

# QUIZ-I

## Instructions:

Please mention registration number and date

Timing and marks details are written on each slide

Total no of questions = 40

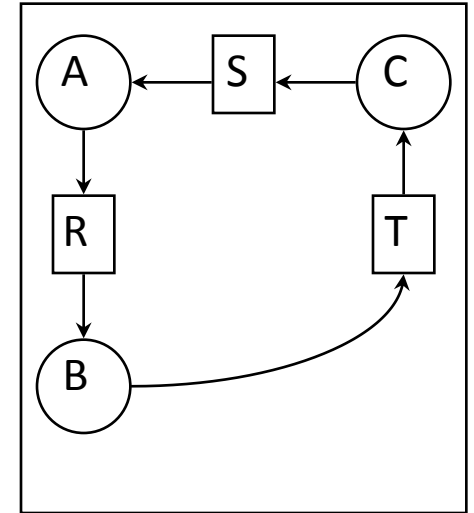
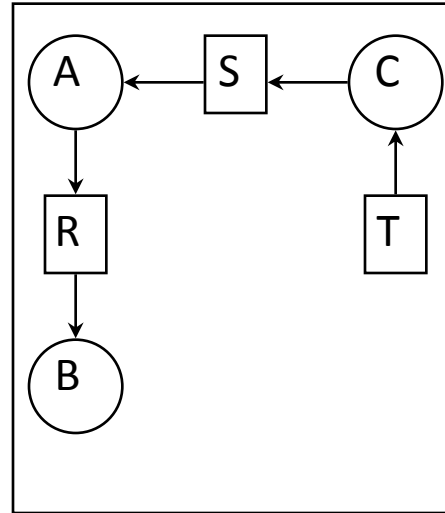
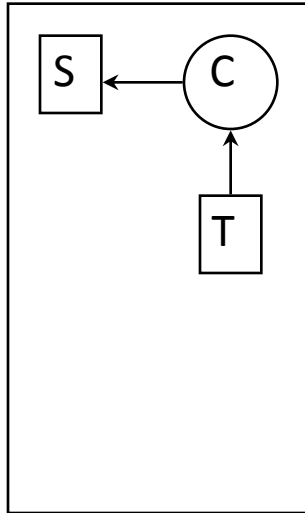
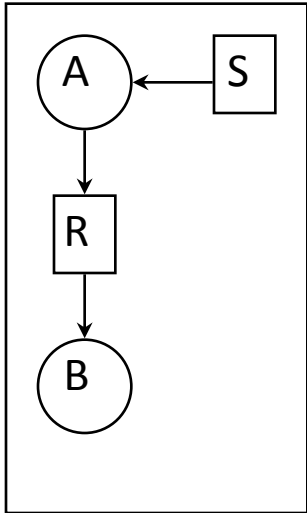
4/2/2015

DISTRIBUTED OPERATING SYSTEMS

ALL THE BEST

# 1.The above diagram represents (40sec)(2)

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B release R, and ask for T

**Centralized Deadlock Detection**

2.The Chandy-Misra-Haas algorithm is used for (15sec)(1)

- A. Deadlock prevention
- B. Deadlock avoidance
- C. Deadlock detection
- D. All of the above

3. We develop distributed systems to get the availability of powerful yet cheap microprocessors (PCs, workstations), continuing advances in communication technology (T/F)  
(15sec)(1)

4. A probe message is generated in  
(30sec)(1)

- A. Chandy-Misra-Haas algorithm
- B. Mutual Exclusion Algorithm
- C. Centralized Algorithm
- D. Centralized Co-ordinated Algorithm
- E. Only in C & D

# 5. What are the ways to break the deadlock in Chandy-Misra-Haas Algorithm (1min)(5)

- A. The process that initiates commit suicide -- this is overkilling because several process might initiates a probe and they will all commit suicide in fact only one of them is needed to be killed.
- B. Each process append its id onto the probe, when the probe come back, the originator can kill the process which has the highest number by sending him a message. (Hence, even for several probes, they will all choose the same guy)

6. If an old process wants a resource held by a young process, the old one will wait happens in (15sec)(1)

A. Wait-die

B. Wound-wait

C. Both

7. If an old process wants a resource held by a young process, the old one will preempt the young process -- wounded and killed, restarts and wait happens in (20sec)(1)

- Wound-wait
- Wait-die
- Both



8. In wound-wait If a young process wants a resource held by an old process, the young process will \_\_\_\_\_(15sec)(1)

A. Killed

B. Wait

C. Preempt

D. Restarts and wait

E. Wounded and wait

## 9. What are the FOUR Strategies for handling deadlocks ? (15sec)(2)

1. The ostrich algorithm
2. Deadlock detection and recovery
3. Deadlock prevention
4. Deadlock avoidance

# 10. What is a distributed system? (30 sec)(2)

- A distributed system is a collection of independent computers that appear to the users of the system as a single system.
- Examples:
  - Network of workstations
  - Distributed manufacturing system (e.g., automated assembly line)
  - Network of branch office computers

# 11. What are the two classification of deadlocks ? (15sec)(1)

1. Communication Deadlock
2. Resource Deadlock

12. Election message is always sent to the process with(15sec)(1)

- A. Lower numbers
- B. Requesting Lower number of resources
- C. Processes in ready queue
- D. Higher numbers**
- E. Waiting processes

# 13. What are the three basic steps of bully algorithm ? (1min)(5)

1. P sends an ELECTION message to all processes with higher numbers
2. If no one responds, P wins the election and becomes coordinator
3. If one of the higher-ups answers, it takes over. P's job is done

14. Which algorithms are used to handle mutual exclusion in distributed systems(15sec)(1)

1. Centralized
2. Distributed
3. Token ring

15. The following algorithms are used for selecting a process to act as coordinator or sequencer of otherwise to perform some special role(20sec)(1)

- A. Centralized algorithm
- B. Election algorithm
- C. Ring algorithm
- D. Chandy-Misra-Haas algorithm
- E. All of the above
- F. Only A,B,C
- G. Only B,C



16. The single most important difference between a distributed system and a uniprocessor system is the(15sec)(1)

- A. Interprocess communication
- B. Remote procedure call
- C. Both

17. All communication in distributed system is based on message passing  
True/False(10sec)(1)

- True

18. How many layers are used in client-server layer model(12sec)(1)

A. 2

B. 3

C. 4

D. 7

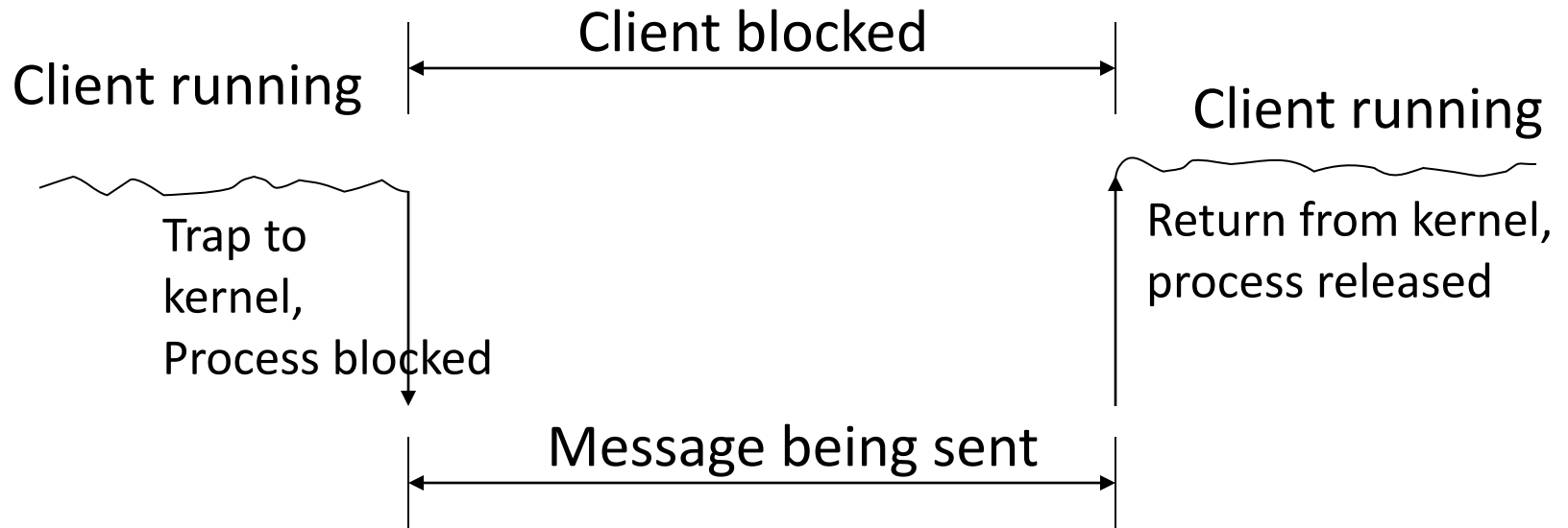
# 19. What are the advantages of client-server model(15sec)(1)

- A. Efficiency
- B. Simplicity
- C. Two system calls send and receive
- D. All of the above**

## 20.What is an advantage and disadvantage of Nonblocking primitives(40sec)(5)

1. Advantage: can continue execution without waiting.
2. Disadvantage: the sender cannot modify the message buffer until the message has been sent and it does not know when the transfer can complete. It can hardly avoid touching the buffer forever.

21. The following diagram is an example of \_\_\_\_\_ (25sec)(1)



- A. Blocking send primitive
- B. Nonblocking send primitive
- C. Both

## 22. What are the Advantages of Distributed Systems over Independent PCs (15sec)(1)

- A. Data sharing
- B. Resource Sharing
- C. Communication
- D. Flexibility
- E. All of the above**
- F. Only A,B,C

# 23. What are the four design issues for the communication primitives(15sec)(1)

1. Addressing
2. Blocking
3. Buffering
4. Reliability

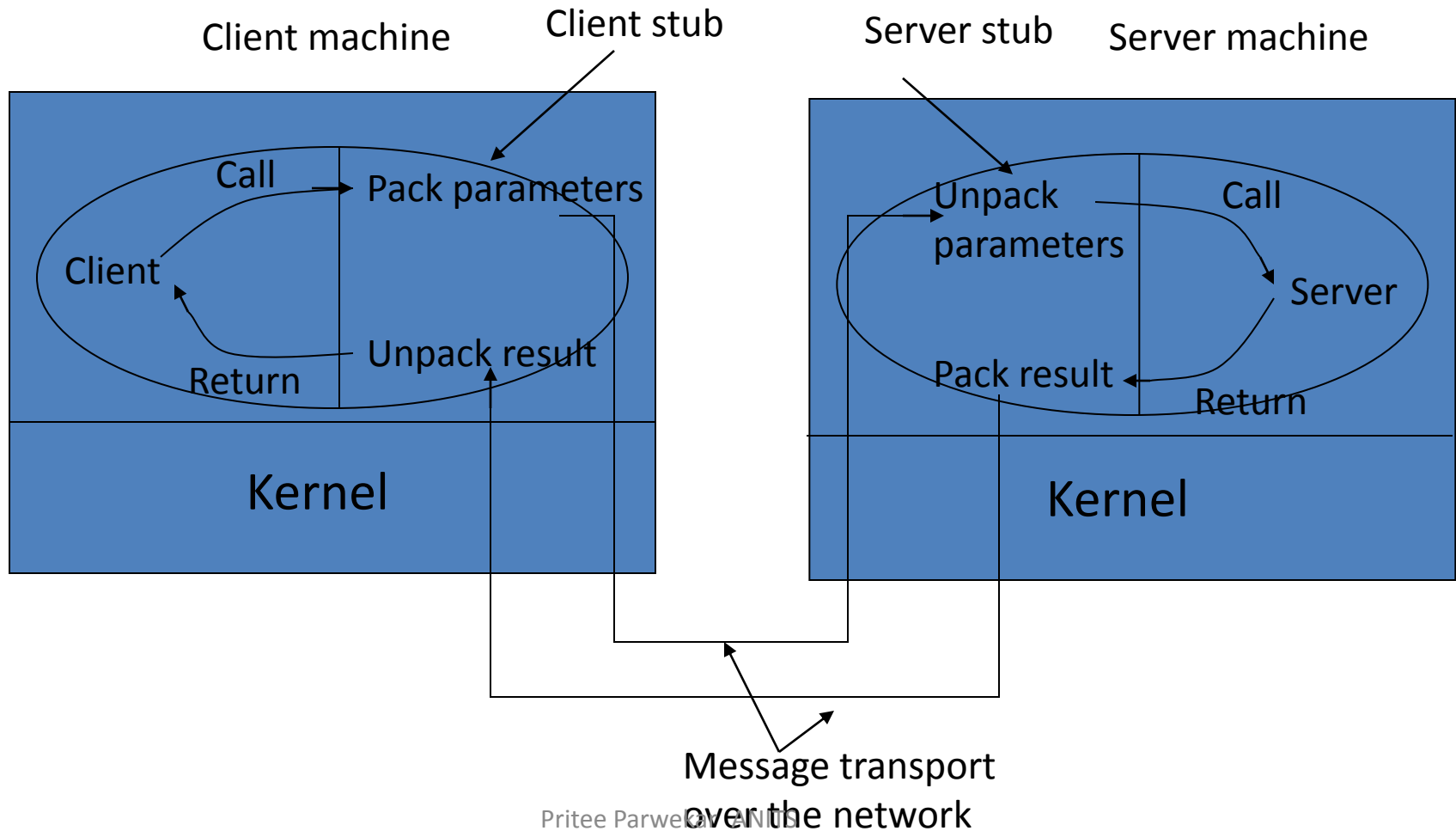


## 24.What is RPC ? (15sec)(1)

Information can be transported from the caller to the callee in the parameters and can come back in the procedure result. No message passing or I/O at all is visible to the programmer. This method is known as remote procedure call (**RPC**)

25. The following diagram is an example of (35sec)(1)

1. RPC
2. Interprocess communication
3. Call to function
4. Call to procedure
5. **Calls and messages in an RPC**



26. Any process in the system can send messages to the group is possible in (15sec)(1)

- A. Open group
- B. Closed group
- C. Both

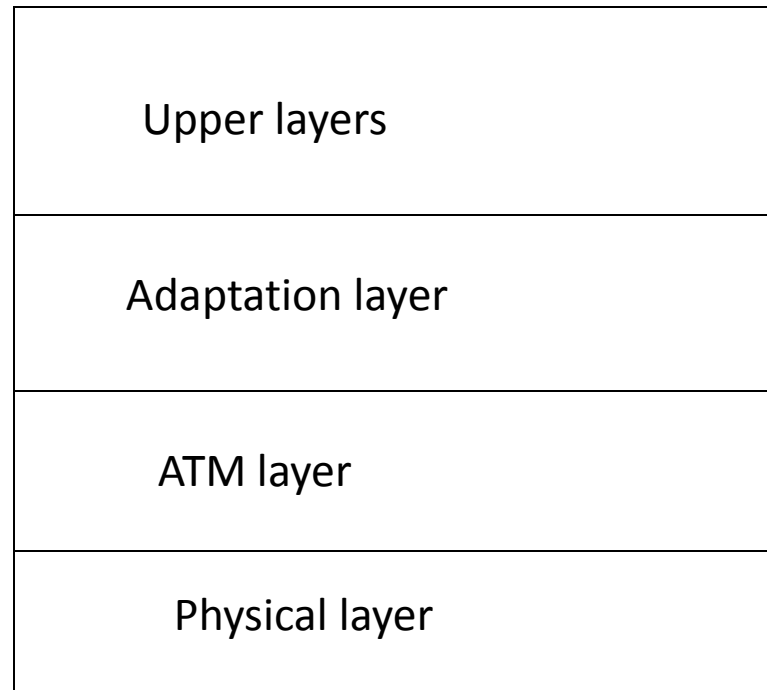
## 27. In Peer group(25sec)(1)

- A. Any process in the system can send messages to the group
- B. Only the member of the group can send messages to the group
- C. All the group members are equal
- D. There is a coordinator

28. In which model a sender first establishes a connection (virtual circuit) to the receiver(15sec)(1)

- A. Client-Server model
- B. Layered model
- C. ATM
- D. Both B & C
- E. All of the above

# 29. Draw a ATM reference model(1min)(1)



30.The \_\_\_\_\_layer handles breaking packets into cells and reassembling them at the other end(20sec)(1)

A. Upper layer

B. Adaption layer

C. ATM layer

D. Physical layer

# 31. What is the advantage of ATM model ? (40sec)(5)

Advantages: now a single network can be used to transport an arbitrary mix of voice, data, broadcast television, videotapes, radio, and other information efficiently, replacing what were previously separate networks (telephone, X.25, cable TV, etc.).  
Video conferencing can use ATM



32. Group Membership Management can be managed  
by(15sec)(1)

- A. Centralized way
- B. Distributed way
- C. Both

# 33.What are the Design Issues of Distributed Systems(20sec)(1)

1. Transparency
2. Flexibility
3. Reliability
4. Performance
5. Scalability

34. Which of the following will be true distributed system ? (25sec)(1)

1. tightly-coupled software on loosely-coupled hardware
2. loosely-coupled software on tightly-coupled hardware
3. tightly-coupled software on tightly-coupled hardware
4. loosely-coupled software on loosely-coupled hardware

35. Individual wires from machine to machine, with many different wiring patterns in use is an example of (15sec)(1)

1. Bus

2. Switched

3. Both

36. Multicomputers are loosely coupled (T/F) (10sec)(1)

37. Private memory and intermachine delay long, data rate low is an example of (15sec)(1)

- A. Tightly coupled systems
- B. Loosely coupled systems**
- C. Both

38. shared memory

intermachine delay short, data rate high is  
an example of (15sec)(1)

- A. Tightly coupled systems
- B. Loosely coupled systems
- C. Both

## 39. What are the disadvantages of Distributed Systems ? (30sec)(1)

- Software: difficult to develop software for distributed systems
- Network: saturation, lossy transmissions
- Security: easy access also applies to secrete data



# 40. Advantages of Distributed Systems over Centralized Systems(1min)

- A. **Economics:** a collection of microprocessors offer a better price/performance than mainframes. Low price/performance ratio: cost effective way to increase computing power.
- B. **Speed:** a distributed system may have more total computing power than a mainframe. Ex. 10,000 CPU chips, each running at 50 MIPS. Not possible to build 500,000 MIPS single processor since it would require 0.002 nsec instruction cycle. Enhanced performance through load distributing.
- C. **Inherent distribution:** Some applications are inherently distributed. Ex. a supermarket chain.
- D. **Reliability:** If one machine crashes, the system as a whole can still survive. Higher availability and improved reliability.
- E. **Incremental growth:** Computing power can be added in small increments. Modular expandability
- F. **Another deriving force:** the existence of large number of personal computers, the need for people to collaborate and share information.
- G. Only C,D,E
- H. Only A,B,D,E
- I. **All of the above**

# END OF QUIZ-I