K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai-22

(Autonomous College Affiliated to University of Mumbai)

End Semester Exam

April-May (2022-23)   Scheme-II.

Program: (B.Tech.) Computer Engineering

Examination: LY Semester: VIII

Course Code: **CEC801** and Course Name: **Distributed Computing**

Duration: 2.30 Hours

Max. Marks: 60

Date: 13/05/2023

Instructions:

(1) All questions are compulsory.

(2) Draw neat diagrams wherever applicable.

(3) Assume suitable data, if necessary

		Max. Marks	CO	BT level
Q 1	**Solve any six questions out of eight:**	**12**		
i)	Describe middle ware services in distributed system.	2	CO1	U
ii)	Compare between message oriented & stream oriented communication.	2	CO2	AP
iii)	Explain Network Time Protocol (NTP) used in clock synchronization.	2	CO3	U
iv)	What are the desirable features of global scheduling algorithms?	2	CO4	U
v)	What is replication? What is a need of it?	2	CO5	U
vi)	Describe the features of good distributed file system.	2	CO6	U
vii)	Explain the term Scalability in distributed system.	2	CO1	U
viii)	Illustrate on Distributed shared memory with a diagram.	2	CO6	AP
Q.2	**Solve any four questions out of six.**	**16**		
i)	Explain different forms of transparency in a Distributed	4	CO1	U

		System.			
ii)	Discuss types of ordering for ensuring ordered delivery of multicast messages in a group communication.	4	CO2	U	
iii)	Apply Berkley's clock synchronization algorithm to explain it with suitable example.	4	CO3	AP	
iv)	Describe about code migration in distributed system.	4	CO4	U	
v)	Explain the term fault tolerance. Describe various types of failures.	4	CO5	U	
vi)	Explain client server architecture in NFS.	4	CO6	U	
Q.3	Solve any two questions out of three.	16			
i)	Describe the hardware concepts of distributed system.	8	CO1	U	
ii)	Explain different load estimation policies w.r.t. load sharing approach.	8	CO4	U	
iii)	Using a suitable example w.r.t. Byzantine agreement problem prove that in a system with k faulty processes, an agreement can be achieved only if 2k+1 correctly functioning processes are present, for a total of 3k+1.	8	CO5	AP	
Q.4	Solve any two questions out of three.	16			
i)	Explain the steps needed to write RMI program & apply the same to give a suitable example of it.	8	CO2	AP	
ii)	Explain Suzuki- Kasami token based mutual exclusion algorithm with suitable example. What are it's drawbacks?	8	CO3	AP	
iii)	Describe in detail file-caching schemes for a distributed file system.	8	CO6	U	