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Legacy Of Nurturing Excellence Since 1990
(Established under Govt. of Maharashtra Act No. V of 2023)

SCHOOL OF COMPUTER APPLICATIONS
DEPARTMENT OF MCA
UNIT TEST-II APRIL-2025

Program: FYMCA	Semester: II	Batch:2024-26
Course Code & Name:	PMC110 & Object-Oriented Programming using Java	
Maximum Marks: 20	Date &Time of Exam: -07/04/2025 & 2.50 pm to 3.50 pm	

Course Outcomes:
1. Understand and apply object-oriented programming concepts.
2. Implement exception handling mechanisms in Java.
3. Work with Java interfaces and abstract classes effectively.
4. Demonstrate proficiency in multithreading and I/O stream operations.
5. Develop real-world applications using advanced Java concepts.

Instructions:
- *Give suitable Examples where necessary.*
- *Each question carries 5 marks.*
- *Use diagrams wherever necessary*

QUESTIONS		CO	BTL	Marks
Q.1 Attempt the following (Any 2)		Max Marks: 10 (2*5)		
A	What abstract class? Explain with suitable example	CO3	2	05
B	Discuss exception handling in Java. How does try, catch and throws work? Provide an example.	CO3	2	05
C	What is an interface in Java? How is it different from an abstract class? Explain with an example.	CO3	2	05
Q.2 Attempt the following (Any 2)		Max Marks: 10 (2*5)		
A	Explain multithreading in Java. Write a simple program to create a thread using Runnable.	CO4	3	05
B	Write program to give count of vowels in a file. Use FileReader class.	CO4	3	05
C	Explain Overloading method with an appropriate example	CO4	3	05

*****************************All the Best*****************************

SCHOOL OF COMPUTER APPLICATIONS
DEPARTMENT OF MCA
Unit Test-II APRIL-2025

Program: MCA-I	Semester: II	Batch: 2024-2026
Course Code & Name:	PMC113A MAJE-Computer Networks	
Maximum Marks: 20	Date &Time of Exam: - 09/04/2025	2.50 PM to 03.50 PM

Course Outcomes:

1. To interpret the different building blocks of the Communication network and its architecture.

2. To apply different types of switching networks and analyze the performance of network

3. To Understand and explain the Data Communications System and its components. By using different types of network topologies and protocols.

4. To enumerate the layers of the OSI model and TCP and IP. Explain the function(s) of each layer.

5. To Identify the different types of network devices and their functions within a network

Instructions: Give Proper Instructions.

1. Solve any two sub questions from each question

2. Draw the diagram wherever necessary.

QUESTIONS	CO	BTL	Marks
Q.1 Attempt the following (Any 2)		Max Marks: 10 (2*5)	
A — Explain the role of elementary data link protocols in ensuring reliable data transmission. Provide examples of commonly used protocols.	CO3	3	05
B — Describe the working principles of Stop-and-Wait Protocol and Go-Back-N Protocol. Highlight their advantages and limitations.	CO3	3,4	05
C — Explain the concept of Elementary Data Link Protocol (EDLP) and discuss its role in ensuring error-free communication in data transmission. Provide an example of where it is used	CO3	3	05
Q.2 Attempt the following (Any 2)		Max Marks: 10 (2*5)	
A — Explain the primary functions of the Network Layer in the OSI model. How does it handle data packet routing and addressing?	CO4	4	05
B — Describe the concept of IP addressing. Why is it essential for communication in a network?	CO4	3,4	05
C — Explain the role of the Network Layer in the OSI model. Discuss its key responsibilities, such as routing and addressing, with suitable examples.	CO4	3	05

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SCHOOL OF COMPUTER APPLICATIONS
DEPARTMENT OF MCA
Unit Test-II APRIL-2025

Programme: MCA	Semester: II	Batch: 2024-26
Course Code & Name:	Big Data Analytics (PMC111)	
Maximum Marks:	20	Date &Time of Exam: 8th Apr. 2025, 2:50 PM to 3:50 PM

Course Outcomes:
1. To identify the usage of data on different big data ecosystems and understand Hadoop Components.
2. Demonstrate the Pig architecture and evaluation of pig scripts.
3. To describe the Hive architecture and execute SQL queries on sample data sets.
4. To apply knowledge of the process of transferring data between different file systems and to execute operations using sqoop.
5. To understand the concepts of indexing and use these concepts in Solr search engines. Implement and evaluate the data manipulation procedures using pig, hive, sqoop, Solr and develop an application.

Instructions:
1. *Each question carries **5 marks**.*
2. *Use diagrams wherever necessary.*
3. *Maintain clarity and structure in your answers.*

QUESTIONS	CO	BTL	Marks
Q.1 Attempt the following (Any 2)	**Max Marks: 10 (2*5)**		
A/ Explain the different file formats in Hive (ORC, Parquet, Avro) and their impact on storage and query performance. Provide a practical use case.	CO3	3	05
B Describe the Hive architecture and explain how its components (Metastore, Execution Engine, HiveQL Processor) interact to process a query. Provide an example query execution flow.	CO3	3	05
C Develop an Apache HiveQL query to create a bucketed table for employee records and explain how bucketing optimize data retrieval.	CO3	3	05
OR			
Q.2 Attempt the following (Any 2)	**Max Marks: 10 (2*5)**		
A A business needs to export processed sales data from Hadoop back to an RDBMS. Explain how to perform Sqoop Export with command syntax.	CO4	4	05
B Compare the Append Mode and Last Modified Mode in Sqoop's Incremental Import. Write appropriate commands for each mode.	CO4	4	05
C Discuss the challenges of managing structured data in Hadoop and how Sqoop helps in bridging RDBMS with Hadoop ecosystems.	CO4	4	05

****************************All the Best****************************

Program: MCA	Semester: II	Batch:24-25
Course Code & Name: -	PMC114 / BSC /Optimization Techniques	
Maximum Marks: 20	Date &Time of Exam: - 10th April 202	

Course Outcomes:
1. To Understand the role and principles of optimization techniques in business world (Understand)
2. To Demonstrate specific optimization technique for effective decision making (Apply)
3. To Apply the optimization techniques in business environments (Apply)
4. To Illustrate and infer for the business scenario (Analyze)
5. To Analyze the optimization techniques in strategic planning for optimal gain. (Analyze)

Instructions: Give Proper Instructions.
- *Solve any One from each question*

	QUESTIONS	CO
		Max M
	Q.1 Attempt the following (Any 1) (Solve any 1)	
A	Find solution using . Restrictions and Unbalanced Hungarian method in Assignment Problem	CO3

Work\Job	A	B	C	D	E
M1	9	11	15	10-	11
M2	12	9	-	10	9
M3	-	11	14	11	7
M4	14	8	12	7	8

B	Find Solution of Travelling salesman problem using diagonal completion method (MIN case)	CO3

Work\Job	1	2	3	4
1	x	4	9	5
2	6	x	4	8
3	9	4	x	9
4	5	8	9	x

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Q.2 Attempt the following (Any 1)

A Find Solution using North weast Corner Method And Voggel's Approximation method and compare the difference

D1	D2	D3	Supply
S1	4	8	8	76
S2	16	24	16	82
S3	8	16	24	77
Demand	72	102	41	

B Find Solution using Voggel's Approximation method, also find optimal solution using modi method

D1	D2	D3	D4	Supply
S1	19	30	50	10	7
S2	70	30	40	60	9
S3	40	8	70	20	18
Demand	5	8	7	14	

***************************All the Best*********************