

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Backlog), Nov-Dec 2018

B. Tech/ M. Tech (*as applicable*) in Computer Science & Engineering, Semester VI

Roll No.....

COURSE CODE: CSE601

Time: 3 hours

Max. Marks: 100

COURSE TITLE: DISTRIBUTED SYSTEMS

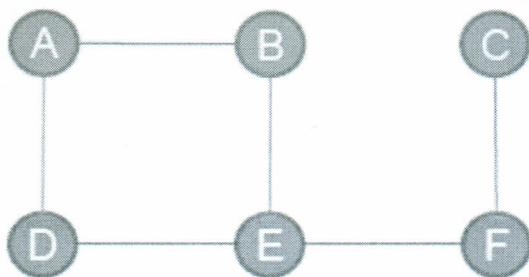
Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A	Objective type multiple choice questions (10 questions @ 1 mark)	10
i.	_____ enables multiple instances of resources to be used to increase reliability and performance without knowledge of the replicas by users or application programmers.	
	a) Replication transparency b) Mobility transparency c) Scaling Transparency d) Performance Transparency	
ii.	_____ is the process of disassembling data items on arrival to produce an equivalent collection of data items.	
	a) Decryption b) Un-marshalling c) Encryption d) Marshalling	
iii.	Client stub perform _____ into request messages and _____ from reply message.	
	a) Marshalling, un-marshalling b) Encryption, Decryption c) Un-marshalling, marshalling d) Decryption, Encryption	
iv.	Each transaction must be performed without interference from other transactions, i.e., the non-final effects of a transaction must not be visible to other transactions. This property of transaction is known as :	
	a) Atomicity b) Consistency c) Isolation d) Durability	
v.	In the _____ phase of the transaction, new locks are only acquired, and in the _____ phase, locks are only released.	
	a) Growing, shrinking b) Acquired, Release c) Start, End d) Prepare, Execute	
vi	Totally ordered multicast in Distributed System uses :	
	a) Vector timestamps b) Lamport timestamps c) Physical clock d) none of the above	
vii	Process holding resources can request additional resources without releasing the resources which are currently held :	

	a) Mutual Exclusion condition b) Hold and Wait condition c) No pre-emption condition d) Circular wait condition	
viii	In _____ server, in case the server crashes the entire information is not lost. a) Stateful b) Stateless c) Distributed d) Immediate	
ix	A _____ is used to collect the current state of a distributed computing environment. a) Global State b) Real State c) Distributed Snapshot d) None of the above	
x	The full form of TGT related to KERBEROS is : a) Ticket Granting Ticket b) Ticket Granting Tool c) Ticket Go Ticket d) Ticket Go Tool	

Q.2	Short answer type questions (4 questions @ 2.5 marks)	10
a)	Discuss the purpose of OMG IDL compiler.	
b)	Differentiate between Communication and Resource deadlock.	
c)	What do you understand by causality of event?	
d)	Correlate Wave and Traversal algorithm of Distributed system.	
Q.3A	When a system uses the detection and recovery strategy for handling deadlocks, it is not sufficient to detect deadlocks. The system should be able to recover from a detected deadlock. Discuss the various methods of recovery from deadlock.	05
Q.3B	Write a short note on SUN Network File System(NFS).	05
Q.4A	There are various types of transparency exist which are major concerns of distributed system. Explain various types of transparency.	05
Q.4B	State any three advantages and disadvantages of distributed system with respect to centralized systems.	05
Q.5A	With the help of suitable example of your own choice explain Lamport's implementation rules of event ordering.	05
Q.5B	Explain the working of Two -Phase Commit (2PC) protocol.	05
Q.6	Let us observe the given network and explain various rounds of generating routing table using NETCHANGE algorithm of distributed system.	10



Q.7 Distributed mutual exclusion algorithms must deal with unpredictable message delays and incomplete knowledge of the system state. There are three basic approaches for distributed mutual exclusion: Token based approach, Non-token based approach and Quorum based approach. Explain the token based and non- token based approach with the help of suitable example.

Q.8 The echo algorithm is a centralized wave algorithm for networks of arbitrary topology. Discuss with the help of figure representing arbitrary topology the concept of echo algorithm. Justify whether all the three conditions of WAVE algorithm is applied on it.

Q.9 Explain Balanced Sliding Window Protocol for the following scenario:-

