Operating System Terms

1.10 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

address register	instruction register	program counter
cache memory	interrupt	programmed I/O
cache slot	interrupt-driven I/O	reentrant procedure
central processing unit	I/O module	register
data register	locality	secondary memory
direct memory access	main memory	spatial locality
hit ratio	multicore	stack
input/output	multiprocessor	system bus
instruction	processor	temporal locality
instruction cycle		

2.13 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

batch processing	multiprogramming	round robin
batch system	multitasking	scheduling
execution context	multithreading	serial processing
interrupt	nucleus	symmetric multiprocessing
job	operating system	task
job control language	physical address	thread
kernel	privileged instruction	time sharing
memory management	process	time-sharing system
microkernel	process state	uniprogramming
monitor	real address	virtual address
monolithic kernel	resident monitor	virtual machine
multiprogrammed batch system		

3.10 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

blocked state	privileged mode	suspend state
child process	process	swapping
exit state	process control block	system mode
interrupt	process image	task
kernel mode	process switch	trace
mode switch	program status word	trap
new state	ready state	user mode
parent process	round robin	
preempt	running state	

4.10 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

kernel-level thread	multithreading	task
lightweight process	port	thread
message	process	user-level thread

5.9 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

atomic	critical resource	nonblocking
binary semaphore	critical section	race condition
blocking	deadlock	semaphore
busy waiting	general semaphore	spin waiting
concurrency	message passing	starvation
concurrent processes	monitor	strong semaphore
coroutine	mutual exclusion	weak semaphore
counting semaphore	mutex	

6.13 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

banker's algorithm	deadlock prevention	pipe
circular wait	hold and wait	preemption
consumable resource	joint progress diagram	resource allocation graph
deadlock	memory barrier	reusable resource
deadlock avoidance	message	spinlock
deadlock detection	mutual exclusion	starvation

7.8 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

absolute loading	linkage editor	physical address
buddy system	linking	physical organization
compaction	loading	protection
dynamic linking	logical address	relative address
dynamic partitioning	logical organization	relocatable loading
dynamic run-time loading	memory management	relocation
external fragmentation	page	segment
fixed partitioning	page table	segmentation
frame	paging	sharing
internal fragmentation	partitioning	

8.8 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

associative mapping	page	resident set management
demand paging	page fault	segment
external fragmentation	page placement policy	segment table
fetch policy	page replacement policy	segmentation
frame	page table	slab allocation
hash table	paging	thrashing
hashing	prepaging	translation lookaside buffer
internal fragmentation	real memory	virtual memory
locality	resident set	working set

9.6 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

arrival rate	medium-term scheduler	short-term scheduler
dispatcher	multilevel feedback	throughput
exponential averaging	predictability	time slicing
fair-share scheduling	residence time	turnaround time
fairness	response time	utilization
first-come-first-served	round robin	waiting time
first-in-first-out	scheduling priority	
long-term scheduler	service time	

10.10 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

aperiodic task	hard real-time task	real-time scheduling
deadline scheduling	load sharing	responsiveness
deterministic operating system	periodic task	soft real-time task
fail-soft operation	priority inversion	thread scheduling
gang scheduling	rate monotonic scheduling	unbounded priority inversion
granularity	real-time operating system	

11.13 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

block	input/output (I/O)	redundant array of independent disks
block-oriented device	I/O buffer	removable disk
circular buffer	I/O channel	rotational delay
device I/O	I/O processor	sector
direct memory access	logical I/O	seek time
disk access time	magnetic disk	stream-oriented device
disk cache	nonremovable disk	track
gap	programmed I/O	transfer time
hard disk	read/write head	
interrupt-driven I/O		

12.14 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

access method	file allocation	inode
bit table	file allocation table	key field
block	file directory	pathname
chained file allocation	file management system	pile
contiguous file allocation	file name	record
database	hashed file	sequential file
disk allocation table	indexed file	working directory
field	indexed file allocation	
file	indexed sequential file	

13.6 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

eCos	embedded system
embedded operating system	TinyOS

14.7 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

accountability	e-mail virus	passive attack
active attack	falsification	privacy
asset	hacker	replay
attack	insider attack	repudiation
authenticity	integrity	system integrity
availability	interception	threat
backdoor	intruder	traffic analysis
confidentiality	intrusion	trapdoor
data integrity	logic bomb	Trojan horse
deception	macro virus	usurpation
denial of service	malicious software	virus
disruption	malware	virus kit
exposure	masquerade	worm

15.8 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

access control antivirus audit records authentication bot buffer overflow digital immune system	discretionary access control (DAC) hashed passwords host-based IDS intrusion detection intrusion detections system (IDS)	malware memory cards role-based access control (RBAC) rootkit smart cards worm

16.10 KEY TERMS, REVIEW QUESTIONS, AND PROBLEMS

Key Terms

applications programming interface Beowulf	Client client/server cluster	distributed message passing failback failover
fat client file cache consistency graphical user interface	message middleware remote procedure call (RPC)	server thin client