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Total Number of Pages : 02

M.Tech
P1CSBC05

1st Semester Regular/Back Examination 2019-20

ADVANCED OPERATING SYSTEM

BRANCH : COMPUTER ENGG, COMPUTER SCIENCE, COMPUTER SCIENCE AND ENGG,
COMPUTER SCIENCE AND TECH., INFORMATION TECH.

Max Marks : 100

Time : 3 Hours

Q.CODE : HRB793

Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.

The figures in the right hand margin indicate marks.

Part-I

Q1 Only Short Answer Type Questions (Answer All-10) (2 x 10)

- a) Which of the following is an algorithm of Mutual exclusion based on token
 - a) Lamport's Algorithm
 - b) Maekawa's Algorithm
 - c) Suzuki Kasami Broadcast Algorithm
 - d) Ricart Agrawala Algorithm
- b) If one site fails in distributed system then _____
 - a) the remaining sites can continue operating
 - b) all the sites will stop working
 - c) directly connected sites will stop working
 - d) none of the mentioned
- c) In distributed systems, link and site failure is detected by _____
 - a) polling
 - b) handshaking
 - c) token passing
 - d) none of the mentioned
- d) _____ is not possible in distributed file system.
 - a) File replication
 - b) Migration
 - c) Client interface
 - d) Remote access
- e) What are the advantages of file replication?
 - a) Improves availability & performance
 - b) Decreases performance
 - c) They are consistent
 - d) Improves speed
- f) In distributed systems, a logical clock is associated with _____
 - a) each instruction
 - b) each process
 - c) each register
 - d) none of the mentioned
- g) If timestamps of two events are same, then the events are _____
 - a) concurrent
 - b) non-concurrent
 - c) monotonic
 - d) non-monotonic

- h) A process can enter into its critical section _____
 - a) anytime
 - b) when it receives a reply message from its parent process
 - c) when it receives a reply message from all other processes in the system
 - d) none of the mentioned
- i) A state is safe, if _____
 - a) the system does not crash due to deadlock occurrence
 - b) the system can allocate resources to each process in some order and still avoid a deadlock
 - c) the state keeps the system protected and safe
 - d) all of the mentioned
- j) In distributed system, each processor has its own _____
 - a) local memory
 - b) clock
 - c) both local memory and clock
 - d) none of the mentioned

Part-II

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- a) Define process synchronization. What is critical section?
- b) Discuss casual ordering of message.
- c) What is the difference between lamport and vector time stamp?
- d) What is the difference between a network operating system and distributed operating systems?
- e) State the functions of agreement protocol in distributed operating systems.
- f) List the advantages of distributed shared memory.
- g) What is fault tolerance? State the significance and its use.
- h) What is the difference between remote procedure call and conventional procedure call?
- i) What is the difference between logical and physical clock?
- j) Differentiate synchronous and asynchronous check point and recovery.
- k) Discuss whether encryption can ensure secrecy, privacy and integrity of data.
- l) List the security attacks that cannot be prevented by encryption.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

- Q3**
 - a) With suitable examples explain in brief about lamports logical clock. (8)
 - b) State the principle of distributed mutual exclusion and explain an algorithm. (7)
- Q4**
 - a) Explain in detail about centralized deadlock detection algorithm. (7)
 - b) Explain difference between security and protection? Describe the scheme of capability lists to implement protection? (8)
- Q5**
 - a) State and explain the various issues in load distributing algorithm. (7)
 - b) Explain the read replication and full replication algorithm for distributed shared memory. (8)
- Q6**
 - a) Elaborate on the file systems in Linux and compare and contrast the same with other systems. (7)
 - b) What is Distributed Transaction Serializability? Give an example of Distributed Transaction Serializability. (8)