TAMIL NADU OPEN UNIVERSITY

Chennai - 15

School of Computer Science

Programme Code No : 246
Programme Name : M.Sc - Computer Science
Course Code & Name : MSC-1, MATHEMATICAL STRUCTURES FOR COMPUTER SCIENCE
Batch : AY 2021-2022
No. of Assignment : 3
Maximum CIA Marks : 15 (Average of Total No. of Assignments)

Assignment-1

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1. Show that
   a. ~ (P^Q) → (~P ∨ (~P ∨Q)) ⇔ (~P ∨ Q)
   b. (P ∨ Q) ^(~P^(~P ^ Q)) ⇔ (~P ^ Q)

2. A class consists of 15 boys of whom 5 are prefects. How many committees of 8 can be formed if each consists of

   (a) exactly 2 prefects
   (b) at least 2 prefects?

2. Briefly explain with suitable example the following :

   (a) Hamiltonian Circuit
   (b) Decision Trees

Assignment-2

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1. Show that $R \wedge (P \vee Q)$ is a valid conclusion from the premises P∨Q, Q→R, P→M and ~M .
2. Use mathematical induction to prove that $1^2 + 2^2 + 3^2 + \ldots + +n^2 = n(n+1)(2n+1)/6$

3. Briefly explain with suitable example the following:

   (a) Hamiltonian Circuit
   (b) Decision Trees

Assignment-3

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each

3. a. Show that $R \wedge (P \vee Q)$ is a valid conclusion from the premises.
   b. Prove that $(x)(P(x) \vee Q(x)) \Rightarrow (x)P(x) \vee (\exists x)Q(x)$.

2) a. Using mathematical induction prove that $a^n - b^n$ is divisible by $(a-b), \forall n \in N$.

   b. If $f, g, h : R \to R$ are defined by $f(x) = x^3 - 4x$, $g(x) = \frac{1}{x^2+1}$ and $h(x) = x^4$, find $\{(f \circ g) \circ h)\}(x)$ and $\{f \circ (g \circ h)\}(x)$, and check if they are equal.

3) a. Show that maximum number of edges in a simple graph with 'n' vertices is $\frac{n(n-1)}{2}$.

   b. Prove that a connected graph is Euler graph if and only if each of its vertice is of even degree.

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School of Computer Science

Programme Code No : 246
Programme Name : M.Sc - Computer Science
Course Code & Name : MSC-2, DATA STRUCTURES
Batch : AY 2021-2022
No. of Assignment : 3
Maximum CIA Marks : 15 (Average of Total No. of Assignments)

Assignment-1

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1) Explain operations of doubly linked List in detail with routine of add, delete node from DLL.
2) Write short notes on following :
   (a) Fibonacci Heaps (b) Lazy-Binomial Heaps
3) What are the basic operations that can be performed on a k-d Trees? Explain with suitable example.

Assignment-2

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1. With an example, explain how will you measure the efficiency of an algorithm.
2. What are the basic operations that can be performed on k-d Trees? Explain with suitable example.
3. State and explain the operation on circular linked list.

Assignment-3

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each

1. Write the algorithms for inserting and deleting nodes in a linked list.
2. What are the types of Graph? Explain representation of graph in detail.
3. Explain Fibonacci Heaps and Skew Heaps in detail.

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Programme Code No : 246
Programme Name : M.Sc - Computer Science
Course Code & Name : MSC-3, COMPUTER GRAPHICS
Batch : AY 2021-2022
No. of Assignment : 3
Maximum CIA Marks : 15 (Average of Total No. of Assignments)

Assignment-1

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1) Explain about the Line drawing algorithm.
2) Explain in detail about the physical input device.
3) Describe the Depth buffer method.

Assignment-2

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1. Explain in detail about interactive picture construction techniques.
2. Discuss about three dimensional transformations.
3. Explain two dimensional display methods.

Assignment-3

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each

1. Write short notes on logical classification of input devices.
2. Explain Sutherland- Hondman polygon clipping algorithm in detail.
3. Describe the three dimensional basic transformation with matrix format.

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School of Computer Science

Programme Code No : 246
Programme Name : M.Sc - Computer Science
Course Code & Name : MSC-4 OBJECT ORIENTED ANALYSIS AND DESIGN
Batch : AY 2021-2022
No. of Assignment :3
Maximum CIA Marks :15 (Average of Total No. of Assignments)

Assignment-1

Max= 15 marks

Answer **any two** of the questions given below in 1000 words each.

1. Discuss in detail about software development life cycles.
2. Describe about object modeling in detail.
3. What is purpose of deployment diagrams? Explain basic element of diagrams through an example.

Assignment-2

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1. Explain in detail about UML conceptual model.
2. Briefly discuss about advanced structural modeling.
3. Explain in detail about state chart diagrams with examples.

Assignment-3

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each

1. Explain the software development life cycle.
2. What is class and object diagram? Explain.
3. Explain the Architectural modeling.

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Programme Code No : 246
Programme Name : M.Sc - Computer Science
Course Code & Name : MSC-5, ADVANCED DATABASES
Batch : AY 2021-2022
No. of Assignment : 3
Maximum CIA Marks : 15 (Average of Total No. of Assignments)

Assignment-1

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1) Write brief notes on centralized and client server architecture.
2) Write brief notes on overview of deductive databases.
3) Discuss briefly about mobile transaction models.

Assignment-2

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1. Explain in detail about object database standards, languages and design.
2. Describe in detail about spatial data structures and DB implementations.
3. Illustrate the procedure of storing XML in databases.

Assignment-3

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each

1. Explain about the parallel database and IO parallelism.
2. Explain the class hierarchy and inheritance.
3. Explain the syntax and semantics

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School of Computer Science

Programme Code No : 246
Programme Name : M.Sc - Computer Science
Course Code & Name : MSC-6 COMPUTER ARCHITECTURE
Batch : AY 2021-2022
No. of Assignment :3
Maximum CIA Marks : 15 (Average of Total No. of Assignments)

Assignment-1

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1) Explain in detail about architectural classification schemes.
2) Describe in detail about solving problems in parallel processing.
3) Explain the process of job sequencing and collision prevention.

Assignment-2

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1. Discuss in detail about the overview of parallel processing.
2. Write brief notes on general pipeline and reservation tables.
3. Describe in detail about multiprocessor architecture.

Assignment-3

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each

1. Discuss the trends towards the parallel processors.
2. Explain the uti1izing temporal parallelism.
3. Discuss the internal forwarding and register tagging.

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Programme Code No : 246
Programme Name : M.Sc - Computer Science
Course Code & Name : MSC-7 MOBILE COMPUTING
Batch : AY 2021-2022
No. of Assignment : 3
Maximum CIA Marks : 15 (Average of Total No. of Assignments)

Assignment-1

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1) Describe the design consideration for mobile computing.
2) Explain about the TDMA.
3) Explain how mobile IP packet delivered with example.

Assignment-2

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1. Explain any one mobile enabled application.
2. Describe Blue tooth architecture.
3. Discuss the issues in designing a routing protocol for AD HOC wireless network.

Assignment-3

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each

1. Discuss about the wireless internet.
2. Explain Synchronization protocol.
3. Describe in details Energy model.

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Programme Code No : 246
Programme Name : M.Sc - Computer Science
Course Code & Name : MSC- 8 DATA WAREHOUSING AND DATA MINING
Batch : AY 2021-2022
No. of Assignment : 3
Maximum CIA Marks : 15 (Average of Total No. of Assignments)

Assignment-1

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1) Describe the various components of three tier architecture of data warehouse with a neat diagram.
2) Describe various ways for mining different types of association rules.
3) What is meant by ensemble method? Explain various ensemble methods used for increasing the accuracy.

Assignment-2

Max= 15 marks

1. Explain
   (a) Dimensionality reduction
   (b) Data transformation.
2. Elaborate how classification can be performed by decision tree induction.
3. Explain the working principle of SVM along with its applications in classification and regression.

Assignment-3

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each

1. Explain OLAP operations in detail.
2. Explain Mining various kinds of Association Rules in detail.
3. Explain Data preparation for classification and prediction in detail.

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School of Computer Science

Programme Code No : 246
Programme Name : M.Sc - Computer Science
Course Code & Name : MSC-9, ANALYSIS OF ALGORITHMS
Batch : AY 2021-2022
No. of Assignment :3
Maximum CIA Marks : 15 (Average of Total No. of Assignments)

Assignment-1

Max= 15 marks

Answer **any two** of the questions given below in 1000 words each.

1) Explain space complexity with an example.
2) Explain Knapsack problem.
3) Explain sum of subsets problem with an example.

Assignment-2

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1. Discuss about merge sort with an example.
2. Discuss about optimal binary search Trees.
3. Briefly explain modular arithmetic.

Assignment-3

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each

1. Write quick sort algorithm. How it will be analysed?
2. Explain Optimal Binary Search Trees in detail.
3. How the travelling Salesperson problem solved by Branch and Bound method

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ASSIGNMENT - 1

Programme Code No : 246
Programme Name : M.Sc - Computer Science
Course Code & Name : MSC-10, ADVANCED SOFTWARE ENGINEERING
Batch : AY 2021-2022
No. of Assignment : 3
Maximum CIA Marks : 15 (Average of Total No. of Assignments)

Assignment-1

Max= 15 marks

Answer **any two** of the questions given below in 1000 words each.

1) Explain: Software requirements and processes.
2) Explain: Software reusability and iterative software development.
3) Explain: Risk Management.

Assignment-2

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each.

1. Explain in detail about Distributed System Architecture.
2. Explain in detail about Agile Software Engineering.
3. Write in detail about Application Architecture.

Assignment-3

Max= 15 marks

Answer **any one** of the questions given below in 1000 words each

1. Describe about critical system models.
2. Write a detailed note on critical system development.
3. Discuss briefly about agile software engineering.