

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Optimization Techniques

Marks: 5X5=25

Answer all the questions:

1. A. Solve graphically the following problem

$$\text{Maximize } Z = 4x_1 + 4x_2$$

$$\text{Subject to } 4x_1 + 14x_2 \leq 42$$

$$7x_1 + 2x_2 \leq 49 \text{ and } x_1, x_2 \geq 0$$

(or)

B. Minimize $Z = 2x_1 + 3x_2 + 4x_3$

$$\text{Subject to } 2x_1 + 3x_2 + 5x_3 \geq 2$$

$$3x_1 + x_2 + 7x_3 = 3$$

$$x_1 + 4x_2 + 6x_3 \leq 5$$

and $x_1, x_2 \geq 0$, x_3 is

unrestricted

2. A. Solve the following assignment problem:

	I	II	III	IV	V
1	11	17	8	16	20
2	9	7	12	6	15
3	13	16	15	12	16
4	21	24	17	28	26
5	14	10	12	11	15

(or)

B. A salesman has to visit five cities A, B, C, D, and E. The distance (in hundred miles) between the five cities is as follows:

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

	A	B	C	D	E
A	–	7	6	8	4
B	7	–	8	5	6
C	6	8	–	9	7
D	8	5	9	–	8
E	4	6	7	8	–

If the salesman starts from City A and has to come back to city A, which route should he select so that total distance travelled is minimum.

3. A. Define Stochastic processes. Give an example for illustration.

(or)

B. Prove the Chapman - Kolmogorov equation is

$$P_{ij}(u,t) = \int P_{ik}(u,v) P_{kj}(v,t)$$

4. A. The tools room of a plant is managed by 2 persons. Workers arrive to the tools room at the rate of 4 per hour. Each attendant can serve the customers at the rate of 5 per hour. Compute

- The probability that an arriving customer has to wait.
- The chance of finding exactly one customer in the system,
- average number of workers waiting for service
- expected number of workers in the system
- average waiting time in the system,
- average waiting time in the queue.

(or)

B. A supermarket has two sales girls. Customers arrivals form a Poisson process with mean of 5 per hour. Each girl's service time is exponentially distributed

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

with mean 8 minutes. (i) What is the probability of having to wait? (ii) Calculate the percentage of idle time for each girl. (iii) Find the average queue length.

(Hints: $c = 2$, $\lambda = 1/12$ per minute, $\mu = 1/8$ per minute, $p_0 = 1/2$, $p_1 = 1/3$, $p_2 = 2/9$, $p_3 = 1/9$, $p_4 = 1/18$, $p_5 = 1/36$, (i) $P[n \geq 2] = 1/6$, (ii) $2p_0 + 1p_1 = 4/3$, (iii) $4/6$. (iv) $L_q = 1/12$)

5. A. Explain the embedded Mark chain approach to analyze M / G / 1 queuing model.

(or)

- B. Write a short note on M / G / 1 queuing model

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Computer Graphics

Marks: 5X5=25

Answer all the questions:

1. A. Write short notes on Animation
(Or)
B. Briefly describe about Refresh cathode Rays with suitable Diagram

2. A. Write short notes on Line Styles with Algorithm
(Or)
B. Describe about Scale Line Algorithm.

3. A. Describe about a Line Clipping Algorithm
(Or)
B. List out the Interactive Input methods and explain it.

4. A. Explain the Parallel Projection in Three dimensional techniques
(Or)
B. Illustrate the Concept of Hidden Level Removal.

5. A. Write short notes on clipping.
(Or)
B. Describe about Hidden-surface and Hidden-Line Remove with examples.

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

System Analysis and Design

Marks: 5X5=25

Answer all the questions:

1. A. Explain the system development life cycle and its components.
(Or)
B. Explain the importance of the analysis in the system development life cycle.
2. A. Explain the various tools that supporting the system analysis.
(Or)
B. Explain the data model and its components.
3. A. What are the categories of information gathering?
(Or)
B. What are the goals and objectives of the software design?
4. A. Explain the overview of the designing specification.
(Or)
B. Explain the concept of the system design.
5. A. Explain the procedure design and its concepts.
(Or)
B. Explain the concept of structure design.

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Computer Networks

Marks: 5X5=25

Answer all the questions:

1. A. Discover Reference Models with suitable diagram.

[Or]

- B. Summarize Transmission Media along with examples.

2. A. Illustrate Data Link Layer Design Issues.

[Or]

- B. Examine Sliding Window Protocols with suitable diagram.

3. A. Analyze Routing Algorithms.

[Or]

- B. Discover Internetworking.

4. A. Clarify the term TCP and UDP.

[Or]

- B. Conclude Elements of Transport Protocols.

5. A. Demonstrate Network Security.

[Or]

- B. Elaborate The World Wide Web.

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Data Structures using C++

Marks: 5X5=25

Answer all the questions:

- 1) A. Describe System Life Cycle.
[Or]
B. Analyze Stack Abstract Data type.
- 2) A. Demonstrate Circular Lists with suitable diagrams.
[Or]
B. Outline Dynamic Binding in C++.
- 3) A. Illustrate Binary Tree Traversal.
[Or]
B. Examine Binary Search Trees with suitable program explanation
- 4) A. Summarize the following
i. i) Static Hashing ii) Dynamic Hashing
[Or]
B. Conclude Min – Max Heaps.
- 5) A. Optimal Binary Search Trees.
[Or]
B. Extend the term B- Trees with suitable examples.

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Computer Based Numerical Methods

Marks: 5X5=25

Answer all the questions:

1. A. Determine the root of $xe^x - 3 - 0$ correct to three decimal places, using the method of Secant method

(Or)

- B. Find a root of the equation $x^3 - 4x - 9 = 0$ correct to three decimal places by using the bisection method.

2. A. Find the inverse of

$$A = \begin{bmatrix} 4 & -1 & 0 & 0 \\ -1 & 4 & -1 & 0 \\ 0 & -1 & 4 & -1 \\ 0 & 0 & -1 & 4 \end{bmatrix}$$

Using the Cholesky method.

(Or)

- B. Find the inverse of the matrix

$$A = \begin{bmatrix} 2 & 3 & -1 \\ 3 & 1 & 2 \\ -1 & 2 & -1 \end{bmatrix}$$

by partition method.

Hence find the solution of the system of equations $2x_1 + 3x_2 - x_3 = -2$;

$3x_1 + x_2 + 2x_3 = 1$; $-x_1 + 2x_2 - x_3 = -7$

3. A. Interpolate by means of Newton backward formula the sales of a concern for the year 1966 given that

Year : 1931 1941 1951 1961 1971 1981

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Sales (in Lakhs) : 12 15 20 27 39 52

(Or)

B. Explain the Hermit Interpolation with examples.

4. A. Using the following data find $f(6.0)$ and $f'(6.3)$ using the method based on finite differences.

x: 6.0 6.1 6.2 6.3 6.4

f(x) 0.1750 -0.1998 -0.2223 -0.2422 -0.2396

(Or)

B. Compute $f'(0.6)$ from the following

Table using the formula $f'(x_0) = \frac{f(x_0 + h) - 2f(x_0) + f(x_0 - h)}{h^2} + \alpha \sum_{i=1}^k a_i h^{ki}$
with $h=0.4, 0.2, 0.1$ and perform repeated Richardson extrapolation

x	0.2	0.4	0.5	0.6	0.7	0.8	1.0
f(x)	1.420072	1.881243	2.128147	2.386761	2.657971	2.942897	3.559753

5. A. Using Euler method find u at $t=0.1$ and 0.2 given $du/dt = u - 2t/u$, $u(0) = 1$

(Or)

B. Solve the initial value problem:

$u' = -2tu^2$, $u(0) = 1$ Using mid-point method with $h=0.2$ over the interval $[0,1]$.

Determine the percentage relative error at $t=1$.

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

JAVA Programming

Marks: 5X5=25

Answer all the questions:

1. A. Write about domain name system?
(or)
B. Explain in detail about data types and operators used in JAVA
2. A. What are all the properties and methods found in java beans?
(or)
B. Write about regular expression and subroutine in JavaScript
3. A. What is OLE and ActiveX in VB Script
(or)
B. Give an overview of OSI Model?
4. A. Write a JAVA program with exception handling?
(or)
B. How to develop a package in java applet?
5. A. Explain briefly about CGI programming with java script
(or)
B. How does real audio and video are implemented in internet?

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Operating System

Marks: 5X5=25

Answer all the questions:

1. A. Write short notes on Semaphores with examples.
(Or)
B. Describe about Inter process communication with examples.

2. A. Illustrate the concepts of Scheduling Algorithm.
(Or)
B. Define Deadlock. Explain the deadlock prevention with examples.

3. A. Write short notes on virtual memory.
(Or)
B. Describe about Demand paging and its performance with diagram.

4. A. Explain in detail about RAID Structure with neat diagram
(Or)
B. Write short notes on Linked Allocation with neat diagram.

5. A. Write short notes on Process control
(Or)
B. Explain UNIX SVR4 Scheduling Algorithm

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Elective Neural Networks

Marks: 5X5=25

Answer all the questions:

1. A. Explain briefly the operation of biological neural network with simple diagram

(Or)

B. Discuss about supervised learning and unsupervised learning

2. A. Describe perception learning rule and delta rule

(Or)

B. Write about widow haft learning rule

3. A. Describe back propagation and features of back propagation

(Or)

B. What is the architecture and algorithm of Boltzmann machine without learning?

4. A. With neat diagram explain the pattern matching in ART1 Network

(Or)

B. Explain the architecture and algorithm of neo cognitron

5. A. Discuss briefly about Multiplayer network

(Or)

B. Discuss in detail about the Iterated gradient descent optimization method

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Elective Client Server Computing

Marks: 5X5=25

Answer all the questions:

1. A. Discuss about Main frame client server computing
(Or)
B. Explain client server development tools
2. A. Write short notes on Report Procedure Call
(Or)
B. Discuss about CORBA
3. A. Explain types of database
(Or)
B. Write about Multiple virtual storage
4. A. Explain about OSI Layer method
(Or)
B. Write about interposes communication
5. A. Short notes on Peer to peer protocols and TCP/IP
(Or)
B. Explain ISDN and Network management

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Web Technology

Marks: 5X5=25

Answer all the questions:

- 1) A. Analyze the term of Examining the Components of Web Server.

[Or]

B. Clarify the Understanding IIS Architecture.

- 2) A. Describe UNIX Shell Scripting Language.

[Or]

B. Illustrate Designing CGI Applications.

- 3) A. Demonstrate Basic elements of CGI.

[Or]

B. Conclude Handling User Input in CGI.

- 4) A. Examine Configuring of TCP/IP, Telnet, FTP Gateway.

[Or]

B. Elaborate Firewalls with proper examples.

- 5) A. summarized Encryption Technologies.

[Or]

B. Clarify the concept of Cryptanalysis in detail.

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Principles of Management and Organizational Behavior

Marks: 5X5=25

Answer all the questions:

1. A. Write about evolution of management thought?
(or)
B. Why decision making is considered as a key factor in management?
2. A. Explain in detail about organization culture
(or)
B. Explain briefly about performance appraised
3. A. What is the leadership quality?
(or)
B. Write any three case studies of Indian companies in various aspects of management
4. A. Explain in detail about multinational companies
(or)
B. Discuss about learning and personality concepts theories?
5. A. Explain the following (i) Group decision making (ii) Leadership
(or)
B. Discuss about OS theories in detail

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Network Programming

Marks: 5X5=25

Answer all the questions:

1. A. Explain in detail about Communication and Internet Protocols
(or)
B. What is Multiplexing and how it is done in Socket implementation
2. A. How does an API Window Socket Works?
(or)
B. How IPX/SPX implementation of DDL does is done
3. A. How time and date routine works
(or)
B. Explain in detail about Network System
4. A. Explain briefly about passing file descriptor
(or)
B. How can we send and receive data over connection
5. A. How does connection oriented Communication with SPX is done?
(or)
B. What is Ping? Rival file transfer protocol? Explain?

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Visual Programming Concepts In Visual C++

Marks: 5X5=25

Answer all the questions:

1. A. Difference between DOS and Windows

Or

B. Explain the window properties with neat diagram

2. A. Explain the 10 fields in Windlass

Or

B. Define message Box. Explain its types

3. A. Write short notes on message Map with program

Or

B. Write a program to create your own pen to draw a line and a rectangle and create your own brush to fill the rectangle.

4. A. Describe in detail about Tool bar with examples.

Or

B. Explain in detail about modal and modeless dialog box with examples.

5. A. Describe in detail about wizard with examples.

Or

B. Define Dialog Box. Explain the types of Dialog Box with neat diagram

Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

Data Mining

Marks: 5X5=25

Answer all the questions:

- 1) A. Define Data mining. Explain the KDD Process
Or
B. Describe about OLAP Operations with examples.
- 2) A. Explain A priori Algorithm with suitable examples
Or
B. Explain FP tree growth Algorithm with examples
- 3) A. Define Cluster. Explain the techniques involved in clustering Process.
Or
B. Explain K-mean and K-Medoid Algorithm with examples.
- 4) A. Write short notes on Pruning Techniques
Or
B. Illustrate the concept of CART and CHAID in decision Tree Algorithm with examples.
- 5) A. Difference between web mining and content mining
Or
B. Describe about GSP Algorithm with examples.