

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

- 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**

- Write short note of section 80 of the Act-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.

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

- Explain the Architecture for Enterprises in detail.
- What are the different layers of Hierarchical Network Design? Explain.
- Define Enterprise Campus Module.
- Discuss the PPDIIO phases in detail.
- Write a short note on the Network checklist.
- Explain the terms RDP, RIP, GLBP, and ARP.

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

- List out and explain the hardware devices used in LAN design.
- Explain the states of STP switch ports.
- What are the challenges in Data Center?
- What is campus LAN Design? What are the best practices for the same?
- Define Data Center Cooling in detail.
- Write a short note on different types of Virtualizations.

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

- Write a short note on WLAN Security.
- Explain the following terms:  
 (i) Full Mesh topology (ii) Partial Mesh topology (iii) Point to Point Topology.
- What is Unified Wireless Network (UWN)? Explain the elements of UWN architecture.
- Compare the WLC components and the WLC interfaces.
- What is wireless technology? List out the different wireless implementations.
- Discuss DMZ Connectivity in detail.

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

**15**

- a. Write a note on the IPv4 Header structure in detail.
- b. List out the different types of IPv6 Address.
- c. What are the techniques for IPv4-to-IPv6 Transition Mechanisms?
- d. Write down the different types of IPv6 Address Assignment Strategies.
- e. Define BGP? Explain the BGP attributes.
- f. Explain the OSPF LSA types.

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

**15**

- a. Write a short note on Risk Assessment Components and Risk Index.
- b. List out the different security threats.
- c. Define i) SNMP ii) CDP
- d. What are the key aspects of Encryption Fundamentals?
- e. Explain Network Access Control in detail.
- f. What are the recommended guidelines while implementing firewalls?

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

- What is topology? Explain spatial relationships with the help of suitable diagram.
- What is GIS? Give any five GIS applications of real life.
- What is map? Explain how modelling helps in representing real world?
- Write short note on i) Spatial databases and spatial analysis, ii) Data types and values
- Explain regular tessellation with the help of diagrams.
- 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**

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

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

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

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

- Explain the various Neighbourhood functions.
- 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	F
F			F	F

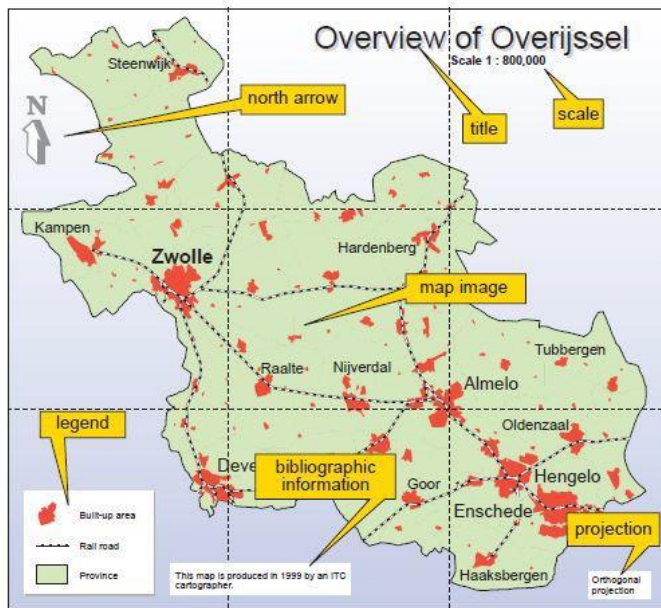
B=	7	6	7	7	4
7	6	7	7	4	
7	7	6	7	4	
4	4	6	4	4	
6	6	4	4	4	
6	7	6	6	7	

- 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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**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**

- What do you mean by ITSM? What are the issues related to ITSM?
- How Functions and Processes connected in ITSM life cycle?
- Explain four P's of Service Strategy.
- Who is Service Provider? What are its types?
- How to prepare Service Strategy for execution?
- What are the Risks associated with Service Strategy?

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

- Define Service Design. List and explain its goals.
- What are Service Requirements? How to identify them?
- Explain in detail about Service Level Management process of Service design.
- What is a Contract? Explain Contract Management and Types of Supplier Contracts.
- List and Explain sub processes of Information Security Management process.
- Explain in detail Challenges in Service Design Process.

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

- What is Service Transition? Explain its Objective and Goals.
- How to establish Effective Controls and Disciplines for Service Transition?
- List and Explain Seven R's (7R's) of ITIL Change Management.
- What is a Release and what are the Types of Releases in ITIL?
- Explain the "Service V Model" of ITIL Service Validation and Testing.
- Write short note on the DIKW Model of ITIL Knowledge Management.

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

- Define the term Service Operation. Explain the principles of Service Operation Phase.
- Write short note on Meetings in regards with Service Operation Phase.
- Explain Objective, Purpose and Scope of Event Management Process.
- Write short note on Incident Management Lifecycle Activities.
- List and Explain Request Fulfilment Sub-Processes.
- Elaborate Proactive Problem Management and Reactive Problem Management.

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

**15**

- a. Write short note on the Approach to Continual Service Improvement.
- b. Define and explain the terms CSI Register and External and Internal Drivers.
- c. Write the details about CSI seven-step improvement process.
- d. What is Governance? Explain its types.
- e. What is Benchmarking? Explain its procedure.
- f. Which points needs to take into consideration in defining a Communication Plan?

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