

Faculty of Science

B.Sc (Computer Science) II-Year, CBCS-IV Semester Backlog Examinations, Dec/Jan 2019-20

PAPER: DESIGN AND ANALYSIS OF ALGORITHMS

Time: 3 hours

Max Marks: 80

Section-A

- I. Answer any FIVE of the following questions. (5x4=20 Marks)
1. Explain Asymptotic notations.
 2. Define Huffman codes.
 3. Define P and NP problem.
 4. What is DFT and FFT?
 5. Write about String matching.
 6. What is subset sum problem?
 7. Write the difference between DFS and BFS.
 8. Write about Strongly connected components.

Section-B

- II. Answer the following questions. (4x15=60 Marks)
- 9 (a). Explain Strassen's Matrix multiplication.
(OR)
(b). Explain Optimal binary search trees with an example.
- 10 (a). Explain Selection sort and Insertion sort with a numeric example.
(OR)
(b). Explain about Lower bound arguments in detail.
- 11 (a). Write an Algorithm for Naive String-matching.
(OR)
(b) Explain set-covering problem with example.
- 12 (a). Explain Prim's algorithm with example and analyze its efficiency.
(OR)
(b). Explain Dijkstra's algorithm with example.

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PAPER: DATABASE MANAGEMENT SYSTEMS

Time: 3 Hours

Max Marks: 80

Section-AI. Answer any **FIVE** of the following questions (5x4=20 Marks)

1. Write a short note on Database Users.
2. What are Keys? Explain different keys used in Relational Model.
3. Explain Integrity Constraints.
4. Write a short note on Views.
5. Discuss the Other Aspects of Database Design.
6. Explain the Features of Good Relational Designs.
7. Write a short note on Serializability.
8. Write a short note on Timestamp-Based Protocols.

Section-B

II. Answer the following questions (4x15=60 Marks)

9. (a) Define Database. Explain the purpose of Database Systems. Write different database languages.

(OR)

- (b) Explain the Structure of Relational Databases. And also explain Relational Operations.

- 10.(a) Explain Basic Structure of SQL Queries. And also explain Aggregate Functions.

(OR)

- (b) Explain Triggers concept with example program.

- 11.(a) What is ER Model? How to design ER Diagrams? Explain the process of reduction of ER Diagrams to Relational Schemas.

(OR)

- (b) What is Functional Dependency Theory? Explain the Decomposition using Functional Dependencies.

- 12.(a) Describe a Simple Transaction Model. And explain the Transaction Properties.

(OR)

- (b) Describe Concurrency Control. Explain how to handle Deadlocks.
