

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

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

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

15

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

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

15

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

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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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.

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

15

- Define business intelligence? Explain architecture of the business intelligence.
- What is decision support system (DSS)? What are the factors that affect the degree of success of a DSS.
- Describe the phases in the development of a decision support systems (DSS).
- Enumerate approaches to the decision-making process.
- Explain main components of the main components of a business intelligence system
- What is system? Write the role of a closed cycle marketing system with feedback effects

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

15

- Explain the concept of mathematical models according to their characteristics, probabilistic nature, temporal dimension.
- Describe different applications of Data Mining.
- Compare incomplete, noisy, or inconsistent data.
- Enumerate basic data mining tasks in details.
- Explain data cleansing? Why is data cleansing important for data mining?
- Differentiate between supervised and unsupervised learning.

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

15

- Explain Taxonomy of classification model.
- Explain the concept of k-means algorithm for Clustering.
- Describe in details support vector machines
- Write about different Taxonomies of clustering methods.
- Differentiate between Partitioning method and Hierarchical method.
- Explain the concept of agglomerative and divisive hierarchical methods.

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. 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:
 $R1 = \text{CON}((A="F") \text{AND} (B < 5), 1, 0)$
 $R2 = \text{CON}((A="F") \text{XOR} (B < 5), 1, 0)$

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

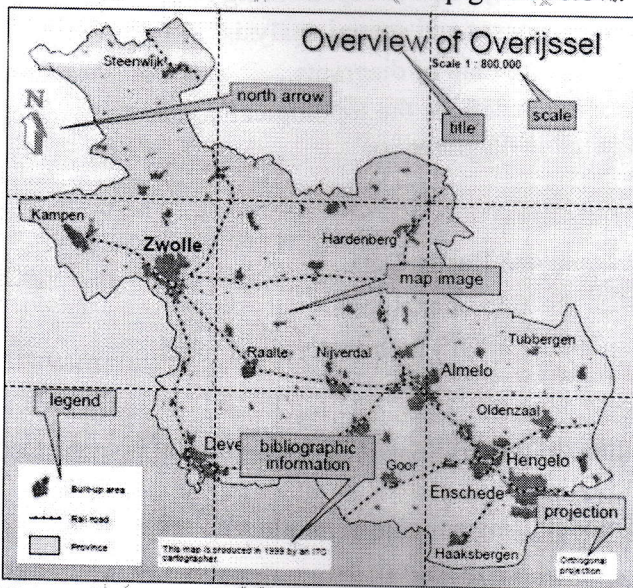
7	6	7	7	4
7	7	6	7	4
4	4	6	4	4
6	6	4	4	4
6	7	6	6	7

- 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 any three 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

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

2. Attempt any three of the following:

15

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

3. Attempt any three of the following:

15

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

4. Attempt any three of the following:

15

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

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.
