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INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech II Semester End Examinations (Regular / Supplementary) - July, 2018

Regulation: IARE-R16

DISTRIBUTED OPERATED SYSTEM

(Computer Science and Engineering)

Time: 3 Hours

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

1. (a) Define distributed operating system (DOS). Narrate the advantages of DOS over centralized systems. [7M]
- (b) Discuss different types of addressing systems when a client sends a message to a server in distributed systems. [7M]
2. (a) What is the coherent property of the memory? How can it be resolved in bus-based multiprocessor? What is the drawback of this system? [7M]
- (b) List any four kinds of transparency in a distributed system and illustrate its applications. [7M]

UNIT – II

3. (a) Explain the problems involved with Cristian's algorithm for getting the current time from a time server. How to overcome these problems. [7M]
- (b) Discuss the Chandy-Misra-Haas distributed deadlock detection algorithm. [7M]
4. (a) Describe the bully election algorithm. [7M]
- (b) Define distributed transaction. Explain atomic transactions in distributed systems. [7M]

UNIT – III

5. (a) Differentiate between multiple processes with one thread each and one process with multiple threads. [7M]
- (b) What are the two types of real time systems? List and explain the myths involved in real time systems. [7M]
6. (a) List and explain the design issues of process allocation algorithms. [7M]
- (b) Using diagrams explain various ways of doing caching in client memory. [7M]

UNIT – IV

7. (a) Explain various events in the write-through cache consistency protocol. [7M]
- (b) List and explain properties of NUMA multiprocessors. [7M]

8. (a) Define sequential consistency. Consider the following code for three processes that run in parallel on three different processors. (Assume three processes share the same sequentially consistent distributed shared memory, and all have access to the variables a, b, and c.). [7M]

Table 1

P_1	P_2	P_3
a=1	b=1	c=1
print f(b,c)	print (a,c)	print (a,b)
(a)	(b)	(c)

Write four valid execution sequences for the program.

- (b) Explain different types of distributed file system architectures with neat diagrams. [7M]

UNIT – V

9. (a) Discuss the implementation of C threads in MACH. [7M]
 (b) Elaborate process management techniques used in distributed systems in MACH as case study. [7M]
10. (a) What is a port in Mach? Draw the structure of a port and explain about message passing goes via a port. [7M]
 (b) Write in detail how UNIX emulation in MACH will be done by considering MACH as case study. [7M]

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