Operating Systems

1. Which of the following is an interrupt according to temporal relationship with system clock?

(1) Maskable interrupt

(2) Periodic interrupt

(3) Division by zero

(4) Synchronous interrupt

Answer: 4

2. Names of some of the Operating Systems are given below:
(a) MS-DOS
(b) XENIX
(c) OS/2
In the above list, following operating systems didn't provide multiuser facility.
(1) (a) only
(2) (a) and (b) only
(3) (b) and (C) only
(4) (a), (b) and (c)
Answer: Marks to all

43. An Operating System (OS) crashes on the average once in 30 days, that is, the Mean Time Between Failures (MTBF) = 30 days. When this happens, it takes 10 minutes to recover the OS, that is, the Mean Time To Repair (MTTR) = 10 minutes. The availability of the OS with these reliability figures is approximately :
(A) 96.97% (B) 97.97%
(C) 99.009% (D) 99.97%
Answer: D

54. An experimental file server is up 75% of the time and down for 25% of the time due to bugs. How many times does this file server have to be replicated to give an availability of at least 99% ?
(A) 2 (B) 4
(C) 8 (D) 16
Answer: B

53. A Multicomputer with 256 CPUs is organized as 16x16 grid. What is the worst case delay (in hops) that a message might have to take?
(A) 16 (B) 15
(C) 32 (D) 30
Answer: D

6. A CPU handles interrupt by executing interrupt service subroutine.....

(A) by checking interrupt register after execution of each instruction

(B) by checking interrupt register at the end of the fetch cycle

(C) whenever an interrupt is registered

(D) by checking interrupt register at regular time interval

Answer: A

42. In an operating system, indivisibility of operation means :
(A) Operation is interruptable
(B) Race - condition may occur
(C) Processor can not be pre-empted
(D) All of the above
Answer: C

49. Match the following for operating system techniques with the most appropriate advantage:

List-I	**List-II**
(a) Spooling	(i) Allows several jobs in memory to improve CPU utilization
(b) Multiprogramming	(ii) Access to shared resources among geographically dispersed computers in a transparent way
(c) Time sharing	(iii) overlapping I/O and computations
(d) Distributed computing	(iv) Allows many users to share a computer simultaneously by switching processor frequently

Codes:
(a) (b) (c) (d)
(A) (iii) (i) (ii) (iv)
(B) (iii) (i) (iv) (ii)
(C) (iv) (iii) (ii) (i)
(D) (ii) (iii) (iv) (i)
Answer: B

= 3200ns/1000000 x 100% = 0.32%

52. Dining Philosopher's problem is a:
(A) Producer-Consumer problem (B) Classical IPC problem
(C) Starvation problem (D) Synchronization primitive
Answer: B

23. Match the following :

(a) Dangling pointer	(i) Buffer replacement policy
(b) Page fault	(ii) Variable-length records
(c) List representation	(iii) Object identifier
(d) Toss-immediate	(iv) Pointer-swizzling

Codes :
(a) (b) (c) (d)
(A) (iii) (iv) (ii) (i)
(B) (iv) (iii) (ii) (i)
(C) (iv) (iii) (i) (ii)
(D) (iii) (iv) (i) (ii)
Answer: A

7. Which of the following features will characterize an OS as multiprogrammed OS?
(a) More than one program may be loaded into main memory at the same time.

(b) If a program waits for certain event another program is immediately scheduled.

(c) If the execution of a program terminates, another program is immediately scheduled.

(A) (a) only

(B) (a) and (b) only

(C) (a) and (c) only

(D) (a), (b) and (c) only

Answer: D

36. In Distributed system, the capacity of a system to adapt the increased service load is called .....

(1) Tolerance
(2) Scalability
(3) Capability
(4) Loading

Answer: 2

39. Which module gives control of the CPU to the process selected by the short - term scheduler?

(1) Dispatcher
(2) Interrupt
(3) Scheduler
(4) Threading

Answer: 1

40. Distributed operating systems consist of:

(1) Loosely coupled O.S. software on a loosely coupled hardware
(2) Loosely coupled O.S. software on a tightly coupled hardware
(3) Tightly coupled O.S. software on a loosely coupled hardware
(4) Tightly coupled O.S. software on a tightly coupled hardware

Answer: 3

(D) 319

Answer: C

32. Match the following:

List-I	**List-II**
a. Multilevel feedback queue	i. Time-slicing
b. FCFS	ii. Criteria to move processes between queues
c. Shortest process next	iii. Batch processing
d. Round Robin Scheduling	iv. Exponential Smoothening

Codes:

	a	b	c	d
(A)	i	iii	ii	iv
(B)	iv	iii	ii	i

(C) iii i iv i
(D) ii iii iv i
Answer: D

46. Consider the input/output (I/O) requests made at different instants of time directed at a hypothetical disk having 200 tracks as given in the following table:

Serial No.	1	2	3	4	5
Track No.	12	85	40	100	75
Time of arrival	65	80	110	100	175

Assume that:
Current head position is at track no. 65
Direction of last movement is towards higher numbered tracks
Current clock time is 160 milliseconds
Head movement time per track is 1 millisecond.
"look" is a variant of "SCAN" disk-arm scheduling algorithm. In this algorithm, if no more I/O requests are left in current direction, the disk head reverses its direction. The seek times in Shortest Seek First (SSF) and "look" disk-arm scheduling algorithms respectively are:
(A) 144 and 123 milliseconds (B) 143 and 123 milliseconds
(C) 149 and 124 milliseconds (D) 256 and 186 milliseconds
Answer: B

20. The problem of indefinite blockage of low-priority jobs in general priority scheduling algorithm can be solved using :
(A) Parity bit (B) Aging
(C) Compaction (D) Timer
Answer: B

36. The dynamic allocation of storage areas with VSAM files is accomplished by
(A) Hashing
(B) Control splits
(C) Overflow areas
(D) Relative recoding
Answer: B

40. Remote Computing Service involves the use of time sharing and ……..
(A) multi-processing
(B) interactive processing
(C) batch processing
(D) real-time processing
Answer: C

36. Find the odd man out:
(A) tail
(B) cut
(C) wart
(D) sed
Answer: C

27. The multiuser operating system, 20 requests are made to use a particular resource per hour, on an average the probability that no request are made in 45 minutes is
(A) e^{-15} (B) e^{-5}
(C) $1 – e^{-5}$ (D) $1 – e^{-10}$
Answer: A

31. CPU does not perform the operation
(A) data transfer (B) logic operation
(C) arithmetic operation (D) all of the above
Answer: D

36. Block or Buffer caches are used to
(A) improve disk performance
(B) handle interrupts
(C) increase the capacity of main memory
(D) speed up main memory Read operations
Answer: D

37. A file organization component VSAM file is
(A) Relative records data set
(B) Keyed sequential data set
(C) Entry sequential data set
(D) All of the above
Answer: D

40. The aging algorithm with a=0.5 is used to predict run times. The previous four runs from oldest to most recent are 40, 20, 20 and 15 msec. The prediction for the next time will be:
(A) 15 msec (B) 25 msec
(C) 39 msec (D) 40 msec
Answer: B

36. An operating system is:
(A) Collection of hardware components
(B) Collection of input-output devices
(C) Collection of software routines
(D) All the above
Answer: C

38. A software to create a Job Queue is called.....
(A) Linkage editor (B) Interpreter
(C) Driver (D) Spooler
Answer: D

39. A permanent database of a general model of compiler is.....
(A) Identifier table (B) Page map table
(C) Literal table (D) Terminal table
Answer: D

40. Loading operating system from secondary memory to primary memory is called.....
(A) Compiling (B) Booting
(C) Refreshing (D) Reassembling
Answer: B

36. The first operating system of Microprocessor is .....

(A) ATLAS
(B) CP/M
(C) SAGE
(D) T.H.E
Answer: B

36. Producer consumer problem can be solved using:
(A) semaphores (B) event counters
(C) monitors (D) all the above
Answer: D

37. If you want to execute more than one program at a time, the systems software that are used must be capable of:
(A) word processing (B) virtual memory
(C) compiling (D) multitasking
Answer: D

38. Which of the following checks cannot be carried out on the input data to a system ?
(A) Consistency check (B) Syntax check
(C) Range check (D) All the above
Answer: B

39. Non modifiable procedures are called:
(A) Serially usable procedure
(B) Concurrent procedure
(C) Re-entrant procedure
(D) Top down procedure
Answer: C

37. The principle of Locality of reference justifies the use of:
(A) Virtual memory (B) Interrupts
(C) Cache memory (D) Secondary memory
Answer: C

37. In which of the following storage replacement strategies, is a program placed in the largest available hole in the memory?
(A) Best fit (B) First fit
(C) Worst fit (D) Buddy
Answer: C

38. Remote computing system involves the use of timesharing systems and:
(A) Real time processing (B) Batch processing
(C) Multiprocessing (D) All of the above
Answer: B

36. Consider the following justifications for commonly using the two-level CPU scheduling :
I. It is used when memory is too small to hold all the ready processes.
II. Because its performance is same as that of the FIFO.
III. Because it facilitates putting some set of processes into memory and a choice is made from that.
IV. Because it does not allow to adjust the set of in-core processes.
Which of the following is true ?
(A) I, III and IV (B) I and II

(C) III and IV (D) I and III
Answer: D

35. Which of the following out commands will output "onetwothree"?
(A) for val; do echo-n $val; done < one two three
(B) for one two three; do echo-n-; done
(C) for n in one two three; do echo-n $n; done
(D) for n in one two three {echo-n $n}
Answer: C

24. An example of distributed OS is:
(A) Amoeba
(B) UNIX
(C) MS-DOS
(D) MULTICS
Answer: A

40. Which of the following OS treats hardware as a file system?
(A) UNIX
(B) DOS
(C) Windows NT
(D) None of the above
Answer:

53. In ..... allocation method for disk block allocation in a file system, insertion and deletion of blocks in a file is easy.
(A) Index (B) Linked
(C) Contiguous (D) Bit Map
Answer: B

54. Suppose that the time to do a null remote procedure call (RPC) (i.e, 0 data bytes) is 1.0 msec, with an additional 1.5 msec for every 1K of data. How long does it take to read 32 K from the file server as 32 1K RPCs?
(A) 49 msec (B) 80 msec
(C) 48 msec (D) 100 msec
Answer: B

49. A memory management system has 64 pages with 512 bytes page size. Physical memory consists of 32 page frames. Number of bits required in logical and physical address are respectively:
(1) 14 and 15
(2) 14 and 29
(3) 15 and 14
(4) 16 and 32
Answer: 3

37. Everything below the system call interface and above the physical hardware is known as …….
(A) Kernel
(B) Bus
(C) Shell
(D) Stub

Answer: A

58. A CPU generally handles an interrupt by executing an interrupt service routine
(A) as soon as an interrupt is raised
(B) by checking the interrupt register at the end of fetch cycle
(C) by checking the interrupt register after finishing the executing the current instruction
(D) by checking the interrupt register at fixed time intervals

Answer: C

Which of the following is not typically a benefit of dynamic linking?
I. Reduction in overall program execution time.
II. Reduction in overall space consumption in memory.
III. Reduction in overall space consumption on disk.
IV. Reduction in the cost of software updates.
(A) I and IV (B) I only
(C) II and III (D) IV only

Answer: B

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Answer: B

1. System calls are usually invoked by using:
(A) A privileged instruction (B) An indirect jump
(C) A software interrupt (D) Polling

Answer: C

2. For switching from a CPU user mode to the supervisor mode following type of interrupt is most appropriate

(A) Internal interrupts (B) External interrupts
(C) Software interrupts (D) None of the above

Answer: C

53. Monitor is an Interprocess Communication (IPC) technique which can be described as
(A) It is higher level synchronization primitive and is a collection of procedures, variables, and data structures grouped together in a special package.
(B) It is a non-negative integer which apart from initialization can be acted upon by wait and signal operations.
(C) It uses two primitives, send and receive which are system calls rather than language constructs.
(D) It consists of the IPC primitives implemented as system calls to block the process when they are not allowed to enter critical region to save CPU time.

Answer: A

75. Which of the following computing models is not an example of distributed computing environment ?

(A) Cloud computing (B) Parallel computing
(C) Cluster computing (D) Peer-to-peer computing
Answer: B

69. To place a sound into a word document, following feature of windows is used:
(A) Clip board
(B) Task switching
(C) C Win App
(D) OLE
Answer: D

70. Translation Look-aside Buffer(TLB) is
(A) a cache-memory in which item to be searched is compared one-by-one with the keys.
(B) a cache-memory in which item to be searched is compared with all the keys simultaneously.
(C) an associative memory in which item to be searched is compared one-by-one with the keys.
(D) an associative memory in which item to be searched is compared with all the keys simultaneously.
Answer: D

52. Serial access memories are useful in applications where
(A) Data consists of numbers
(B) Short access time is required.
(C) Each stored word is processed differently.
(D) None of these
Answer: D

Explanation:
data naturally needs to flow in and out in serial form.

68. Which of the following statements is not correct with reference to distributed systems?
(A) Distributed system represents a global view of the network and considers it as a virtual uni-processor system by controlling and managing resources across the network on all the sites.
(B) Distributed system is built on bare machine, not an add-on to the existing software.
(C) In a distributed system, kernel provides smallest possible set of services on which other services are built. This kernel is called microkernel. Open servers provide other services and access to shared resources.
(D) In a distributed system, if a user wants to run the program on other nodes or share the resources on remote sites due to their beneficial aspects, user has to log on to that site.
Answer:

5. Suppose that a given application is run on a 64-processor machine and that 70 percent of the application can be parallelized. Then the expected performance improvement using Amdahl's law is

(A) 4.22
(B) 3.22
(C) 3.32
(D) 3.52

Answer: B

62. The distributed system is a collection of (P) and communication is achieved in distributed system by (Q) , where (P) and (Q) are :
(A) Loosely coupled hardware on tightly coupled software and disk sharing, respectively.
(B) Tightly coupled hardware on loosely coupled software and shared memory, respectively.
(C) Tightly coupled software on loosely coupled hardware and message passing, respectively.
(D) Loosely coupled software on tightly coupled hardware and file sharing, respectively.
Answer: C