FIBScIT

Date: 04 Apr 2025

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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. What are the different core components of quality?

  b. Explain the difference between continuous improvement and continual improvement.

  c. Explain what are the different approaches to develop software?

  d. What are the quality principles of Total Quality Management?

  e. Define benchmarking and metrics.

  f. Describe the key pillars of a Quality Management System.

2. **Attempt _any three_ of the following:**   15

  a. Explain the software testing lifecycle.

  b. State and explain principles of software testing.

  c. Explain different levels of testing.

  d. Explain V-Model. Write advantages and disadvantages of V-Model.

  e. What is defect? What are different categories of defect?

  f. Describe maintenance testing in detail.

3. **Attempt _any three_ of the following:**   15

  a. Explain Equivalence class partitioning with example and its types.

  b. What do you mean by Boundary Value testing?

  c. Explain cause-and-effect graphing in decision based testing.

  d. Write notes on DD path testing.

  e. Write notes on McCabe's Baseline Method with advantages.

  f. Explain slice-based testing and program slicing tools.

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

a. What are different methods of verification?

b. Write in brief software development verification and validation activities.

c. Explain levels of acceptance testing.

d. Write about different types of reviews on the basis of stage /phase.

e. Explain verification workbench.

f. What is audit? Explain types of audit.

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

a. Explain sandwich testing along with its advantages and disadvantages.

b. Explain integration testing along with its type.

c. Write notes on static testing tools.

d. What are the benefits of automation and tools?

e. Write notes on functional/regression testing tools and java testing tools.

f. Explain the different stages in requirement-based testing.

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Date: 07 Apr 2025

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Time: 2½ Hours

Total Marks: 75

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1. Attempt any three of the following: 15

a. Describe any five counter measures to minimize the successful attack.

b. Explain the analogy of Onion Model and Lollipop Model.

c. What is the Concept of Man in the Middle Attack? Explain with suitable examples.

d. Discuss the significance of 3D's of Security.

e. Explain the following: e-mail worms, Trojans.

f. How to Build a Security Program? Brief the components of it.

2. Attempt any three of the following: 15

a. Identify the key steps in the authentication process of Smart Card implementation and outline their role in secure access.

b. Summarize the concept of biometric authentication and discuss its applications in modern security systems.

c. Compare Symmetric key cryptography and asymmetric key cryptography.

d. What are the possible Availability risks in security? Explain.

e. What is the concept of zoning in the storage network? Explain.

f. Describe the concept of one-time password.

3. Attempt any three of the following: 15

a. Write a short note on Centralizing Account Management (AAA).

b. Explain the types of ICMP messages.

c. What are the features of Firewall? Explain.

d. Explain the following internal security practices:

1) Intranets

2) Extranets

e. Define network hardening and outline the key steps required to strengthen network security.

f. Explain the concept of Bluetooth IPS.

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

a. Write a short note on ACL.

b. Explain the following: First Generation IDS, Second Generation IDS

c. Describe the components of VoIP.

d. What are the vulnerabilities or problems of Operating system support protocol? Explain.

e. Explain the concept of Network Intrusion Detection Systems (NIDS) and describe how they function in threat detection.

f. Identify different types of network protocol attacks and explain it.

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

a. Describe the concept of the Secure Development Life Cycle (SDLC) and summarize its importance in secure software development.

b. List different types of cloud services and explain their functions in cloud computing.

c. Define the terms "Fraud" and "Hijacking" and explain their significance in the context of information security.

d. Which are the areas of any physical vulnerability assessment? Explain

e. Explain the general types of attacks in web applications.

f. Explain the classification of corporate physical assets.

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Date : 08 Apr 2025

Time: 2½ Hours

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Total Marks: 75

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

   a. Explain the three main components of Business Intelligence?

   b. What is the role of mathematical models in Business Intelligence?

   c. How does data become information and then knowledge?

   d. Draw and explain Business Intelligence architecture.

   e. What are the main components of a DSS?

   f. What are the steps in the decision-making process?

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

   a. What are the key steps in developing a mathematical model?

   b. What is the main purpose of data mining?

   c. Which is common method used for data analysis in data mining.

   d. Why is data transformation important?

   e. What is data reduction?

   f. How does data preparation improve the accuracy of data analysis?

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

   a. What is the purpose of Bayesian methods in classification?

   b. What is the role of support vector machines (SVM) in classification?

   c. Describe in brief logistic regression.

   d. How is clustering different from classification?

   e. Why is evaluating clustering models important?

   f. Describe one real-life application of clustering.

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

a   How is information classified in MIS?

b   What are the characteristics of high-quality information?

c   Explain the relational marketing.

d   What is a revenue management system?

e   What is the purpose of the CCR model in DEA?

f   Why is efficiency analysis important in business operations?

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

a. Compare different types of knowledge management metrics used in businesses.

b. What factors influence the development of an organization's culture?

c. How can a company use the maturity model to improve its operations?

d. How is AI different from Natural Intelligence?

e. Explain structure of the expert system.

f. How effective is machine learning in predictive analysis?

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Date : 09 Apr 2025

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Time: 2½ Hours   **Total Marks: 75**

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1. Attempt _any three_ of the following: 15

a. How do professionals from different fields use GIS for working with positional data?

b. Write short notes on El Niño event.

c. Explain the concepts of models and modelling?

d. Define geographic objects and explain the four parameters that characterize them.

e. Explain the mathematical properties of geometric space used in spatial data using suitable diagram.

f. Explain the concept of the temporal dimension with a suitable example.

2. Attempt _any three_ of the following: 15

a. Software technology has developed somewhat slower and often cannot fully utilize the possibilities offered by the exponentially growing hardware capabilities. Justify.

b. List the functional Components of GIS. Explain any two of them in detail.

c. Differentiate between vector data and raster data.

d. Explain the various reasons for using DBMS in GIS.

e. Write the different techniques and methods involved in spatial data capture and preparation.

f. Write short note on Spatial database functionality.

3. Attempt _any three_ of the following: 15

a. What are the different classifications of Map Projections? Explain any two.

b. Compare 2D Cartesian coordinate system and 2D Polar coordinate system.

c. Explain Coordinate transformation and Datum transformation.

d. What clean-up operations are performed to ensure the quality of vector data? Explain.

e. What is trend surface fitting? Explain.

f. Explain the following terms: i) Positional Accuracy, ii) Attribute Accuracy,

    iii) Temporal Accuracy, iv) Lineage, v) Completeness

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4. Attempt _any three_ of the following: 15

a. List the four classifications of analytical functions of GIS. Explain anyone.

b. Explain vector overlay operations using suitable diagram.

c. Perform the Raster Overlay operation to find C= CON((A='F') AND (B=7), 9,0)

A				
F	F	F		
F	F			
	F	F		F
		F	F	F
			F	F

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

d. Explain the two main techniques of determining Automatic Classification?

e. Write a short note on network analysis?

f. Explain the five characteristics of GIS based application models?

5. Attempt _any three_ of the following: 15

a. Explain the visualization process in GIS.

b. What do you mean by "How do I Say What to Whom and is it effective?" in GIS? Explain.

c. List and explain Bertin's six categories of Visual Variables.

d. How to map qualitative data? Explain.

e. How to distinguish between three temporal cartographic techniques? Explain.

f. Write a short note on Map Dissemination.

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Date : 11 Apr 2025.

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1. **Attempt _any three_ of the following:**   15

a. Explain the differences in the manner of investigation between cognizable and non-cognizable cases.

b. Write a short note on: Section 80 of the IT Act, 2000 – A Weapon or a Farce.

c. Write a short note on: Arrest but no punishment.

d. What is a 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. Describe Click-Wrap and Shrink-Wrap Contract.

b. What is a contract? Explain its seven essential elements of endorsable contract.

c. Explain the Status under the Indian Contract Act, 1872.

d. Describe the scope of civil law jurisdiction in India..

e. Explain the Jurisdiction and The Information Technology Act, 2000.

f. Explain the exclusion clauses in contracts.

3. **Attempt _any three_ of the following:**   15

a. Explain the legislative and other innovative moves against Cyber Squatting.

b. Write Short note on Meta-Tagging.

c. Explain section 17, 18 and 19 with respect to copyright ownership and assessment in the Copyright Act, 1957.

d. Write Short note on Downloading for viewing on the Internet, Hyper-Linking and Framing.

e. Explain computer software piracy with its different types.

f. Explain "The Napster and its cousins: A Revolution on the internet but a crisis for Copyright owners".

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

a.   Discuss the difference between Business income and Royalty.

b.   Explain the concept of PE under the OECD Model Treaty.

c.   Discuss the definition and criteria of a Non-Resident Indian as per the Income Tax Act, 1961.

d.   Explain the procedures to get "Digital Signature Certificate".

e.   What is the recognition of foreign certifying authorities?

f.   Explain commencement of operation by licensed certifying authorities.

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

a.   Explain the proof of Electronic Agreements.

b.   Write a short note on the concept of Relevancy and Admissibility.

c.   What are the different types of Evidences?

d.   What are the Reliefs under CPA?

e.   Define District Forum. Which functions are performed by the District Forum?

f.   Define Restrictive Trade Practices. Enlist briefly some of the instances of unfair trade practices.

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