

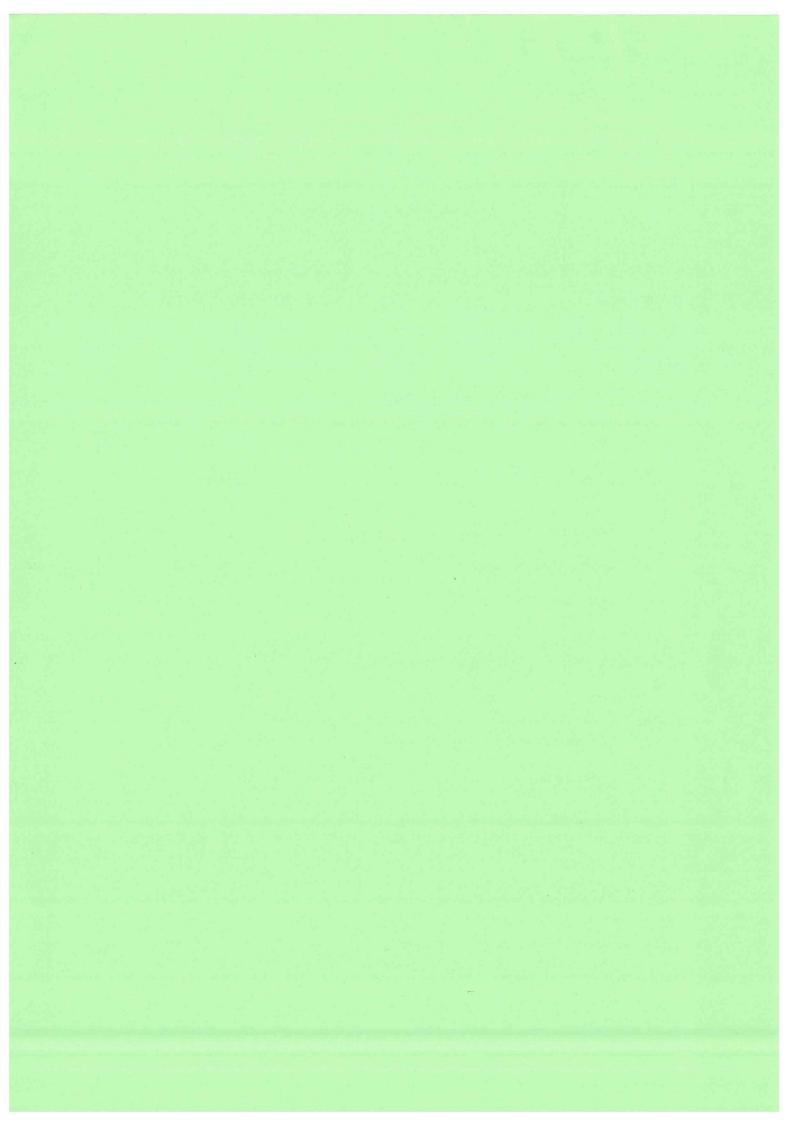
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UNIVERSITY EXAMINATIONS

ACADEMIC YEAR: 2021/2022	SEMESTER: JAN-APRIL 2022			
CODE:BSIT 3110	UNIT: DISTRIBUTED SYSTEMS			
DATE: APRIL 2022	TIME: 2 HOURS			
SPECIAL				
INSTRUCTIONS: Answer question one and any other two				
SECTION A: Compulsory. 1.				
a) Define distributed system giving examples	2 Marks			
b. Distinguish between the following terms in the context of distributed systemsi. Starvation and deadlock. [2mks]				
ii. Shared and write locks.	[2mks]			
iii. Clock skew and Clock drift.	[2mks].			
c. What are the main choices to be considered in des	sign of RMI? [4 Marks]			
d. What is meant by the following terminologies in distributed systems. i. Concurrency control?				
ii. File replication				
iii. Directory services?				
e. i. Differentiate between RPC and RMI	6 Marks			

6 Marks

ii. Explain the steps taken when an RPC is invoked



2)	a)		
	a)	i) Differentiate with relevant examples the difference between external clock synand internal synchronization	nchronization 2mks
		ii) Explain why two or more computers that are internally synchronized are not rexternally synchronized	necessarily 2mks
	b).	Define failure masking and explain the techniques for achieving failure masking	4 Marks
	c) d)	Outline the major causes of changes in a directory service Analyze the life time of a stream socket	6Marks 6Marks
3)	a)	Lamport devised a synchronization mechanism based on the "happened before" re Explain the happened before relation assumptions	elation. 5mks
	b)	A distributed file system is supposed to exhibit some basic symptoms. Expound o symptoms	n these 5mks
	c)	Examine the different categories of faults giving one example in each	4mks
	d.	Uncontrolled interleaving of concurrent transactions can lead to three main types of Explain the Three concurrency problems and provide a solution to each	of problems. 6 Marks
		Describe three strategies used to increase scalability in distributed systems. Give a scific examples of each.	and explain 6 Marks
	b)]	Describe any Four types of transparency	4 Marks
	c)	Discuss why you think it is necessary to implement a distributed system	5 Marks
	d)	Expound on any four criteria that should be met by dependable systems	5 Marks

