

(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**

- What is quality? Explain its core component.
- Differentiate between tools and techniques.
- Explain continual (continuous) improvement cycle.
- List and explain any five requirements of a product.
- Explain types of products based on criticality to the users.
- List and explain any five quality principles of Total Quality Management.

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

- Explain salient features of good testing.
- Differentiate between verification and validation.
- List and explain any two approaches of software testing team with its advantages and disadvantages.
- What is test strategy? Explain different stages involve in process of developing test strategy.
- Explain gray box testing with its advantages and disadvantages.
- List and explain different testing skills required by tester.

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

- What are cause-effect graphs? Explain with the help of an example.
- Define equivalence class. Explain systematic approaches for selecting equivalence classes.
- What is boundary value testing? Explain robust boundary value testing.
- Explain slice-based testing with an example.
- Explain DD-paths and basis path testing.
- Write a note on decision table technique.

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

- Explain the concept of workbench.
- List all the methods of verification. Explain all.
- Discuss different types of reviews in verification.
- Explain V model for software.
- Describe V & V activities during designs.
- Explain different roles and responsibilities of development group.

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

- Explain the characteristic of design testing.
- Discuss Bottom up and top down testing with an example.
- What is acceptance testing? Explain different forms of it.
- Explain GUI testing with its advantages and disadvantages.
- Write a short note on smoke testing.
- Explain compatibility testing in details.

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

- Explain three D's of security.
- Explain the statement that "Achieving 100 percent protection against all conceivable attacks is an impossible job"
- Write a note on Threat Vector.
- What are Application layer attacks? Explain following Application layer attacks:
  - Buffer overflows
  - Password cracking
- Explain the Onion Model.
- List and explain the steps to create a Security Defense Plan.

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

- Explain certificate-based authentication in detail.
- Write a note on Role-based Authorization (RBAC).
- Write a note on symmetric key cryptography.
- Explain any two confidentiality risks.
- Write a note on object-level security.
- Explain different types of database backups.

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

- Write a note on outbound filtering.
- Explain the role of hubs and switches in network.
- Explain in detail Network Address Translation (NAT).
- Explain strengths and weaknesses of a firewall.
- Explain the importance of antenna choice and positioning.
- Explain any two types of wireless attacks.

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

- Explain network-based intrusion detection system in detail.
- List and explain steps to a successful IPS Deployment plan.
- Write a note on H.323 protocol that includes:
  - Governing Standard
  - Purpose
  - Function
  - Known Compromises and Vulnerabilities
  - Recommendations

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- d What is Private Branch Exchange (PBX)? How will you secure PBX?
- e Write a note on Access Control List (ACL).
- f Explain the reference monitor concept and windows security reference monitor.

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

**15**

- a Explain how to protect the Guest OS, Virtual Storage and Virtual Networks in Virtual machines.
- b State and explain types of cloud services.
- c Explain various Application Security Practices.
- d Write a note Custom Remote Administration.
- e Explain the classification of Corporate physical Assets.
- f Explain Locks and Entry Controls that should be considered while securing assets with physical security devices.

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1. **Attempt any three of the following:** 15
  - a. Describe the architecture of business intelligence.
  - b. Explain Data Information and Knowledge.
  - c. Define system. Explain how system can be characterized.
  - d. What is business intelligence? Why effective and timely decision is important?
  - e. Explain the phases of decision making process system.
  - f. Explain the major potential advantage derived from adoption of a DSS.
  
2. **Attempt any three of the following:** 15
  - a. Explain the primary phases of model.
  - b. What is predictive and optimization model?
  - c. Explain some of the areas where data mining is used.
  - d. Write short notes on analysis methodology of data mining.
  - e. What is meant by data validation? Explain different kinds of data validation.
  - f. Write short note on data transformation.
  
3. **Attempt any three of the following:** 15
  - a. Explain Phases and Taxonomy of classification model.
  - b. Write short notes on evaluation of classification model.
  - c. Assume your own training dataset and predict the class label of an unknown sampling using Naïve Bayesian classification.
  - d. Differentiate between following clustering methodologies: i) Partitioning method.  
ii) Hierarchical method.
  - e. Explain evaluation of clustering model.
  - f. Explain k-means method.
  
4. **Attempt any three of the following:** 15
  - a. What is marketing decision process? Explain relational marketing in details.
  - b. Write short note on sales force management.
  - c. Explain market basket analysis.
  - d. List revenue management system. Explain any one in detail.
  - e. What is supply chain optimization?
  - f. Explain CCR model in detail.
  
5. **Attempt any three of the following:** 15
  - a. What is meant by knowledge management system?
  - b. Explain knowledge management activities.
  - c. Explain the role of people in knowledge management.
  - d. Compare and contrast between Artificial intelligence versus Natural intelligence.
  - e. Write short note on knowledge engineering.
  - f. What are the applications of expert systems?

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

15

- Explain the differences in the manner of investigation between cognizable and non-cognizable cases.
- What are the confusion would arise after an offence under the IT Act is committed?
- What are cyber crimes? Classify them.
- Define "Hacking" in terms of IT Act 2000. What to be proved for the offence of hacking in India before a person can be held guilty?
- Explain any 5 exceptions that do not amount to the offence of defamation under Indian Penal Court(IPC).
- Classify the following as Cognizable /non-cognizable offence and analyze the same.
  - Offence of Mr. A is stated as punishable with imprisonment for less than 3 years and fine of Rs. 10,000/-
  - Offence of Mr. B is stated as punishable with imprisonment for less than 7 years

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

15

- Distinguish between click wrap and shrink wrap contracts.
- What does section (13)(2) of Indian Contract Act 1872 speak? What are the situations covered by this law?
- A Transaction go likes this:  
 "Mr. Akash in response to an order from Bala offering to purchase 5 computers at the rate of Rs. 1,50,000/- to be delivered in 5 days. "--Write an e-record to Bala. Also state when this e-record will be bounded.
- How do you broadly classified Jurisdiction of Civil Courts in India.? Explain.
- Write an exhaustive note on "**Contractual and IPR Disputes**".
- Analyze "**Compuserve Inc. V. Patterson** "-Case Study of US in July,1996.

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

15

- What is the modus operandi of cyber squatters with respect to value of domain names.
- Explain the procedure to resolve the domain name dispute that is followed till its decision.
- Analyze the case study of "**Rediff communication ltd., Vs. Cyberbooth & Anr.**"  
 Discuss the plaintiff and defendant scenario.
- Write a short note on "**Meta-Tagging**"
- Explain the exceptions to the rule "The author of a work is the owner of copyright therein".
- Explain how did FreeNet Company create crisis for copyright owners.

[TURN OVER]

4. Attempt any three of the following:

15

- a Enlist the models of tax treaties that provides guidance for Double Taxation Avoidance Agreements (DTAA). Explain OECD Model treaty.
- b What are the rights granted to representative assessee to recover the tax paid already?
- c “Several tax reliefs have been granted to the IT sector. Tax Holidays are added advantage to it”---Justify the statement.
- d Which process is explained in Rules 4 and 5 of IT (Certified Authorities) Rules, 2000? Explain the same.
- e Explain the procedures to get “Digital Signature Certificate”.
- f What does chapter 3 of IT Act 2000 cover about? Explain.

5. Attempt any three of the following:

15

- a. What are e-records? How the act is amended so as to convert them as solid evidences?
- b. Explain the concept of “**Admissibility & Relevancy**” with respect to e-records.
- c. What is probative value? How can it be added weightage to evidences? Add suitable example to your answer.
- d. State about Consumer Protection Act, 1986. What are the specific areas in which the act focus on protection of consumers?
- e. Define **Restrictive Trade Practices**. Enlist briefly some of the instances of unfair trade practices.
- f. Explain the role of The National Consumer Disputes Redressal Commission in resolving the consumer complaints.

(2½ Hours)

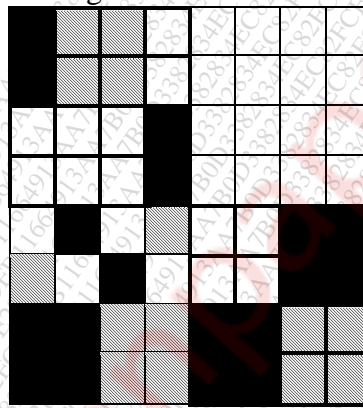
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**1. Attempt any three of the following:**

15

- What is GIS? Explain any four application areas of GIS.
- What are Geospatial data, Geoinformation, quality and metadata? What are the key components of spatial data? Why do they play important role in assessment of data quality?
- Explain the concept of Spatialtemporal data models. Explain the different concepts of time.
- Define Geographic Objects. Explain four parameters that define it.
- Write a note on Irregular Tessellations.
- Construct a quad tree for the following three valued raster.



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

15

- List the functional components of GIS. Explain any two of them in details.
- What are the different ways of spatial data capture and preparation? Explain.
- Differentiate between Vector data and Raster Data.
- Explain the relational data model using suitable example.
- What is the reason for using DBMS in GIS?
- Write a note on Spatial Data presentation.

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

15

- Write a note on the Geoid and vertical datum.
- Explain 2D geographic coordinate system using suitable example.
- What is secondary data in GIS? Explain any two ways to obtain secondary data in GIS.
- What is satellite based positioning? Explain.
- List the four issues in combining data from multiple sources. Explain any two of them.
- Write a note on GLONASS.

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

15

- Write a note on neighborhood functions.
- What is Classification of data in GIS? Explain using suitable example.
- Explain vector overlay operations using suitable diagram.

[TURN OVER]

- d Perform the raster overlay operation to find **R4 = R1 AND (R2 OR R3)**

R1	R2	R3
1 1 0 1	1 0 0 0	1 1 1 1
0 1 0 0	1 1 0 0	0 1 1 1
0 0 1 1	1 1 1 0	0 0 1 1
1 0 1 0	1 1 1 1	0 0 0 1

- e Write a note on GIS and application models.  
 f How error propagates in data processing? Explain.

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

**15**

- What do you mean by “How do I Say What to Whom and is it effective?” in GIS? Explain.
- Explain visualization strategies in GIS.
- How to map quantitative data? Explain.
- What are Bertin’s six categories of visual variables?
- How to distinguish between three temporal cartographic techniques? Explain.
- Write a note on Map Disseminations.