

PG-242

MSC-1

M.Sc. DEGREE EXAMINATION —
JUNE 2018.

First Year

Computer Science

MATHEMATICAL STRUCTURES FOR
COMPUTER SCIENCE

Time : 3 hours

Maximum marks : 75

PART A — ($5 \times 5 = 25$ marks)

Answer any FIVE questions.

1. Construct the truth table for the following formula $(P \vee Q) \vee \sim P$.
2. Prove $(P \rightarrow Q) \Leftrightarrow (\sim P \vee Q)$.
3. If $A = \{\alpha, \beta\}$ and $B = \{1, 2, 3\}$, what are $A \times B$, $B \times A$, $A \times A$, $B \times B$ and $(A \times B) \cap (B \times A)$?
4. Prove that $(A + B) + C = A + (B + C)$.
5. What is topological sort? How differ from topological sort and DFS.

6. What are the applications of graph theory in computer science? Explain.
7. To prove, if the graph G has a vertex v that is connected to a vertex of the component G_1 of G , then v is also a vertex of G_1 .

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Show that $(\sim P \wedge (\sim Q \wedge R)) \vee (Q \wedge R) \vee (P \wedge R) \iff R$.
9. Show that $S \vee R$ is tautologically implied by $(P \vee Q) \wedge (P \rightarrow R) \wedge (Q \rightarrow S)$.
10. A fair coin is tossed five times.
 - (a) What is the probability that exactly three heads will occur?
 - (b) What is the probability that exactly three tosses land the same way?
11. Find the value of r if the co-efficients of x^r and x^{r+1} are equal in the binomial expansion of $(3x + 2)^{19}$.
12. Explain the different types of relations with examples.

13. Briefly explain with suitable example the following.
- (a) Minimal Spanning Tree
 - (b) Warshal's Algorithm.
14. Minimize the following Boolean expression using Boolean identities.
- $$F(A, B, C) = A'B + BC' + BC + AB'C'$$
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M.Sc. DEGREE EXAMINATION —
JUNE 2018.

First Year

Computer Science

DATA STRUCTURES

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Define Algorithm and explain the steps in formulating algorithm.
2. Explain recursion and its advantage.
3. What is Sibling, Terminal node, Nonterminal node, depth and path in a binary tree?
4. Define Graph. Explain the different types of graph.
5. Brief on Min/Max Heaps.
6. Explain Red-Black Trees with an example.
7. Define R-Trees. List the applications of Trees.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Explain insertion and deletion of elements in a double linked list.
 9. Discuss operation on Queue.
 10. Explain performance and analysis of algorithm.
 11. Describe Tree traversal techniques.
 12. Discuss the advantage of Heaps and different types of Heap construction.
 13. Explain B-Trees properties, Insertion and Deletion with steps and example.
 14. Define and explain construction of k-d tree.
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**M.Sc. (CS) DEGREE EXAMINATION —
JUNE 2018.**

First Year

COMPUTER GRAPHICS

Time : 3 hours

Maximum marks : 75

SECTION A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Discuss about the random scan system.
2. Write short notes on hard copy devices.
3. Write short notes on RGB color model.
4. List and explain inquiry function.
5. Write short notes on clipping algorithms.
6. Discuss on depth buffer algorithm.
7. Explain about the viewing transformation.

SECTION B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Discuss about the any five input devices.
 9. Explain in detail about Composite transformation.
 10. Write short notes on window to view port co-ordinate transformation.
 11. Explain in detail about the three dimensional display method.
 12. Discuss about the back face detection.
 13. What is clipping? Explain text clipping.
 14. Discuss any two visible surface detection methods.
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MSC-4

**M.Sc. DEGREE EXAMINATION —
JUNE 2018.**

First Year

OBJECT ORIENTED ANALYSIS AND DESIGN

Time : 3 hours

Maximum marks : 75

SECTION A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. What is object-oriented analysis? Explain it.
2. Discuss about the importance of modelling.
3. What is the purpose of use case diagrams? Explain.
4. State the use case Diagrams.
5. Write short notes on test and quality,
6. Explain about interface with an example.
7. Write short notes on threads.

SECTION B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Discuss about the principle of modelling.
 9. Explain about Data Flow Diagram in detail with relevant examples.
 10. Describe about Object Modelling in detail.
 11. Discuss in detail about activity diagrams with examples.
 12. What is purpose of deployment diagrams? Explain basic element of diagrams through an example.
 13. Explain in detail about state chart diagrams with examples.
 14. Describe about unified library application.
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MSC-5

M.Sc. DEGREE EXAMINATION –
JUNE, 2018.

First Year

ADVANCED DBMS

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Differentiate between parallel systems and distributed systems.
2. Explain about concurrency control.
3. Describe about type constructors.
4. Discuss about distributed data storage.
5. Explain about recursive queries in SQL.
6. Describe about transaction commit protocols.
7. Discuss about native XML databases.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Explain in detail about Inter and Intra operation parallelism.
9. Explain in detail about distributed query processing.
10. Describe in detail about object relational features in SQL and Oracle.
11. Discuss briefly about syntax and semantics of Starburst, Oracle and DB2.
12. Write brief notes on overview of temporal database.
13. Explain in detail about location and handoff management.
14. Describe in detail about text mining in data warehouse.

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MSC-6

M.Sc. DEGREE EXAMINATION —
JUNE 2018.

First Year

COMPUTER ARCHITECTURE

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Explain about Feng's classification.
2. Write about parallel processing applications.
3. Describe about utilizing data parallelism.
4. Discuss about the delays in pipeline execution.
5. Explain about hazard detection and execution.
6. Write about the overview of Single Instruction Multiple Data.
7. Explain about matrix operations.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Explain in detail about Flynn's Classification with diagram.
 9. Write brief notes on parallelism in uniprocessor systems.
 10. Describe in detail about data parallel processing with specialized processor.
 11. Explain in detail about classification of pipeline processors.
 12. Discuss briefly about vector processing requirements and characteristics.
 13. Describe in detail about exchange of omega networks.
 14. Explain in detail about models of computation.
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**M.Sc. DEGREE EXAMINATION —
JUNE, 2018.**

First Year

MOBILE COMPUTING

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. What are the challenges in Mobile environments?
2. What do you mean by location based service? Give example.
3. What is GPRS? Write about it.
4. Discuss the multiplexing techniques.
5. Write about Energy management in ADHOC wireless networks.
6. Why does TCP not perform well in ADHOC Wireless Networks?
7. Explain about Routing protocols.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Describe Three-tier architecture for mobile computing.
 9. Explain SMS architecture.
 10. Discuss how to develop mobile GUI.
 11. Write about the function of satellite systems and its applications.
 12. Discuss the issues in designing MAC protocol for ad hoc wireless networks.
 13. Explain QOS Parameters in Ad Hoc Wireless Networks.
 14. Discuss applications, issues and challenges in designing a Wireless Sensor Network.
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M.Sc. DEGREE EXAMINATION —
JUNE, 2018.

First Year

Computer Science

DATA WAREHOUSING AND DATA MINING

Time : 3 hours

Maximum marks : 75

SECTION A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Discuss about characteristics of Data warehousing.
2. Explain OLAP star Schema.
3. Why need for Data preprocessing?
4. Discuss about data reduction strategies.
5. Explain constraint based association mining.
6. Write shorts on Back Propagation.
7. Explain Model Based Clustering Methods.

SECTION B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Differentiate between operational database system and data warehouse.
 9. Explain two applications of data warehouse.
 10. Discuss in details Data Cleaning.
 11. Explain about Concept Hierarchy Generation.
 12. Discuss in details about data mining functionalities.
 13. Explain Bayesian classification.
 14. Explain different types of Hierarchical Clustering methods.
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M.Sc. DEGREE EXAMINATION —
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First Year

Computer Science

ANALYSIS OF ALGORITHMS

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Write down the specifications of algorithm.
2. Write any two characteristics of Greedy algorithm.
3. Explain the knapsack problem.
4. Write a short note on Randomized Algorithm.
5. 8-Queens problem : Explain.
6. What are the basic concepts NP-Hard and NP-Complex problem?
7. Solve the sum of subsets problem.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Use Divide and Conquer method to perform merge sort.
9. Analyse quick sort.
10. Solve the multistage graphs by dynamic programming.
11. (a) Explain minimum cost spanning tree
(b) Explain flow shop scheduling.
12. Solve graph coloring problem using backtracking.
13. Write in detail about scheduling identical processors.
14. How to implement parallel assignment instructions?

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M.Sc. DEGREE EXAMINATION —
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First Year

Computer Science

ADVANCED SOFTWARE ENGINEERING

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Write about the requirement of software.
2. What is distributed system architecture?
3. Explain the software reusability.
4. Write a short note on Agile software engineering.
5. Risk Management: Explain.
6. What are the basic concepts of software development?
7. Software Evolution : Give a brief note.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Explain :
 - (a) Software dependability
 - (b) RE processes.
9. Write in detail about User Interface Design.
10. Give a detailed explanation for Critical system development?
11. (a) Explain clean room software engineering.
(b) Explain Soft systems
12. Software metrics: Explain.
13. Write in detail about Formal Specification and System models.
14. Software Maintenance : Explain.
