

DBMS - S.E

5022-1A-862-
Code No. 17/25/MCA/3.2/DBM 031

FACULTY OF SCIENCE
M.C.A. III- SEMESTER EXAMINATIONS, DECEMBER 2012
SUBJECT: DATABASE MANAGEMENT SYSTEMS

PAPER: 02

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section-A and Section-B

Section - A

[5x4=20]

Answer the following questions in not more than ONE page each:

1. Discuss about file systems and DBMS.
2. Write notes on Dynamic SQL.
3. Briefly discuss about Index Data Structures.
4. Write notes on Transaction and Schedules.
5. Briefly discuss on the log.

Section - B

[5x10=50]

Answer the following questions in not more than FOUR pages each:

6. a) i) Write notes on Database Design and ER Diagrams.
ii) Discuss about logical Database Design.
(OR)
b) Discuss about Normalization with I NF II NF and III NF.
7. a) Explain Natural Zoin, project, select and Cartesian product operators of relational Algebra.
(OR)
b) i) Discuss about Nested Queries with example.
ii) Write notes on Triggers and Active Data Bases.
8. a) i) Compare and contrast between various file organizations.
ii) Explain about B+ Trees with Insertion operations.
(OR)
b) Discuss about Hashing with Extendible and linear Hashing and examples for it.
9. a) i) Briefly explain about ACID properties.
ii) Write notes on Lock-Based concurrency control.
(OR)
b. i) Write notes on serializability and recoverability.
ii) Write about concurrency control without locking.
10. a) Explain about crash recovery with ARIES in detail.
(OR)
b) i) Write notes on Mandatory Access Control.
ii) Briefly discuss about Media Recovery.

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M.C.A. III – SEMESTER REGULAR EXAMINATIONS, FEB 2014
SOFTWARE ENGINEERING

PAPER – I

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Explain the characteristics of incremental model.
2. Differentiate between requirements verification and validation.
3. Explain about connector view.
4. Write short notes on effort estimation.
5. Write short notes on SPI trends.

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Explain the various phases of unified process.
(OR)
b) Discuss the key challenges facing the software engineering.
7. a) What is architectural style? Discuss various categories of it.
(OR)
b) Discuss about functional and non functional requirements in detail with examples.
8. a) What types of risks are likely to encounter as software is build? Explain with example.
(OR)
b) Discuss about Risk management planning process with suitable example.
9. a) Discuss in detail black box testing techniques.
(OR)
b) Discuss about effective process that develops use for incremental developing.
10. a) Differentiate between staged and continuous CMMI.
(OR)
b) Discuss in detail about business process Re-engineering.

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M.C.A.III – SEMESTER BACKLOG EXAMINATIONS, JULY 2013
DATA BASE MANGEMENT SYSTEM

PAPER – II

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Define Entities, Entity set, attributer, Relationships.
2. What is Relational algebra. Discuss
3. Discuss briefly about static Hasting
4. Discuss about the strict 2 PL
5. Write a shot notes on Database security.

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Discuss in detail about Extended ER model features with suitable example.
(OR)
b) Write note on Functional Dependencies, Loss-Len Join Decomposition and Normalization in detail.
7. a) i) Explain about the Aggregate function in SQL.
ii) Discuss about Triggers and Active Data bases with example.
(OR)
b) Discuss in detail about the operators of Relational Algebra with an example for each.
8. a) Discuss in detail about Linear Hashing with Insertion and Deletion operations with examples.
(OR)
b) i) Write notes on ISAM.
ii) Discuss about the Insertion operation of B+ Trees.
9. a) i) Describe the ACID properties.
ii) Explain about specialized locking Techniques.
(OR)
b) i) Discuss in detail about time stamped based concurrency control.
ii) Write notes on Dead lock prevention and Dead lock detection.
10. a) Discuss in detail about the Mandatory Access control.
(OR)
b) Explain about ARIES algorithm for Crash Recovery.

-oOo-

Included sequencing Access method

*Atomicity
consistency
isolation
Durability*

*Algorithm for
Recovery ?
Isolation
Exploitation
Semantics*

502-12-862-008

Code No. 17/25/MCA/3.2/DMS

FACULTY OF SCIENCE
M.C.A. III – SEMESTER REGULAR EXAMINATIONS, FEB 2014
DATABASE MANAGEMENT SYSTEMS

PAPER – II

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Explain briefly advantages of DBMS.
2. Write about Relational calculus.
3. Write about Index Data Structure.
4. Explain the ACID Properties.
5. Define ARIES.

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Briefly write about Logical Database Design (ER to Relational) with suitable examples.

(OR)

- b) Briefly explain additional features of ER model.

7. a) Briefly explain relational algebra.

(OR)

- b) What are null values? Explain it briefly.

8. a) Write about Comparison of File Organization which File Organization is best suited for each operation.

(OR)

- b) Discuss B+ Trees in practice with an example.

9. a) Briefly explain Specialized Locking Techniques.

(OR)

- b) Explain Concurrent Execution of Transactions.

10. a) How can we recover from a system crash? Explain it briefly.

(OR)

- b) Discuss about additional issues related to security.

Section – C (Compulsory)

(1x15=15)

Michael Dell, the employee of Dell, always tried to surround himself with the best talent he could find. He was aware that the leader of the company could not do everything himself. He always believes in his team and assigned responsibility to the managers of Dell's various businesses. He communicated with the managers about the future of the company, employees, customers and shareholders.

Michel believed for any company to succeed, top management should share power. Michael also exhibited same other leadership qualities that are emphasized by many leadership theories. He had a vision. He wanted to change the way business was conducted. He embraced a direct model of business. The direct model was based on direct selling-with no retail channel are resellers. The telephone takes the order from the customers and his requirements for the systems, sometimes, he even helps the customers select a system that would meet his requirements. Then the order is passed on to the manufacturing people. When the system is assembled, the PC is delivered to the customers. Thus, the people at Dell benefitted from real time input from customers regarding products and services.

Questions:

- 1) Explain the leadership style of Michael?
- 2) Discuss about the change the way business was conducted by Michael.

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DATABASE MANAGEMENT SYSTEM

PAPER – II

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – AAnswer the following questions in not more than **ONE** page each: (5x4=20)

1. Explain File System.
2. What is Trigger? Give an Example.
3. Explain Static Hashing.
4. What is Deadlock?
5. Explain WAL.

Section – BAnswer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Explain DBMS. What are the advantages and disadvantages of DBMS?
(OR)

*b) Explain Database Design and E-R Diagrams.

7. a) Explain SQL. What is form of basic SQL Query?
(OR)

b) Explain set operators and active databases.

8. a) What is Index Data Structure? Explain it.
(OR)

* b) Explain Extendible Hashing and Linear Hashing.

9. a) Explain concurrency control without locking.
(OR)

b) Explain Serializability and Recoverability.

b) Explain Serializability and Recoverability.

10. a) Explain Database security and Access control.
(OR)

b) Write short note on ARIES and Check Pointing.

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DATABASE MANAGEMENT SYSTEM

PAPER – II

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Define functional dependencies. How are primary keys related to FDS?
2. What is trigger? And what are its three parts? What are the differences between row-level and statement-level triggers?
3. What are the main differences between ISAM and B⁺ tree indexes?
4. Write about ACID Properties?
5. What is the role of the database administrator with respect to security?

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) What is an E-R Diagram? Write about Conceptual design with ER model.
(OR)
b) Consider a relation R with five attributes ABCDE. You are given the following Dependencies;
 $A \rightarrow B, BC \rightarrow E, \text{ and } ED \rightarrow A.$
1. List all keys for R., 2. Is R in 3NF 3. Is R in BCNF
7. a) What are nested queries? What is correlation in nested queries? How would you use the operators IN, EXISTS, UNIQUE, ANY, and ALL in writing nested queries? Why are they useful? Illustrate your answer by showing how to write the division operator in SQL.
(OR)
b) What is the difference between tuple relational calculus and domain relational calculus?
8. a) Explain various types of File Organization?
(OR)
b) Discuss the relationship between Extendible and linear Hashing. What are their relative merits? Consider Space Utilization for Skewed distributions, the use of overflow pages to handle collisions in Extendible Hashing, and the use of a directory in Linear Hashing.

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MCA III – SEMESTER REGULAR EXAMINATIONS, DEC- 2017
DATABASE MANAGEMENT SYSTEM

PAPER – II

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Discuss different types of Entities.
2. Write about Embedded SQL.
3. What is ISAM? Explain briefly.
4. Write a short note on Deadlock.
5. Discuss in brief about Log File.

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Explain the advantages of DBMS.
(OR)
b) What is Constraint? Write about different constraints in Relational Model.
7. a) What is Cursor? Discuss in detail.
(OR)
b) Write about Row Level Triggers in detail.
8. a) Discuss Insert, Delete Operations on B+ Trees.
(OR)
b) Discuss the following:
i) Static Hashing ii) Linear Hashing.
9. a) Define Concurrency Control. Explain Lock-Based Concurrency Control.
(OR)
b) What is transaction? Explain ACID properties.
10. a) Discuss the following:
i) WAL ii) Check Pointing.
(OR)
b) Write in detail about Database Security.

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MCA III – SEMESTER REGULAR EXAMINATIONS, JAN- 2019
DATABASE MANAGEMENT SYSTEM

PAPER – II

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Discuss briefly different types of attributes.
2. Write a short note on Dynamic SQL.
3. What is ISAM? Discuss in brief.
4. What is the need of Recoverability?
5. Give a short note on ARIES.

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Contrast and Compare File Systems and Database Management Systems.
(OR)
b) Define Normalization. Discuss different types of Normal Forms.
7. a) Write in detail about Relational Algebra.
(OR)
b) Explain different types of Triggers in detail.
8. a) Explain File Organizations and Indexing in detail.
(OR)
b) Explain in detail about Extensible Hashing and Linear Hashing.
9. a) What is locking? Explain Two-Phase Locking with an example.
(OR)
b) Define Transaction. Write in detail about ACID Properties.
10. a) Explain different types of issues related to Security.
(OR)
b) Write in detail about the WAL.

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5174-19-862011

Code No. 1732

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DATABASE MANAGEMENT SYSTEMS

PAPER –II

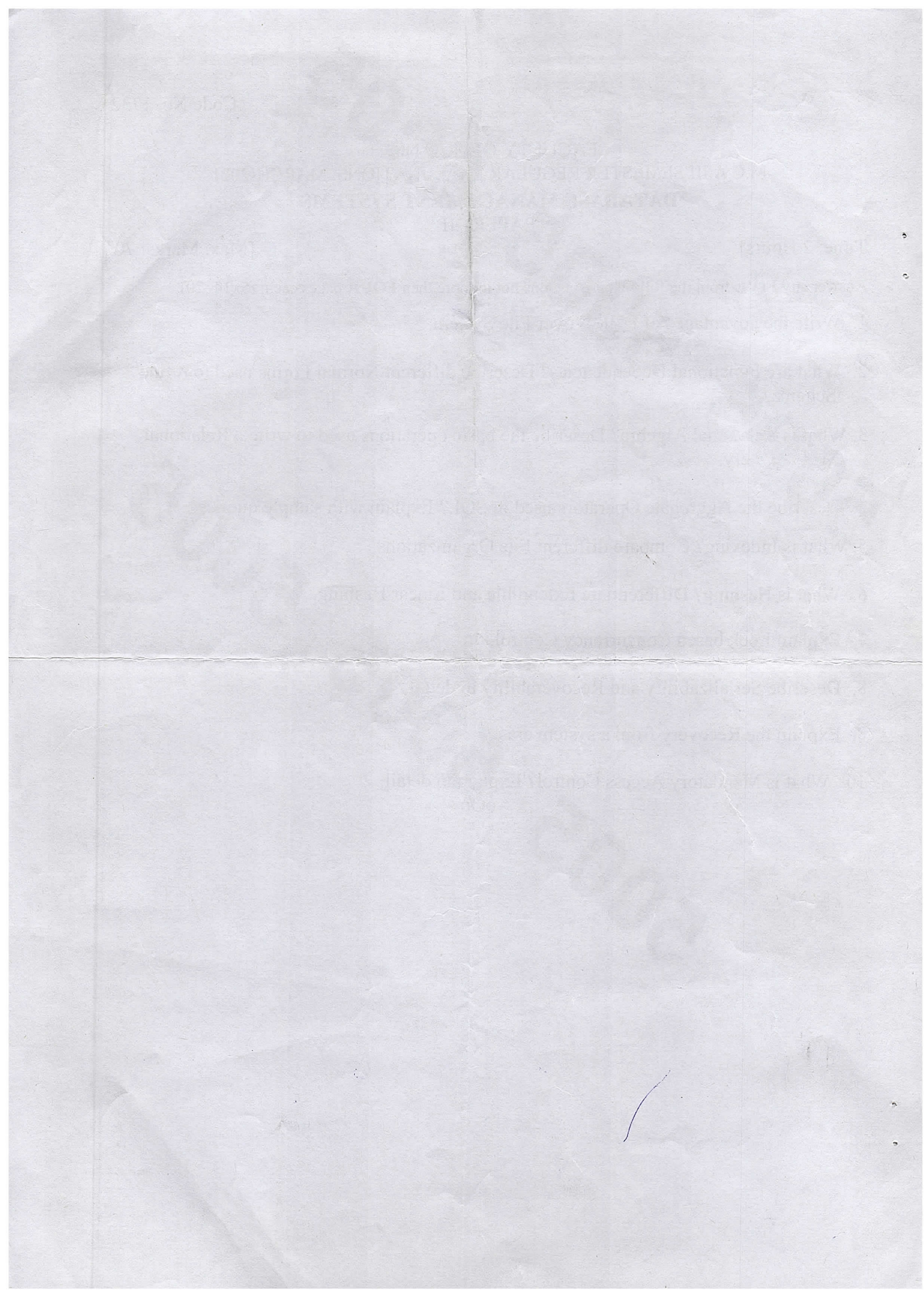
Time: 2 Hours]

[Max. Marks: 70

Answer any **FIVE** from the following questions not in more than **FOUR** pages each: (5x14=70)

1. Write the advantages of DBMS over File System.
2. What are Functional Dependencies? Describe different Normal Forms used to refine Schema.
3. What is Relational Algebra? Describe the basic operations used to write a Relational Algebra Query.
4. Describe the Aggregate Operators used in SQL? Explain with sample queries.
5. What is Indexing? Compare different File Organizations.
6. What is Hashing? Differentiate Extendible and Linear Hashing.
7. Explain Lock based Concurrency Control.
8. Describe Serializability and Recoverability in detail.
9. Explain the Recovery from a system crash.
10. What is Mandatory Access Control? Explain in detail.

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M.C.A. III- SEMESTER EXAMINATIONS, DECEMBER 2012

SUBJECT: OPERATING SYSTEM

- PAPER: 04

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section-A and Section-B

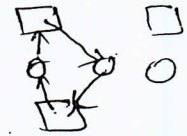
Section - A

[5x4=20]

Answer the following questions in not more than **ONE** page each:

1. Briefly explain about OS structure.
2. Discuss about demand paging.
3. What are the necessary conditions for deadlock occurrence?
4. Describe briefly about RAID structure.
5. Discuss about security in Linux system.

*Reliability
Availability
Integrity
Dissemination*



Section - B

[5x10=50]

Answer the following questions in not more than FOUR pages each:

6. a) Explain how inter process communication is implemented.
(OR)

- b) i) The following system consists of three processes P_1 , P_2 and P_3 and their burst times are given as follows:

Process	Burst time
P_1	30
P_2	3
P_3	3



Find average waiting using RR (time quantum = 4 milliseconds) and FCFS. Draw Gantt chart to each algorithm.

- ii) Describe thread scheduling in detail.

- ~~7.~~ a) Discuss about page replacement algorithm by taking suitable examples.
(OR)

- ~~b.)~~ Explain about directory structure and file system mounting of file system interface.

- ~~8.~~ a) What is critical section? Explain about semaphores.
(OR)

- ~~b.)~~ Discuss the, methods for handling deadlocks.

- ~~9.~~ a) Explain briefly about disk scheduling algorithms by taking suitable examples.
(OR)

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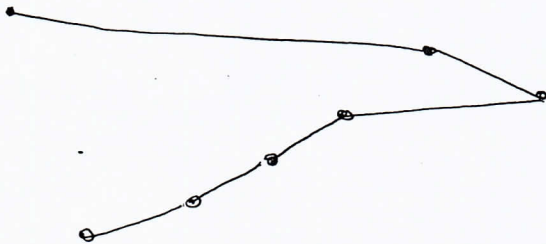
- b) What is meant by swap space management? Explain briefly about Kernel I/O subsystem.
10. a) Discuss the design principles Kernel modules of Linux system.
(OR)
- b) Explain the general architecture of Windows-XP and the NT Kernel.

-oOo-

183, 28, 87, 12

FCFS

0 35 57 87 118 182 230



operating system

Code No. 17/25/MCA/3.4/BL

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M.C.A.III – SEMESTER BACKLOG EXAMINATIONS, JULY 2013
OPERATING SYSTEMS

PAPER – IV

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Explain about Thread.
2. What is thrashing? Explain.
3. What is critical section ? Explain.
4. Explain about RAID Structure.
5. What is Kernel? Explain.

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) What is process? Explain about Inter process communication.
(OR)
b) Explain in detail about Multiprocessor scheduling.
7. a) Explain segmentation with paging in detail.
(OR)
b) Write about File system structure & implementation.
8. a) How to solve dining philosopher's problem in process synchronization.
(OR)
b) What is deadlock? What are the different methods of handling deadlocks?
9. a) What is disk scheduling ? Explain different algorithms.
(OR)
b) Explain about Kernel I/O subsystem.
10. a) Explain about Memory Management in Linux system.
(OR)
b) Discuss about windows- XP General Architecture.

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M.C.A. I II – SEMESTER REGULAR EXAMINATIONS, FEB 2014
OPERATING SYSTEMS

PAPER – IV

Time : 3 Hours]

[Max. Marks: 70

Note:: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than ONE page each:

1. Explain multiprogramming concept.
2. Explain file sharing.
3. What is critical section problem?
4. Explain I/O interrupts.
5. Explain LINUX Kernel.

Section – B

(5x10=50)

Answer the following questions in not more than FOUR pages each:

6. a) What is a process? Explain life cycle of a process.
(OR)
b) Explain: i) Primitive SJF scheduling algorithm.
ii) Round Robin scheduling algorithm with example.
7. a) Explain paging. Explain addressing scheme in paging with examples.
(OR)
b) Explain linked allocation method in file allocations.
8. a) Explain monitors in process synchronizations.
(OR)
b) What is RAG? What is the use of RAG to handle the deadlock?
9. a) Explain: i) SSTF ii) FCFS disk scheduling algorithms.
(OR)
b) Explain Application I/O Interface in detail.
10. a) Explain process management.
(OR)
b) Explain network structure.

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M.C.A. III – SEMESTER REGULAR EXAMINATIONS, JAN-2016
OPERATING SYSTEMS
PAPER – IV

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each:

(5x4=20)

1. List out benefits of multithreading.
2. What is Paging? Discuss state and dynamic partitions.
3. Describe Deadlock prevention.
4. What is swap space management?
5. Write design principles of Linux system.

Section – B

Answer the following questions in not more than **FOUR** page each:

(5x10=50)

6. a) Explain process state transition diagram and process control block.
(OR)
✓ b) Discuss about scheduling algorithms and list out advantages and disadvantages.
7. a) What is Swapping? Explain any two page replacement algorithms with an example.
(OR)
✓ b) Describe directory structure and directory implementation.
8. ✓ a) What is dining philosopher problem? Discuss the solution using monitors.
(OR)
b) What is the use of resource allocation graph? Write the steps in Deadlock detection. Explain how to recover from deadlock?
9. ✓ a) Explain Disk scheduling algorithms in detail.
(OR)
✓ b) What is stable storage implementation? Explain application I/o Interface and STREAMS.
10. a) Explain File system and memory management in Linus.
(OR)
✓ b) Explain Windows XP architecture components in brief.

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FACULTY OF SCIENCES
MCA III – SEMESTER REGULAR EXAMINATIONS, DEC- 2016
OPERATING SYSTEMS
PAPER – IV

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – AAnswer the following questions in not more than **ONE** page each:

(5x4=20)

1. Draw process state transition diagram and discuss
2. What is static and dynamic partition?
3. Write about Monitors
4. Write a note on Stable Storage Implementation
5. Discuss briefly about any file system in Linux

Section – BAnswer the following questions in not more than **FOUR** page each:

(5x10=50)

6. a) Define a thread? Discuss how inter process communication is implemented?

(OR)

- b) Consider the set of processes with the CPU burst time gives in milliseconds

Process	Burst time	Priority
P ₁	10	3
P ₂	1	1
P ₃	2	3
P ₄	1	4
P ₅	5	2

Draw Gantt Charts for FCFS, non preemptive priority and SJF and Calculate Average waiting time for three Algorithms.

7. a) What is meant by Swapping? Explain about page replacement Algorithm with suitable examples (Any two).

(OR)

- b) Explain about file system implementation and Access methods?

8. a) What is critical section problem? Explain how it is solved by using semaphores? Give in detail.

(OR)

- b) What is Safe State? Explain Banker's Algorithm by taking example.

9. a) Describe RAID Structure and discuss disk scheduling Algorithms.

(OR)

- b) Write about Kernel I/O Sub systems and how I/O request is transformed to hardware operations.

10. a) Discuss process management and memory management in Linux systems.

(OR)

- b) Explain about General Architecture of Windows XP.

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MCA III – SEMESTER REGULAR EXAMINATIONS, DEC- 2017
OPERATING SYSTEMS

PAPER – IV

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. What is System Call? Discuss in brief.
2. Discuss Directory Structure.
3. Write about Resource Allocation Graph.
4. Explain in brief about Stable Storage Implementation.
5. Briefly discuss Linux Security Model.

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Discuss various Scheduling Algorithms and list out advantages and disadvantages.
(OR)
b) What are the advantages of Multithreaded Programming? Discuss different Multithreading Models.
7. a) Write about File Allocation Methods.
(OR)
b) Discuss in detail about Demand Paging.
8. a) Write about Deadlock Handling Methods.
(OR)
b) Discuss Reader Writer Problems and provide solution using a Semaphore.
9. a) Write about Kernel I/O Sub system and Application I/O interface.
(OR)
b) Explain in detail about Swap Space Management.
10. a) Write about Design Principles of Windows XP.
(OR)
b) Explain the File System and Memory Management in Linux.

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Code No.1734

FACULTY OF SCIENCES
MCA III – SEMESTER REGULAR EXAMINATIONS, FEB- 2019
OPERATING SYSTEMS
PAPER – IV

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each:

(5x4=20)

1. Give a short note Multiple Process Scheduling.
2. Write about Context Switch.
3. What is Semaphore? Discuss briefly.
4. Explain briefly about Swap Space Management.
5. Write about Linux Network Structure.

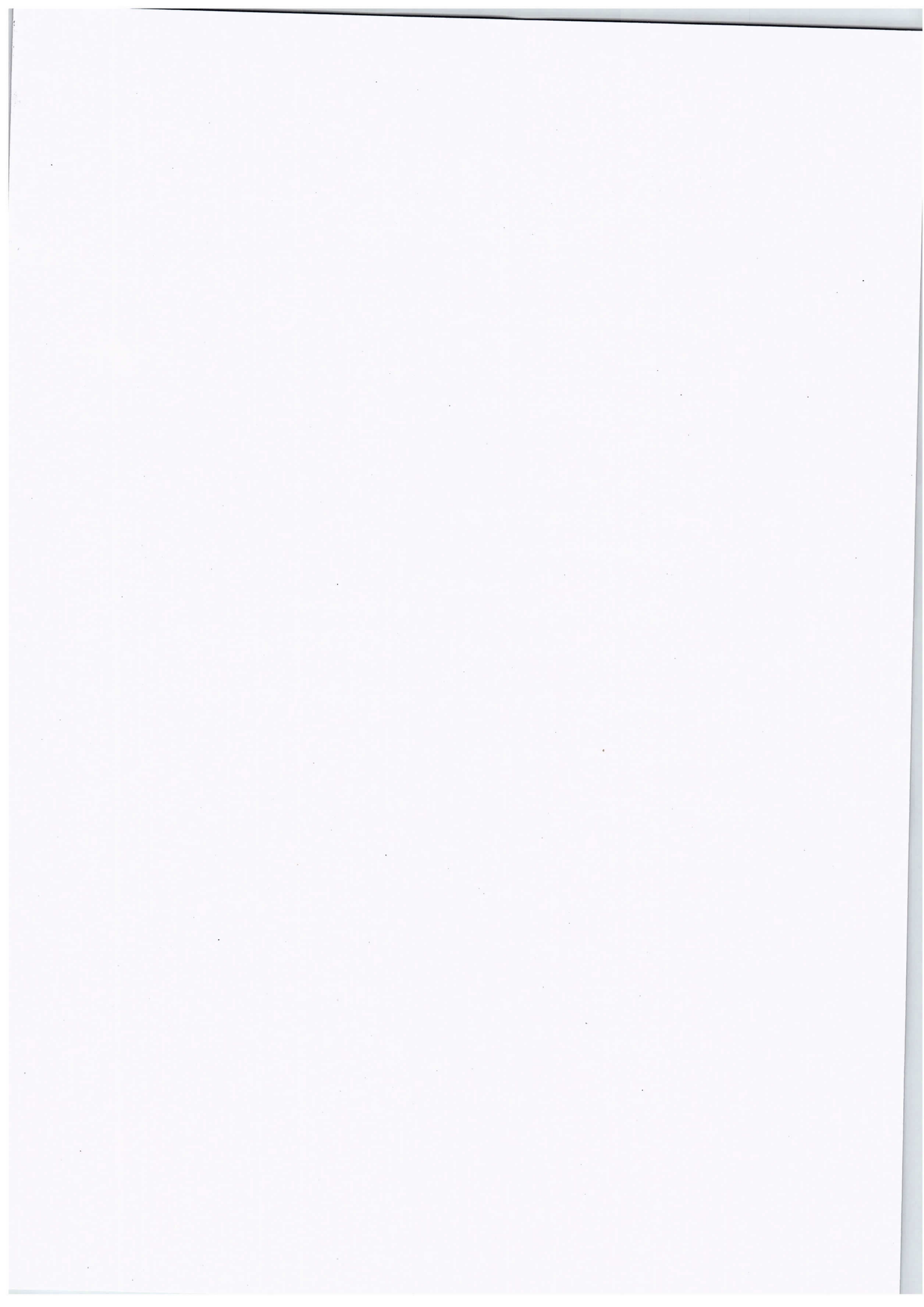
Section – B

Answer the following questions in not more than **FOUR** page each:

(5x10=50)

6. a) Discuss about Operating System Layered Structure in UNIX and MS DOS.
(OR)
b) Explain Round Robin and Priority Scheduling Algorithms with suitable examples.
7. a) What is Demand Paging? Explain in detail.
(OR)
b) Discuss different types of Directory Structures.
8. a) How a Deadlock is detected? Explain in detail.
(OR)
b) Explain Dining Philosopher Problem.
9. a) Discuss RAID Structure in detail.
(OR)
b) Discuss SCAN and LOOK Disk Scheduling Algorithms.
10. a) Discuss about the File System in the Linux Operating System.
(OR)
b) Explain the components of Windows XP Architecture.

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Code No.1734

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FACULTY OF SCIENCE
M.C.A III SEMESTER REGULAR EXAMINATIONS, JULY-2021
OPERATING SYSTEMS
PAPER – 04

Time: 2 Hours]

[Max. Marks:70

Answer any **FIVE** from the following questions not in more than **FOUR** pages each: (5x14=70)

1. What is the need of inter process Communication? Explain its message passing systems.

2. List all CPU scheduling algorithms and briefly explain any one with example.

3. What is Paging? What is need for page replacement? List and define all page replacement algorithms.

4. What is a File? Explain its operations, attributes and its types.

5. What is Deadlock? Explain its conditions and resource allocation graph.

6. Give a brief note on deadlocks prevention and avoidance.

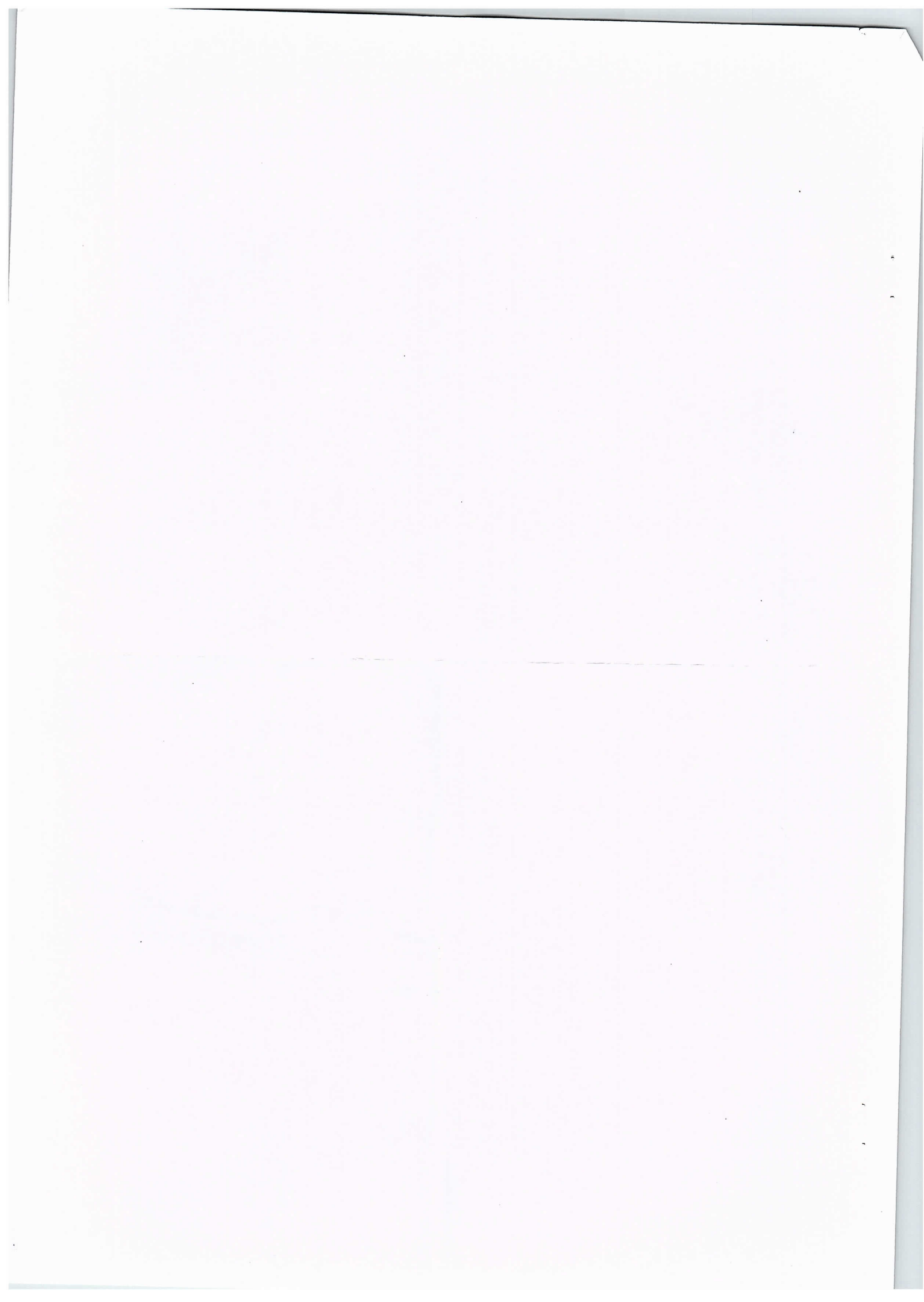
7. List all Disk Scheduling algorithms and briefly explain any one with example.

8. Give a brief note on Kernel I/O subsystem.

9. Give a brief note on process Management of Linux operating system.

10. Give a brief note on windows XP architecture.

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DESIGN AND ANALYSIS OF ALGORITHMS

PAPER – III

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each:

(5x4=20)

1. Explain space complexity.
2. Explain divide and conquer concept.
3. Explain DFS graph.
4. Explain backtracking algorithm.
5. Explain code generation with common subexpressions.

Section – B

Answer the following questions in not more than **FOUR** page each:

(5x10=50)

6. a) Write a algorithm for n^{th} –Fibonacci number and find time complexity.
(OR)
✓ b) Explain binary search tree and write a algorithm for recursive search of BST.
7. a) Explain Quick sort algorithm with example.
(OR)
✓ b) Explain minimum cost spanning trees.
8. ✓ a) Explain optimal binary search tree algorithm to find minimum cost.
(OR)
b) Write a pseudocode to determine biconnected components and explain.
9. a) Explain all solution to the n-queens problem.
(OR)
✓ b) Explain Hamiltonian cycles in back tracking.
10. a) Explain classes NP-hard and NP-complete.
(OR)
✓ b) Explain AND/OR graph decision problem.

--oOo--

FACULTY OF SCIENCES
MCA III – SEMESTER REGULAR EXAMINATIONS, DEC- 2016
DESIGN AND ANALYSIS OF ALGORITHM

PAPER – III

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each:

(5x4=20)

1. Describe the method for analyzing an algorithm?
2. Describe the greedy method?
3. Explain BFS Graph?
4. Explain Branch-Bound Concept?
5. Explain code generation with common sub expressions?

Section – B

Answer the following questions in not more than **FOUR** page each:

(5x10=50)

6. a) Consider the following list of elements,
70, 80, 40, 50, 60, 11, 35, 85?
Sort the above list using merge sort.

(OR)

- b) Write an algorithm form the i^{th} element from the stack and find time complexity.

7. a) Explain Convex Hull Problem with example?
(OR)

- b) Explain Knapsack Problem with the help of suitable examples?

8. a) Explain the Traveling Salesperson Problem?
(OR)

- b) Explain optimal binary search trees.

9. a) Explain 8-Queens Problem.

(OR)

- b) Explain the 0/1 Knapsack Problem?

10. a) Explain NP-Hard Scheduling Problems.

(OR)

- b) Explain Cook's Theorem?

--oOo--

FACULTY OF SCIENCES
MCA III – SEMESTER REGULAR EXAMINATIONS, DEC- 2017
DESIGN AND ANALYSIS OF ALGORITHMS

PAPER – III

[Max. Marks: 70]

Time: 3 hours]

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. What do you mean by best case, average case and worst case time complexity of an algorithm.
2. Explain divide and conquer concept?
3. Explain Dynamic Programming?
4. Explain back tracking method?
5. What is Cook's Theorem?

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) What is an Algorithm? Explain various notations related to Algorithm Performance analysis.

(OR)

- b) Explain various Elementary Data Structures.

7. a) Explain the Single Source Shortest Paths Problems.

(OR)

- b) Explain the Optimal Merge Patterns.

8. a) Explain All-Pairs Shortest Paths Problems.

(OR)

- b) Write a Pseudo code to determine Bi connected components and explain.

9. a) Explain the Graph Coloring Scheme?

(OR)

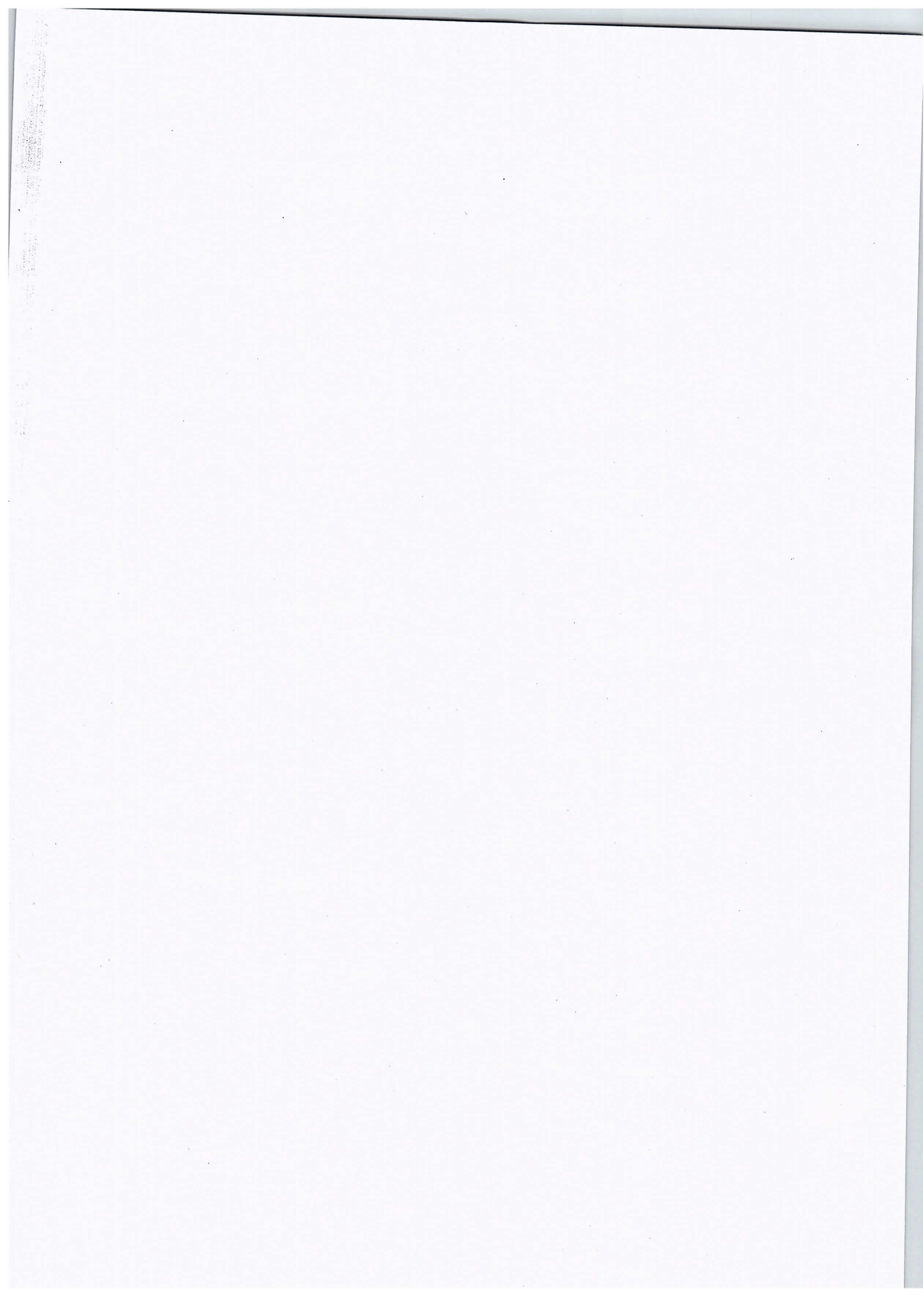
- b) Explain 0/1 Knapsack Problem in Branch and Bound Technique.

10. a) Explain classes NP-Hard and NP-Complete.

(OR)

- b) Explain AND/OR graph decision problem.

--oOo--



Code No.1733

FACULTY OF SCIENCES
MCA III – SEMESTER REGULAR EXAMINATIONS, FEB- 2019
DESIGN AND ANALYSIS OF ALGORITHMS

PAPER – III

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

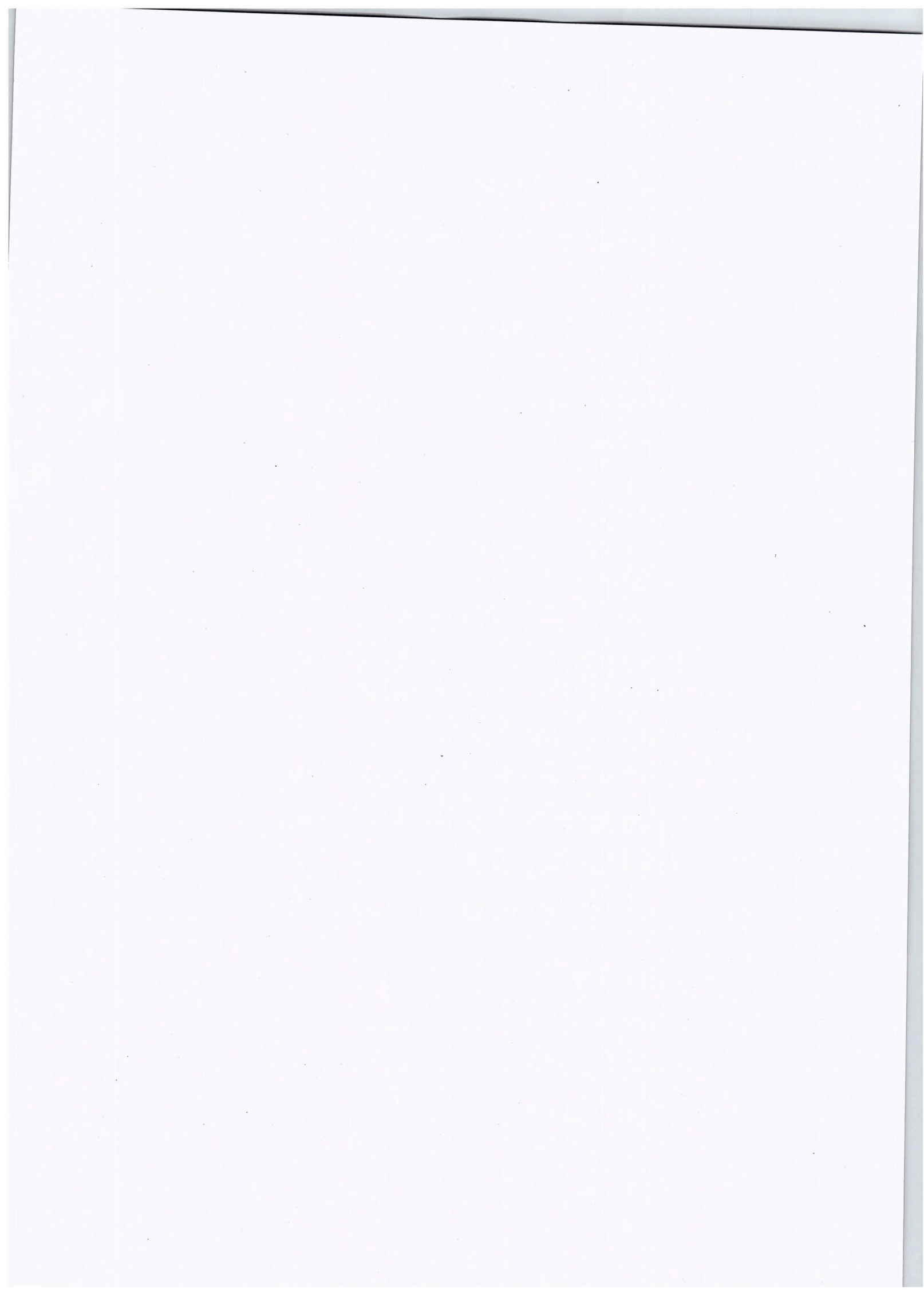
1. Write about Priority Queues.
2. Explain Selection Sort in brief.
3. Define Spanning Tree.
4. Differentiate Back Tracking and Branch & Bound Techniques.
5. Give a brief note on NP-Completeness.

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Discuss Stack Operation with an example program.
(OR)
b) How an Algorithm is analyzed? Explain.
7. a) Explain the working of Quick Sort Algorithm with an example.
(OR)
b) Discuss How Greedy Method is applied for Job Sequencing.
8. a) Define Optimal Binary Search Tree with example.
(OR)
b) Compare DFS and BFS Algorithms with an example and denote its Time Complexities.
9. a) Explain about 8-Queen Problem.
(OR)
b) Discuss in detail about Graph Coloring Problem.
10. a) Discuss about NP-Hard Scheduling Problems.
(OR)
b) Write about Cook's Theorem.

--oOo--



Code No.1733

FACULTY OF SCIENCE
M.C.A III SEMESTER REGULAR EXAMINATIONS, JULY-2021
DESIGN AND ANALYSIS OF ALGORITHMS
PAPER – 03

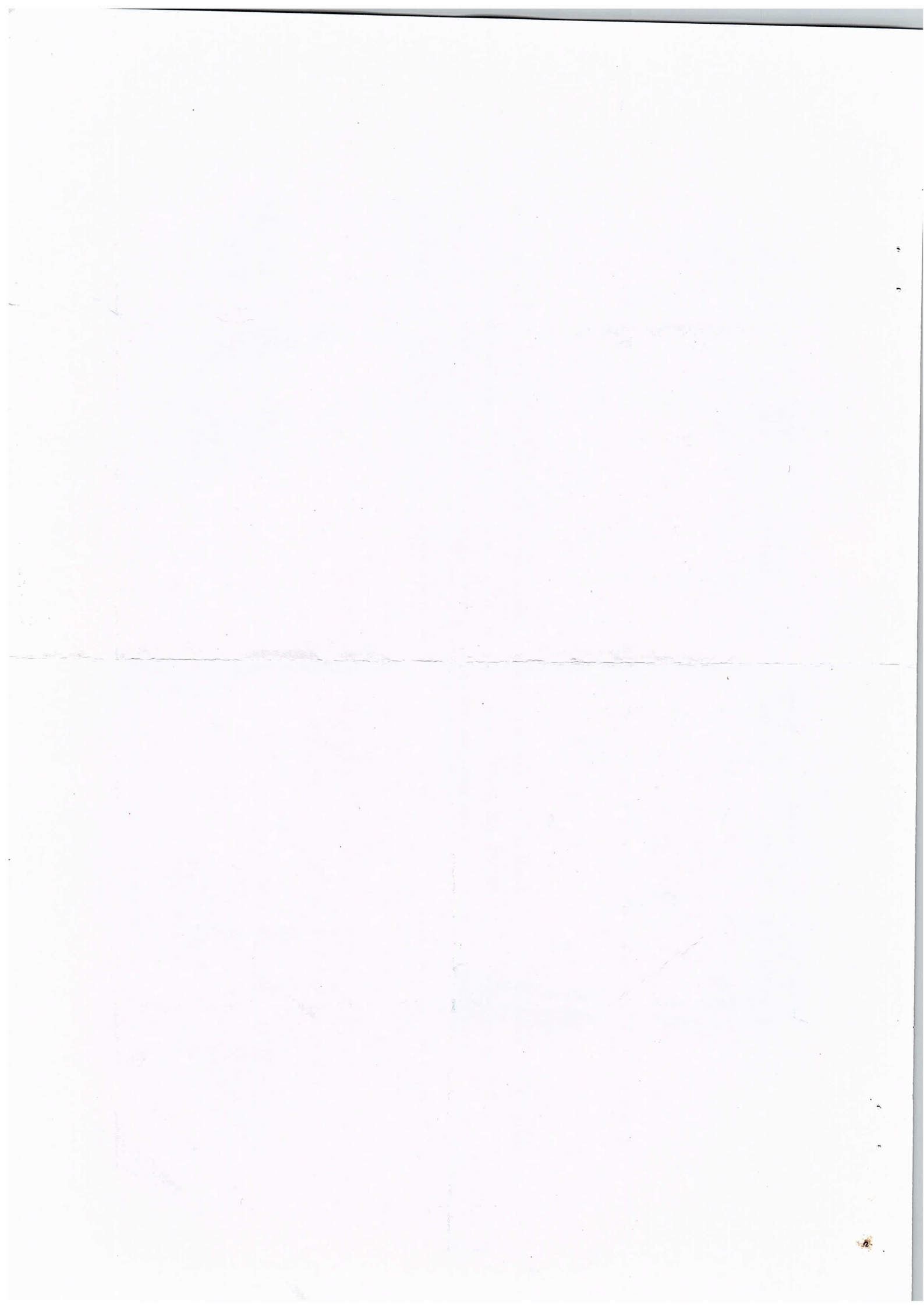
Time: 2 Hours]

[Max. Marks:70

Answer any **FIVE** from the following questions not in more than **FOUR** pages each: (5x14=70)

1. Write Algorithm Specifications and Explain Performance analysis of an algorithm.
2. Explain in detail Stacks and Queues.
3. Explain Binary search using Divide and Conquer Method.
4. Explain Tree Vertex Splitting using the Greedy Method.
5. Explain Multistage Graphs using Dynamic Programming.
6. What is Graph? Explain Graph Traversal Techniques.
7. Explain 8-queens problem using Back Tracking.
8. Explain 0/1 Knapsack problem using Branch-Bound.
9. Explain Cooks Theorem.
10. Discuss some NP Hard problems.

--oOo--



FACULTY OF COMPUTER SCIENCE
M.C.A.III – SEMESTER BACKLOG EXAMINATIONS, JULY 2013
OPERATIONS RESEARCH
PAPER – V

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Explain the procedure of solving LPP by graphical Method.
2. What do you mean by an unbalanced Transportation problem and explain how to convert the unbalanced IP into a balanced one.
3. Explain travelling salesman problem.
4. Define the following terms in dynamic programming.
i) Stage ii) State iii) State variable iv) Decision variable
5. Explain the rules for determining a saddle point.

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) i) State when do you prefer slack, surplus and artificial variable in simplex.

ii) Solve the LPP

$$\text{Max } z = 3x_1 + 2x_2$$

$$\text{Subject to } 4x_1 + 3x_2 \leq 12$$

$$4x_1 + 2x_2 \leq 8$$

$$4x_1 + x_2 \leq 8$$

$$x_1, x_2 \geq 0$$

(OR)

- b) i) Explain briefly the term 'degeneracy' in LPP.

ii) Use big-M - method to solve the LPP

$$\text{Minimize } z = 4x_1 + 3x_2$$

$$\text{Subject to } 2x_1 + x_2 \geq 10$$

$$-3x_1 + 2x_2 \leq 6$$

$$x_1 + x_2 \geq 6$$

$$x_1, x_2 \geq 0$$

7. a) i) Explain the difference between transportation problem and trans
ii) Find the optimal solution of the following transportation prob

$$\begin{array}{ccccccc} & 2 & 1 & 3 & 1 & & \\ 3 & 2 & 3 & 1 & & & \\ 1 & 0 & 3 & 2 & & & \\ 3 & 2 & 1 & 0 & & & \end{array}$$

item.

-24-

Code No. 17/25/MCA/3.3/DA

FACULTY OF SCIENCE
M.C.A. III – SEMESTER REGULAR EXAMINATIONS, FEB 2014
DESIGN AND ANALYSIS OF ALGORITHMS

PAPER – III

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Explain time complexity.
2. Explain insertion sort.
3. Explain reliability design.
4. Explain recursive back tracking.
5. Explain NP-hard concept.

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Explain recursive algorithm. Explain the problem towers of Hanoi.
(OR)

b) Explain insertion, deletion algorithm in a heap.

7. a) What is divide-and-conquer problem explain with example.
(OR)

b) Explain prim's algorithm.

8. a) Explain i) BFS ii) DFS
(OR)

b) Explain O/I Knapsack problem with example.

9. a) Explain 8-Queens problem with algorithm.
(OR)

b) Explain travel sales person problem with example.

10. a) Explain NP-hard scheduling algorithm.
(OR)

b) Explain AND/OR graph decision problem.

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Code No. 17/25/MCA/3.5/OR

FACULTY OF SCIENCE
M.C.A. III – SEMESTER REGULAR EXAMINATIONS, FEB 2014
OPERATIONS RESEARCH

PAPER – V

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Write short notes on Sensitivity Analysis.
2. Explain the mathematical model of transportation problem
3. List and explain the steps involved in the HUNGARIAN method.
4. List the various applications of dynamic programming with brief application.
5. List and explain the terminologies of Game theory.

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Solve the following linear programming problem using graphical method.

$$\begin{aligned} \text{Maximize} \quad & Z = 20x_1 + 10x_2 \\ \text{Sub. to the constraints} \quad & x_1 + 2x_2 \leq 40 \\ & 3x_1 + x_2 \leq 30 \\ & 4x_1 + 3x_2 \geq 60 \\ & x_1 \text{ and } x_2 \geq 0 \end{aligned}$$

(OR)

- b) Solve the following linear programming problem using simplex method.

$$\begin{aligned} \text{Maximize} \quad & Z = 5x_1 + 3x_2 + 7x_3 \\ \text{Sub. To the constraints} \quad & x_1 + x_2 + 2x_3 \leq 22 \\ & 3x_1 + 2x_2 + x_3 \leq 26 \\ & x_1 + x_2 + x_3 \leq 18 \\ & x_1, x_2 \text{ and } x_3 \geq 0 \end{aligned}$$

(5x10=50)

7. a) Write the algorithm for Northwest-corner method.

(OR)

- b) Consider the following transportation problem involving three sources and four destinations. The cell entries represent the cost of transportation per unit. Obtain the initial feasible solution using Least-corner method.

		Destination				Supply
		1	2	3	4	
Source	1	3	1	7	4	300
	2	2	6	5	9	400
	3	8	3	3	2	500
Demand		250	350	400	200	1200

[PTO]

8. a) Solve the following assignment problem using Hungarian method. The matrix entries represent the processing times in hours (C_{ij}) of the job ' i ', if it is assigned to the operator ' j '. The matrix also shows the minimum value of each row.

		Operator				
		1	2	3	4	5
job	1	20	22	35	22	18
	2	4	26	24	24	7
	3	23	14	17	19	19
	4	17	15	16	18	15
	5	16	19	21	19	25

(OR)

- b) Explain in detail about Branch and Bound technique for assignment problem.

9. a) Solve the following linear programming problem using dynamic programming technique.

$$\text{Maximize } Z = 30x_1 + 15x_2 + 6x_3$$

$$\text{Sub. To the constraints } 6x_1 + 8x_2 + 9x_3 \leq 210$$

$$12x_2 + 6x_3 \leq 180$$

$$x_1, x_2 \text{ and } x_3 \geq 0$$

(OR)

- b) Discuss in detail about various application scenarios of dynamic programming.

10. a) i) Explain the theory of dominance in the game theory.
ii) Write short notes on pure strategies and mixed strategies.

(OR)

- b) Consider the following pay-off matrix of player A and solve it optimally using graphical method.

		Player-B				
		1	2	3	4	5
Player-A	1	3	0	6	-1	7
	2	-1	5	-2	2	1

FACULTY OF SCIENCE
M.C.A. III – SEMESTER REGULAR EXAMINATIONS, JAN-2016

OPERATIONS RESEARCH

PAPER – V

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than ONE page each:

(5x4=20)

1. With suitable examples, define slack, surplus and artificial variables.
2. What do you mean by an unbalanced transportation problem?
3. Explain the mathematical model of an assignment problem.
4. What is Bellman's optimality principle?
5. Explain the dominance property.

Section – B

Answer the following questions in not more than FOUR pages each:

(5x10=50)

6. a) Solve graphically

Maximize: $z = 8X_1 + 18X_2$

Subject to the constraints

$$3X_1 + 5X_2 \geq 15$$

$$4X_1 + 9X_2 \leq 36$$

$$X_1 \geq 0, X_2 \geq 0$$

(OR)

- b) Using simplex method, solve the following LPP.

Min: $Z = -12X_1 - 15X_2$

Subject to

$$4X_1 + 3X_2 \leq 12$$

$$2X_1 + 5X_2 \leq 10$$

$$X_1 \geq 0, X_2 \geq 0$$

7. a) Using low cost entry method, find the initial Basic feasible solution for the transportation problem.

	D ₁	D ₂	D ₃	D ₄	ai
S ₁	550	210	4	3	60
S ₂	6	455	95	5	60
S ₃	2	3	860	130	90
Bj	50	65	65	30	

(OR)

- b) Find the optimum solution for the following transportation problem.

	D ₁	D ₂	D ₃	ai
S ₁	1	5	6	90
S ₂	3	2	3	10
S ₃	2	6	1	20
S ₄	6	4	2	40
Bj	60	50	50	

8. a) Find the optimum solution for the following assignment problem.

	I	II	III	IV
A	8	26	17	11
B	13	28	4	26
C	38	19	18	15
D	19	26	24	10

(OR)

- b) Explain the procedure to solve an assignment problem by Hungarian method.

9. a) Solve

Maximize: $F = y_1^2 + y_2^2 + y_3^2$

Subject to $y_1 y_2 y_3 \leq 5$

$y_1 > 0$ and are integers.

(OR)

- b) Solve

Maximize: $F = 20y_1 + 90y_2 + 70y_3$

Subject to $y_1 + 3y_2 + 2y_3 \leq 7$

$y_1 \geq 0, y_2 \geq 0, y_3 \geq 0$ and are integers.

10. a) Explain the method to solve an 2xn game graphically.

(OR)

- b) Solve the following game

$$\begin{bmatrix} 2 & -1 & -5 \\ 1 & 0 & 3 \\ -3 & -7 & 8 \end{bmatrix}$$

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23

PAPER – V

Time: 3 hours]

Note: Answer all questions from Section – A and Section – B [Max. Marks: 70

Section – A

Answer the following questions in not more than ONE page each: (5x4=20)

1. Explain sensitive analysis in Linear Programming Problem.
2. Explain degeneracy in Transportation problem.
3. Write short notes on assignment problem and its applications.
4. Write short notes on application of Dynamic programming.
5. Define strategy, pure strategy, mixed strategy.

Section – B

Answer the following questions in not more than FOUR page each: (5x10=50)

1. (a) Using Big-M Method solve the LPP.

Minimize $Z = 12X_1 + 20X_2$

Subject to the constraints

$$6X_1 + 8X_2 \geq 100$$

$$7X_1 + 12X_2 \geq 120$$

$$X_1, X_2 \geq 0$$

(OR)

- (b) Solve the LPP.

Maximize $Z = 2X_1 + 3X_2 + 10X_3$

Subject to the constraints

$$X_1 + 2X_3 = 0$$

$$X_2 + X_3 = 1$$

$$X_1, X_2, X_3 \geq 0$$

2. (a) Using Vogel's approximation method find the initial basic feasible solution for the following transportation problem.

	Destination				Availability
	1	2	3	4	
A	7	2	5	5	30
B	4	4	6	5	15
C	5	3	3	2	10
D	4	-1	4	2	20
Requirement	20	25	15	15	

P.T.O

- (b) Find the optimal solution for the following transportation problem.

Factory	P	Q	R	S	Availability
A	10	8	7	12	500
B	12	13	6	10	500
C	8	10	12	14	900
Demand	700	550	450	300	

3. (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	13

(OR)

- (b) Find the optimal solution by Hungarian method.

	P	Q	R	S	T
A	85	75	65	125	75
B	90	78	66	132	78
C	75	66	57	114	69
D	80	72	60	120	72
E	76	64	56	112	68

4. (a) Using dynamic programming to solve the following LPP.

Maximize $Z = 3x_1 + 5x_2$

Subject to the constraints

$$x_1 \leq 4$$

$$x_2 \leq 6$$

$$3x_1 + 2x_2 \leq 18$$

$$x_1, x_2 \geq 0$$

(OR)

P.T.O

-3-

(b) Solve Minimize $Z = y_1^2 + y_2^2 + y_3^2$

Subject to the constraints

$$y_1 + y_2 + y_3 \geq 15$$

$$y_1, y_2, y_3 \geq 0$$

5. (a) Solve the following game.

7	1	7
9	-1	1
5	7	6

(OR)

(b) Solve the game by linear programming method.

3	-4	2
1	-3	-7
-2	4	7

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FACULTY OF SCIENCES
MCA III – SEMESTER REGULAR EXAMINATIONS, DEC- 2017
OPERATIONS RESEARCH
PAPER – V

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – AAnswer the following questions in not more than **ONE** page each:

(5x4=20)

1. Define slack variables and surplus variable in Linear Programming problem.
2. Define Feasible solution, Basic feasible solution, Non-degenerate Basic feasible solution in transportation problem.
3. Explain briefly cutting plane algorithm.
4. Explain state variable, recursive function, best recursive function, backward recursive function.
5. Define two-person zero sum game, optimal strategy, pure strategy.

Section – BAnswer the following questions in not more than **FOUR** page each:

(5x10=50)

6. (a) Using Big-M Method solve the LPP.

Minimize $Z = 2X_1 + 5X_2$

Subject to the constraints

$X_1 + 4X_2 \leq 24$

$3X_1 + X_2 \leq 21$

$X_1 + X_2 \leq 9$

$X_1, X_2 \geq 0$

(OR)

- (b) Solve the LPP.

Maximize $Z = 5X_1 - 2X_2 + 3X_3$

Subject to the constraints

$2X_1 + 2X_2 - X_3 \geq 2$

$3X_1 - 4X_2 \leq 3$

$X_1 + 3X_3 \leq 5$

$X_1, X_2, X_3 \geq 0$

7. (a) Find the initial basic feasible solution to the following transportation problem using North West corner rule.

						Availability
	4	3	1	2	6	80
	5	2	3	4	5	60
	3	5	6	3	2	40
	2	4	4	5	3	20
Requirement	60	60	30	40	20	

(OR)

- (b) Find the optimal solution for the following transportation problem.

		Destinations				
		D ₁	D ₂	D ₃	D ₄	Supply
O ₁		6	4	1	5	14
O ₂		8	9	2	7	16
O ₃		4	3	6	4	5
Required		6	10	15	4	

[PTO]

8. (a) Maximize by Branch and Bound Technique

$$Z = 7X_1 + 9X_2$$

Subject to

$$-X_1 + 3X_2 \leq 6$$

$$7X_1 + X_2 \leq 35$$

$$0 \leq X_1, X_2 \leq 7$$

X_1, X_2 are integers.

(OR)

- (b) Find the optimal solution of the Assignment Problem

	I	II	III	IV
A	5	3	1	8
B	7	9	2	6
C	6	4	5	7
D	5	7	7	6

9. (a) Minimize $y_1^2 + y_2^2 + y_3^2$
 Subject to $y_1 + y_2 + y_3 = 10$
 y_1, y_2, y_3 are non-negative integers.

(OR)

- (b) Solve LPP by the method of dynamic programming

$$\text{Maximize } Z = 2X_1 + 5X_2$$

$$\text{Subject to } 2X_1 + X_2 \leq 430$$

$$2X_2 \leq 460$$

$$X_1, X_2 \geq 0$$

10. (a) Solve the following game.

	B ₁	B ₂
A ₁	30	2
A ₂	4	14
A ₃	6	9

(OR)

- (b) Explain the method to solve $2 \times n$ game graphically.

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FACULTY OF SCIENCES
MCA III – SEMESTER REGULAR EXAMINATIONS, FEB- 2019
OPERATIONS RESEARCH

PAPER – V

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each:

(5x4=20)

1. Explain sensitive analysis in Linear Programming Problem.
2. Explain degeneracy in Transportation problem.
3. Write short notes on assignment problem and its applications.
4. Write short notes on application of Dynamic Programming.
5. Define strategy, pure strategy, mixed strategy.

Section – B

Answer the following questions in not more than **FOUR** page each:

(5x10=50)

6. (a) Using Big-M Method solve the LPP.

$$\text{Minimize } Z = 2X_1 + 5X_2$$

Subject to the constraints

$$X_1 + 4X_2 \leq 24$$

$$3X_1 + X_2 \leq 21$$

$$X_1 + X_2 \leq 9$$

$$X_1, X_2 \geq 0$$

(OR)

- (b) Solve the LPP.

$$\text{Maximize } Z = 5X_1 - 2X_2 + 3X_3$$

Subject to the constraints

$$2X_1 + 2X_2 - X_3 \geq 2$$

$$3X_1 - 4X_2 \leq 3$$

$$X_1 + 3X_3 \leq 5$$

$$X_1, X_2, X_3 \geq 0$$

7. (a) Using Vogel's approximation method find the initial basic feasible solution for the following transportation problem.

Availability

Destination				
	1	2	3	4
A	7	2	5	5
B	4	4	6	5
C	5	3	3	2
D	4	-1	4	2

30

15

10

20

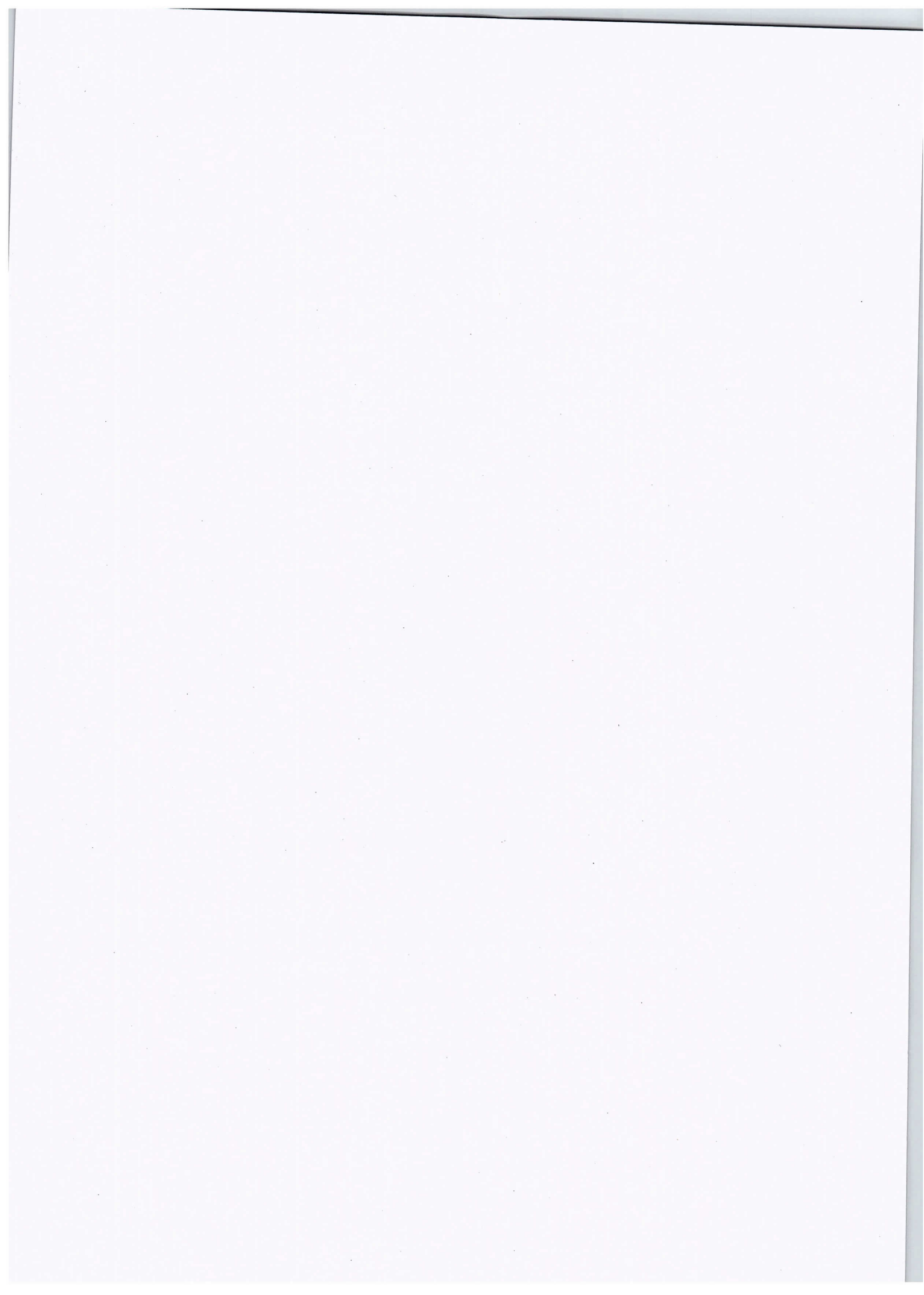
Requirement

20

25

15

15



(OR)

(b) Find the optimal solution for the following transportation problem.

Factory	P	Q	R	S	Availability
A	10	8	7	12	500
B	12	13	6	10	500
C	8	10	12	14	900
Deamand	700	550	450	300	

8. (a) Maximize by Branch and Bound Technique

$$Z = 7X_1 + 9X_2$$

Subject to

$$-X_1 + 3X_2 \leq 6$$

$$7X_1 + X_2 \leq 35$$

$$0 \leq X_1, X_2 \leq 7$$

X_1, X_2 are integers.

(OR)

(b) Find the optimal solution of the Assignment Problem

	I	II	III	IV
A	5	3	1	8
B	7	9	2	6
C	6	4	5	7
D	5	7	7	6

9. (a) Minimize $y_1^2 + y_2^2 + y_3^2$

Subject to $y_1 + y_2 + y_3 = 10$

y_1, y_2, y_3 are non-negative integers.

(OR)

(b) Solve LPP by the method of dynamic programming

$$\text{Maximize } Z = 2X_1 + 5X_2$$

$$\text{Subject to } 2X_1 + X_2 \leq 430$$

$$2X_2 \leq 460$$

$$X_1, X_2 \geq 0$$

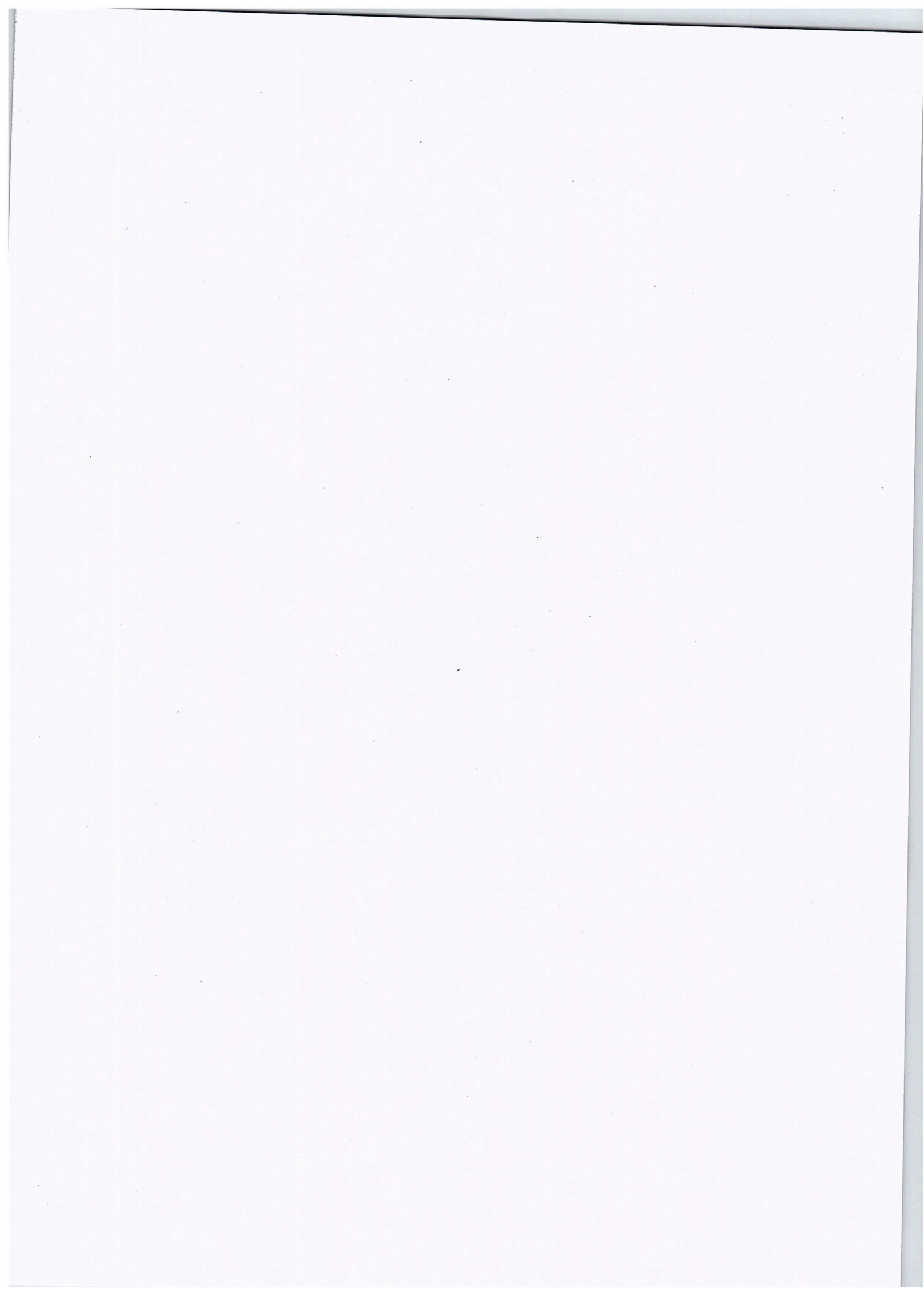
10.(a) Solve the following game.

	B_1	B_2
A_1	30	2
A_2	4	14
A_3	6	9

(OR)

(b) Explain the method to solve $2 \times n$ game graphically.

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Code No.1735

FACULTY OF SCIENCES
MCA III – SEMESTER REGULAR EXAMINATIONS, JULY- 2021
OPERATIONS RESEARCH
PAPER – V

Time: 2 hours]

[Max. Marks: 70

Answer any **FIVE** from the following questions in not more than **FOUR** pages each
(5x14=70)

1. Discuss about the concept and development of Linear Programming Models. ✓

2. Solve graphically

$$\begin{aligned} \text{Maximise } Z &= 8x_1 + 6x_2 \\ \text{Subject to } 2x_1 + x_2 &\leq 72 \\ x_1 + 2x_2 &\leq 48 \\ x_1 \geq 0, x_2 &\geq 0 \end{aligned}$$

3. What is meant by Transportation Problem? Explain the types of Transportation problem. ✓

4. Obtain TBFS of transportation problem whose profit matrix is given before.

		Markets			Stock
		M ₁	M ₂	M ₃	
Godowns	G ₁	4	4	9	25
	G ₂	3	5	8	20
Sales		18	16	11	45

5. What is Integer Programming? Write about the Integer Programming Formulations briefly.

6. There are five jobs to be assigned each to 5 machines and the associated cost matrix as follows.

Jobs		I	II	III	IV	V
	A	11	17	8	16	20
	B	9	7	12	6	15
	C	13	16	15	12	16
	D	21	24	17	28	26
	E	14	10	2	11	15

Find the optimum assignment and the associated cost using the Assignment Technique.

7. What are the applications of Dynamic Programming? Explain in detail. ✓

8. How do you solve LPP through Dynamic Programming? Explain through an illustration.

9. What is Game Theory? Explain the various strategies of Game Theory. ✓

10. Discuss about Linear Programming approach for Game Theory.
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Code No. 1755A

FACULTY OF SCIENCE
M.C.A. V – SEMESTER REGULAR EXAMINATIONS, JULY-2021
INFORMATION SECURITY
PAPER – V (b)

Time: 2 Hours]

[Max. Marks 70

(5x14=70)

Answer any **FIVE** from the following questions in not more than **FOUR** pages each:

1. Explain components of an information system.

2. Explain types of attacks.

3. Explain Law and Ethics in information security.

4. Explain Quantitative verses qualitative risk control practices.

5. Explain data access control in trusted systems.

6. Explain design goals for a fire wall.

7. What is cryptography? Explain symmetric encryption principles.

8. Explain cipher methods of operations.

9. Explain Technical topics of implementation.

10. Explain Security Management Model in detail.
--oOo--

Code No.1755B

FACULTY OF SCIENCES
MCA V – SEMESTER REGULAR EXAMINATIONS, JULY-2021
MOBILE COMPUTING
PAPER – V (b)

Time: 2 hours]

[Max. Marks: 70

(5x14=70)

Answer any **FIVE** from the following questions in not more than **FOUR** pages each:

1. Discuss about application of Mobile Computing?

2. Discuss in detail spread spectrum.

3. Explain the architecture of GSM.

4. Explain Digital Audio and video Broadcasting?

5. Explain, Architecture and functions of Bluetooth.

6. Difference between Infrared and Radio Transmission.

7. Explain Classical TCP Improvements.

8. Explain in detail about mobile transport layer.

9. Discuss some features of windows.

10. Discuss any two of wireless telephony applications.
--oOo--

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24
30
12

FACULTY OF SCIENCE
M.C.A. III – SEMESTER REGULAR EXAMINATIONS, JAN-2016
SOFTWARE ENGINEERING

PAPER – I

[Max. Marks: 70]

Time: 3 hours]

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each:

(5x4=20)

1. What is software problem? Explain.
- ✓2. Write a note on software architecture role.
- ✓3. Explain object oriented design.
- ✓4. Describe testing process.
5. Write a note on SPI trends.

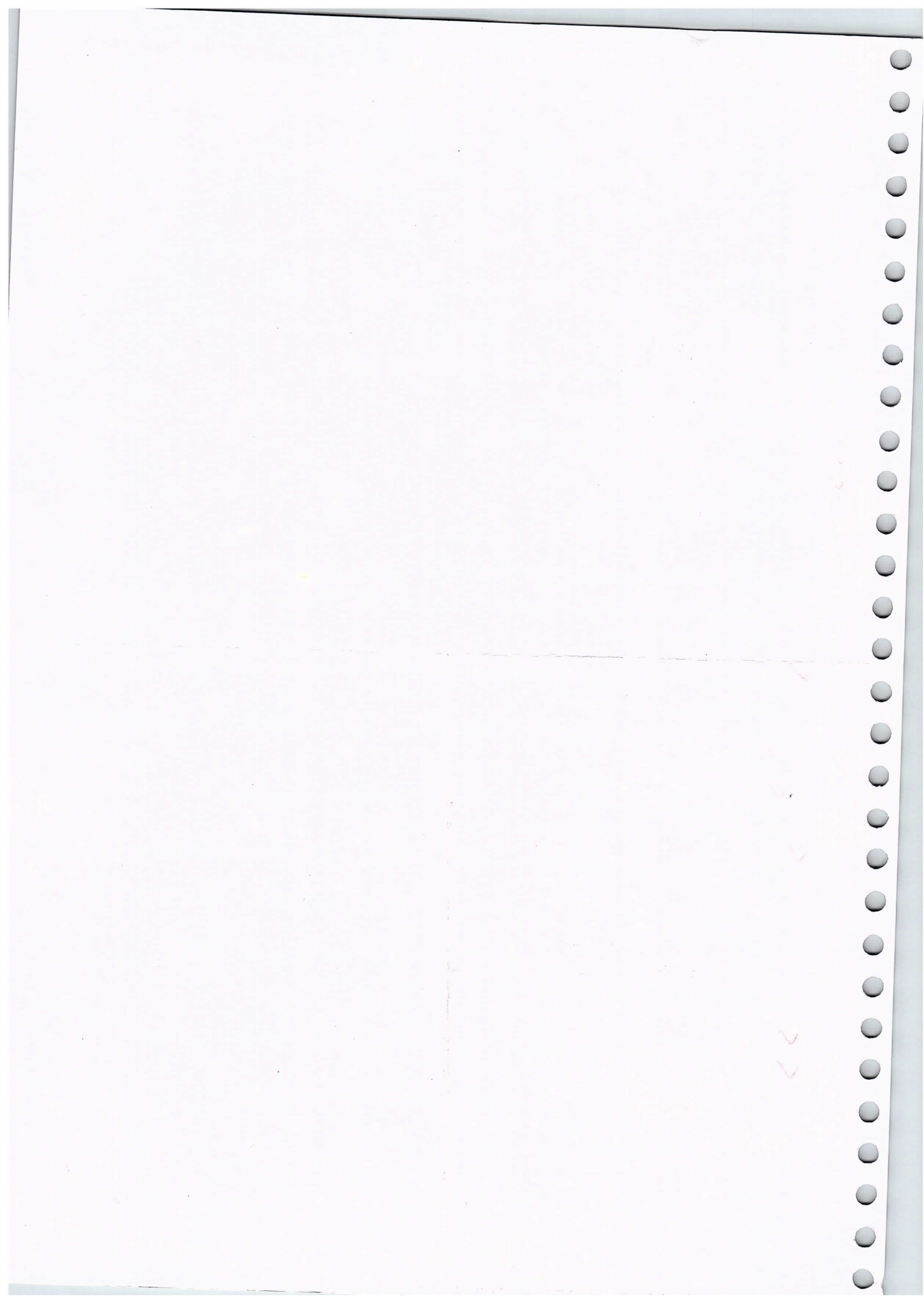
Section – B

Answer the following questions in not more than **FOUR** page each:

(5x10=50)

6. a) Define Software process. Compare and explain the difference between the water and spiral model.
(OR)
- ✓b) Explain in detail about component software process and project management process.
7. a) What are software requirement specifications? Describe the functional specification with use cases.
(OR)
- ✓b) i) Explain component and connector view in software architecture.
ii) Explain documenting architecture design.
8. ✓a) Write a note on i) Risk Management planning ii) Project monitoring plan
(OR)
- b) Explain the differences between function oriented design and object oriented design.
9. a) i) Explain programming principles and guidelines of testing.
ii) What is unit testing? List out the metrics.
(OR)
- ✓b) Differentiate between Black box and White box testing? Explain its metrics.
10. ✓a) Explain the terms
i) Reengineering ii) Forward engineering iii) Reverse engineering
(OR)
- b) Explain about CMMI and PCMM.

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FACULTY OF SCIENCE
MCA III – SEMESTER REGULAR EXAMINATIONS, DEC- 2016
SOFTWARE ENGINEERING

PAPER – I

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Describe Component Software Process?
2. Discuss the importance of SRS?
3. Differentiate between Cohesion and Coupling?
4. Discuss the Metrics of Coding?
5. What is SPI return on investment?

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) What is a Software Cost? Discuss any two Software Development Process Models?
(OR)
b) What is a Software Problem? Explain the Project Schedule and Quality with the Project Management Process?
7. a) What is functional specification? Explain the Requirements Specification and other Approaches with use cases?
(OR)
b) Explain the Role of Software Architecture? Explain the Architectural views?
8. a) Discuss Quality Planning and Risk Management Planning.
(OR)
b) How to design Software? Differentiate between object oriented design and function oriented design.
9. a) What is Software Testing? Differentiate between Black box testing and white box testing.
(OR)
b) What are the programming principles and guidelines available in coding? Discuss the metrics and managing evolving code.
10. a) What are the steps involved in a software maintenance? Explain the difference between forward engineering and Reverse Engineering.
(OR)
b) Explain CMMI?

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FACULTY OF SCIENCE
MCA III – SEMESTER REGULAR EXAMINATIONS, DEC- 2017
SOFTWARE ENGINEERING

PAPER – I

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. What is Software Process?
2. Define a Software requirement specification.
3. Differentiate between Cohesion and Coupling.
4. Write about Quality Planning.
5. Differentiate between a Software measure and a Software metric.

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) What are Software Process Models? Distinguish between waterfall model and spiral model.
(OR)
b) Write about Project Management Process.
7. a) Explain the process of functional specifications with use cases.
(OR)
b) Discuss Component and Connector view of Software Architecture.
8. a) What is Effort Estimation? Explain its methods.
(OR)
b) Explain the differences between functions oriented design and object oriented design?
9. a) Differentiate between black-box and white-box testing? Explain its metrics.
(OR)
b) What is Unit testing? List out the metrics.
10. a) What is different between re-engineering and reverse engineering? Explain different steps of re-engineering.
(OR)
b) Discuss various SPI Frame Works.

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Code No.1731

FACULTY OF SCIENCE
MCA III – SEMESTER REGULAR EXAMINATIONS, MARCH- 2021
SOFTWARE ENGINEERING
PAPER – I

Time: 2 hours]

[Max. Marks: 70

Answer any **FIVE** from the following questions not in more than **FOUR** pages each: (5x14=70)

1. What are Software Process Models? Distinguish between waterfall model and spiral model.
2. Write about Project Management Process.
3. Discuss about dataflow diagrams and ER diagrams in detail.
4. What are architectural views for C&C view? Explain
5. Write about Detailed Scheduling.
6. Discuss in detail about Design Metrics.
7. Differentiate between black-box and white-box testing? Explain its metrics.
8. What is Unit testing? List out the metrics.
9. Explain Software Reengineering and Reverse Engineering.
10. What is Software Process Improvement? Explain CMMI.

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