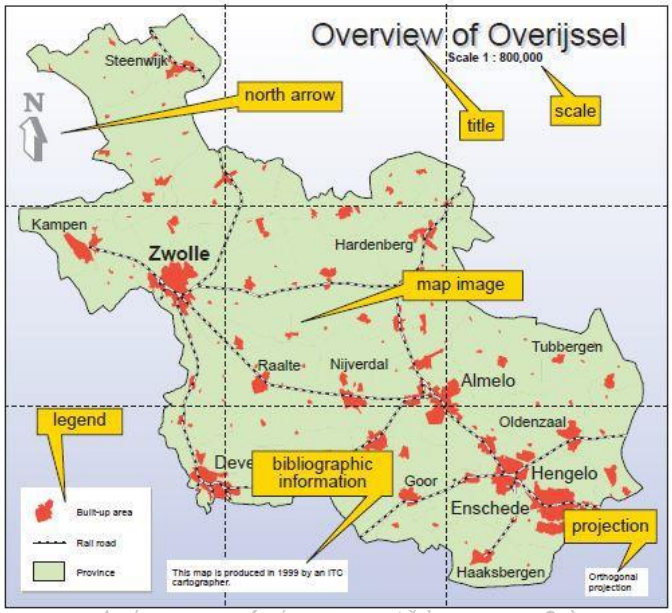
c. List any five examples where advanced computations on continuous fields are required.
d. Explain using example how Raster overlay operation can be performed using decision table?
e. Explain vector overlay operations using suitable diagram.
f. Lists any five common sources of error introduced into GIS analyses.

5. Attempt <u>any three</u> of the following: **15**

a. Explain Bertin's six categories of visual variables.
b. Write short note on i) Topographic map. ii) Thematic map
c. What is cartography? Explain visualization process.
d. Explain the map terrain elevation.
e. Describe the cosmetics shown in map given below.



f. Write short note on i) On screen map, ii) Multimedia map, iii) Static map

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1. Attempt *any three* of the following: **15**

a. Define business intelligence? Explain architecture of the business intelligence.

b. What is decision support system (DSS)? What are the factors that affect the degree of success of a DSS.

c. Describe the phases in the development of a decision support systems (DSS).

d Enumerate approaches to the decision-making process.

e Explain main components of the main components of a business intelligence system

f What is system? Write the role of a closed cycle marketing system with feedback effects

2. Attempt *any three* of the following: **15**

a. Explain the concept of mathematical models according to their characteristics, probabilistic nature, temporal dimension.

b. Describe different applications of Data Mining.

c. Compare incomplete, noisy, or inconsistent data.

d. Enumerate basic data mining tasks in details.

e. Explain data cleansing? Why is data cleansing important for data mining?

f. Differentiate between supervised and unsupervised learning.

3. Attempt *any three* of the following: **15**

a. Explain Taxonomy of classification model.

b. Explain the concept of k-means algorithm for Clustering.

c. Describe in details support vector machines

d. Write about different Taxonomies of clustering methods.

e. Differentiate between Partitioning method and Hierarchical method.

f. Explain the concept of agglomerative and divisive hierarchical methods.

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4. Attempt *any three* of the following: 15

a. What is relational marketing? Write motivations & objectives of relational marketing.

b. Explain types of data feeding a data mart of relational marketing analysis.

c. Describe the term Market Basket Analysis.

d. Describe in details optimization models for logistics planning.

e. What is supply Chain optimization? Explain in brief.

f. What is the role of cross efficiency analysis and virtual input and virtual output in identification of good operating practices?

5. Attempt *any three* of the following: 15

a. Describe how AI and intelligent agents support knowledge management. Relate XML to knowledge management and knowledge portals.

b. Define 1. Data 2. Information 3. Knowledge

c. Describe knowledge management activities in details.

d. Describe in details the Process and Practice Approaches to Knowledge Management

e. Compare and contrast between Artificial Intelligence versus Natural Intelligence

f. Write different areas of expert systems.

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1. Attempt *any three* of the following: **15**

a. Describe three Ds of security in context of your own home and organization.
b. Comment on "The defender has the impossible job of protection than the job of attacker."
c. Give the significance of a defense model – Onion model
d. Explain the following: E-mail worms, Trojans.
e. List and brief the different form of Man-in the- middle attacks (MITM).
f. Discuss three aspects of CIA triad.

2. Attempt *any three* of the following: **15**

a. What is the concept of zoning in the fundamental storage infrastructure? Explain.
b. Explain the Certificate based mechanism of Authentication.
c. Describe the asymmetric and symmetric key encryption.
d. Discuss the concepts of different Database backups.
e. Explain the following terms: Hijacking, Phishing
f. Summarize the steps of the authentication process of Smart card implementation.

3. Attempt *any three* of the following: **15**

a. Explain the following terms: NAT, PAT.
b. Write a short note on the Cisco Hierarchical Internetworking model.
c. Describe the concepts of Network hardening.
d. What are the mandatory features of Firewall? Explain.
e. Explain switches and Hubs.
f. Which are the different form of wireless attacks? Explain.

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4. Attempt *any three* of the following: **15**

a. Give the significance of IDS.

b. List and explain the steps of successful IPS deployment plan.

c. Describe the evolution of modern VoIP Communication with its components.

d. Explain Network Protocol Attacks.

e. What are the types of classic security models? Explain.

f. Write a short note on Access Control List.

5. Attempt *any three* of the following: **15**

a. Explain the classification of corporate physical assets.

b. Which factors have to be considered in physical security while choosing a site location? Explain.

c. Write a short note on Custom Remote Administration.

d. Describe the different phases of Secure Development Life cycle (SSDL).

e. Give the benefits of Cloud Computing Security services.

f. What are the general types of attacks in web applications? Explain.

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(6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt *any three* of the following: **15**

a. List out the different stakeholders w.r.t. quality view. Write a short note on supplier's view of quality.
b. Write in detail about user's gap and producer's gap.
c. Write a comparative note on continuous and continual improvement and also quote PDCA life cycle.
d. Write a short note on financial aspect of quality.
e. Define : (i) vision (ii) mission (iii) policy (iv) objectives (v)strategy
f. Explain the quality management system structure (temple structure).

2. Attempt *any three* of the following: **15**

a. Write a short note on TQM cost triangle and also define Red, Blue and Green money.
b. Write a short note on Requirement Traceability Matrix.
c. What is Workbench? Write in detail about Tester's workbench using a suitable block diagram.
d. What is the formula to measure test team efficiency? Explain the reasons for deviation of test team efficiency from 100%.
e. Briefly write about the testing skills required by a tester.
f. Write any two advantages and any two disadvantages for each of the below scenarios:
   (i) Developers becoming testers
   (ii) Domain experts doing software testing.

3. Attempt *any three* of the following: **15**

a. Explain Boundary Value Testing using suitable example.
b. Explain Decision Table – based testing using a suitable example.
c. Define: (i) Robust boundary value testing (ii) Worst case boundary value (iii) Random testing (iv) Traditional equivalence class testing.
d. What is a DD-Path? Quote the five cases of nodes in a program graph using a suitable example.
e. Write a short note on Cyclomatic complexity and McCabe's basis path method using a suitable example.
f. Define: (i) Def. node (ii) Use node (iii) P-use node (iv) du-path (v) dc-path

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4. Attempt *any three* of the following: **15**

a. Write about the different types of reviews on the basis of stage/phase.
b. List and explain different methods of verification.
c. Write about the different phases of inspection.
d. Discuss testing procedures during the requirements phase.
e. In the design phase testing what are the aspects to be checked? Briefly explain.
f. Write a short note on coverages w.r.t requirements, functionality and feature.

5. Attempt *any three* of the following: **15**

a. Write about the below in integration testing:
   (i) Bottom-up approach
   (ii) Modified top-down approach
   (iii) Sandwich approach
b. Write a short note on security testing.
c. Write about performance testing , volume testing and stress testing.
d. Define : (i) Smoke testing (ii) Sanity testing (iii) Monkey testing
e. List out all the risks associated with new technologies.
f. Write about the testing approach of web application

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