

UNIT III STORAGE MANAGEMENT

1. What is Address Binding?

- a) going to an address in memory
- b) locating an address with the help of another address
- c) binding two addresses together to form a new address in a different memory space
- d) a mapping from one address space to another

Answer: d

Explanation: None.

2. Binding of instructions and data to memory addresses can be done at _____

- a) Compile time
- b) Load time
- c) Execution time
- d) All of the mentioned

Answer: d

Explanation: None.

3. If the process can be moved during its execution from one memory segment to another, then binding must be _____

- a) delayed until run time
- b) preponed to compile time
- c) preponed to load time
- d) none of the mentioned

Answer: a

Explanation: None.

4. What is Dynamic loading?

- a) loading multiple routines dynamically
- b) loading a routine only when it is called
- c) loading multiple routines randomly
- d) none of the mentioned

Answer: b

Explanation: None.

5. What is the advantage of dynamic loading?

- a) A used routine is used multiple times
- b) An unused routine is never loaded
- c) CPU utilization increases
- d) All of the mentioned

Answer: b

Explanation: None.

6. The idea of overlays is to _____

- a) data that are needed at any given time
- b) enable a process to be larger than the amount of memory allocated to it
- c) keep in memory only those instructions
- d) all of the mentioned

Answer: d

Explanation: None.

7. The _____ must design and program the overlay structure.

- a) programmer
- b) system architect
- c) system designer
- d) none of the mentioned

Answer: a

Explanation: None.

8. The _____ swaps processes in and out of the memory.

- a) Memory manager
- b) CPU
- c) CPU manager
- d) User

Answer: a

Explanation: None.

9. If a higher priority process arrives and wants service, the memory manager can swap out the lower priority process to execute the higher priority process. When the higher priority process finishes, the lower priority process is swapped back in and continue execution. This variant of swapping is sometimes called?

- a) priority swapping
- b) pull out, push in
- c) roll out, roll in
- d) none of the mentioned

Answer: c

Explanation: None.

10. If binding is done at assembly or load time, then the process _____ be moved to different locations after being swapped out and in again.

- a) can
- b) must
- c) can never
- d) may

Answer: c

Explanation: None.

11. In a system that does not support swapping _____

- a) the compiler normally binds symbolic addresses (variables) to relocatable addresses
- b) the compiler normally binds symbolic addresses to physical addresses
- c) the loader binds relocatable addresses to physical addresses
- d) binding of symbolic addresses to physical addresses normally takes place during execution

Answer: a

Explanation: None.

12. Which of the following is TRUE?

- a) Overlays are used to increase the size of physical memory
- b) Overlays are used to increase the logical address space
- c) When overlays are used, the size of a process is not limited to the size of the physical memory
- d) Overlays are used whenever the physical address space is smaller than the logical address space

Answer: c

Explanation: None.

1. The address generated by the CPU is referred to as _____

- a) Physical address
- b) Logical address
- c) Neither physical nor logical
- d) None of the mentioned

Answer: b

Explanation: None.

2. The address loaded into the memory address register of the memory is referred to as _____

- a) Physical address
- b) Logical address
- c) Neither physical nor logical
- d) None of the mentioned

Answer: a

Explanation: None.

3. The run time mapping from virtual to physical addresses is done by a hardware device called the _____

- a) Virtual to physical mapper
- b) Memory management unit
- c) Memory mapping unit
- d) None of the mentioned

Answer: b

Explanation: None.

4. The base register is also known as the _____

- a) basic register
- b) regular register
- c) relocation register
- d) delocation register

Answer: c

Explanation: None.

5. The size of a process is limited to the size of _____

- a) physical memory
- b) external storage
- c) secondary storage
- d) none of the mentioned

Answer: a

Explanation: None.

6. If execution time binding is being used, then a process _____ be swapped to a different memory space.

- a) has to be
- b) can never
- c) must
- d) may

Answer: d

Explanation: None.

7. Swapping requires a _____

- a) motherboard
- b) keyboard
- c) monitor
- d) backing store

Answer: d

Explanation: None.

8. The backing store is generally a _____

- a) fast disk

- b) disk large enough to accommodate copies of all memory images for all users
- c) disk to provide direct access to the memory images
- d) all of the mentioned

Answer: d

Explanation: None.

9. The _____ consists of all processes whose memory images are in the backing store or in memory and are ready to run.

- a) wait queue
- b) ready queue
- c) cpu
- d) secondary storage

Answer: b

Explanation: None.

10. The _____ time in a swap out of a running process and swap in of a new process into the memory is very high.

- a) context – switch
- b) waiting
- c) execution
- d) all of the mentioned

Answer: a

Explanation: None.

11. The major part of swap time is _____ time.

- a) waiting
- b) transfer
- c) execution

d) none of the mentioned

Answer: b

Explanation: None.

12. Swapping _____ be done when a process has pending I/O, or has to execute I/O operations only into operating system buffers.

a) must

b) can

c) must never

d) maybe

Answer: c

Explanation: None.

13. Swap space is allocated _____

a) as a chunk of disk

b) separate from a file system

c) into a file system

d) all of the mentioned

Answer: a

Explanation: None.

1. CPU fetches the instruction from memory according to the value of _____

a) program counter

b) status register

c) instruction register

d) program status word

Answer: a

Explanation: None.

2. A memory buffer used to accommodate a speed differential is called _____

a) stack pointer

- b) cache
- c) accumulator
- d) disk buffer

Answer: b

Explanation: None.

3. Which one of the following is the address generated by CPU?

- a) physical address
- b) absolute address
- c) logical address
- d) none of the mentioned

Answer: c

Explanation: None.

4. Run time mapping from virtual to physical address is done by _____

- a) Memory management unit
- b) CPU
- c) PCI
- d) None of the mentioned

Answer: a

Explanation: None.

5. Memory management technique in which system stores and retrieves data from secondary storage for use in main memory is called?

- a) fragmentation
- b) paging
- c) mapping
- d) none of the mentioned

Answer: b

Explanation: None.

6. The address of a page table in memory is pointed by _____

- a) stack pointer
- b) page table base register
- c) page register
- d) program counter

Answer: b

Explanation: None.

7. Program always deals with _____

- a) logical address
- b) absolute address
- c) physical address
- d) relative address

Answer: a

Explanation: None.

8. The page table contains _____

- a) base address of each page in physical memory
- b) page offset
- c) page size
- d) none of the mentioned

Answer: a

Explanation: None.

9. What is compaction?

- a) a technique for overcoming internal fragmentation
- b) a paging technique
- c) a technique for overcoming external fragmentation

d) a technique for overcoming fatal error

Answer: c

Explanation: None.

10. Operating System maintains the page table for _____

a) each process

b) each thread

c) each instruction

d) each address

Answer: a

Explanation: None.

1. The main memory accommodates _____

a) operating system

b) cpu

c) user processes

d) all of the mentioned

Answer: a

Explanation: None.

2. What is the operating system?

a) in the low memory

b) in the high memory

c) either low or high memory (depending on the location of interrupt vector)

d) none of the mentioned

Answer: c

Explanation: None.

3. In contiguous memory allocation _____

- a) each process is contained in a single contiguous section of memory
- b) all processes are contained in a single contiguous section of memory
- c) the memory space is contiguous
- d) none of the mentioned

Answer: a

Explanation: None.

4. The relocation register helps in

- a) providing more address space to processes
- b) a different address space to processes
- c) to protect the address spaces of processes
- d) none of the mentioned

Answer: c

Explanation: None.

5. With relocation and limit registers, each logical address must be _____ the limit register.

- a) less than
- b) equal to
- c) greater than
- d) none of the mentioned

Answer: a

Explanation: None.

6. The operating system and the other processes are protected from being modified by an already running process because

- a) they are in different memory spaces

- b) they are in different logical addresses
- c) they have a protection algorithm
- d) every address generated by the CPU is being checked against the relocation and limit registers

Answer: d

Explanation: None.

7. Transient operating system code is code that _____

- a) is not easily accessible
- b) comes and goes as needed
- c) stays in the memory always
- d) never enters the memory space

Answer: b

Explanation: None.

8. Using transient code, _____ the size of the operating system during program execution.

- a) increases
- b) decreases
- c) changes
- d) maintains

Answer: c

Explanation: None.

9. When memory is divided into several fixed sized partitions, each partition may contain _____

- a) exactly one process
- b) at least one process
- c) multiple processes at once

d) none of the mentioned

Answer: a

Explanation: None.

10. In fixed size partition, the degree of multiprogramming is bounded by _____

a) the number of partitions

b) the CPU utilization

c) the memory size

d) all of the mentioned

Answer: a

Explanation: None

11. The first fit, best fit and worst fit are strategies to select a _____

a) process from a queue to put in memory

b) processor to run the next process

c) free hole from a set of available holes

d) all of the mentioned

Answer: c

Explanation: None.

1. In internal fragmentation, memory is internal to a partition and _____

a) is being used

b) is not being used

c) is always used

d) none of the mentioned

Answer: b

Explanation: None.

2. A solution to the problem of external fragmentation is _____

- a) compaction
- b) larger memory space
- c) smaller memory space
- d) none of the mentioned

Answer: a

Explanation: None.

3. Another solution to the problem of external fragmentation problem is to _____

- a) permit the logical address space of a process to be noncontiguous
- b) permit smaller processes to be allocated memory at last
- c) permit larger processes to be allocated memory at last
- d) all of the mentioned

Answer: a

Explanation: None.

4. If relocation is static and is done at assembly or load time, compaction _____

- a) cannot be done
- b) must be done
- c) must not be done
- d) can be done

Answer: a

Explanation: None.

5. The disadvantage of moving all process to one end of memory and all holes to the other direction, producing one large hole of available memory is _____

- a) the cost incurred
- b) the memory used
- c) the CPU used
- d) all of the mentioned

Answer: a

Explanation: None.

6. _____ is generally faster than _____ and _____

- a) first fit, best fit, worst fit
- b) best fit, first fit, worst fit
- c) worst fit, best fit, first fit
- d) none of the mentioned

Answer: a

Explanation: None.

7. External fragmentation exists when?

- a) enough total memory exists to satisfy a request but it is not contiguous
- b) the total memory is insufficient to satisfy a request
- c) a request cannot be satisfied even when the total memory is free
- d) none of the mentioned

Answer: a

Explanation: None.

8. External fragmentation will not occur when?

- a) first fit is used
- b) best fit is used
- c) worst fit is used
- d) no matter which algorithm is used, it will

always occur

Answer: d

Explanation: None.

9. Sometimes the overhead of keeping track of a hole might be _____

- a) larger than the memory
- b) larger than the hole itself
- c) very small
- d) all of the mentioned

Answer: b

Explanation: None.

10. When the memory allocated to a process is slightly larger than the process, then _____

- a) internal fragmentation occurs
- b) external fragmentation occurs
- c) both internal and external fragmentation occurs
- d) neither internal nor external fragmentation occurs

Answer: a

Explanation: None.

1. Physical memory is broken into fixed-sized blocks called _____

- a) frames
- b) pages
- c) backing store
- d) none of the mentioned

Answer: a

Explanation: None.

2. Logical memory is broken into blocks of the same size called _____

- a) frames
- b) pages
- c) backing store
- d) none of the mentioned

Answer: b

Explanation: None.

3. Every address generated by the CPU is divided into two parts. They are _____

- a) frame bit & page number
- b) page number & page offset
- c) page offset & frame bit
- d) frame offset & page offset

Answer: b

Explanation: None.

4. The _____ is used as an index into the page table.

- a) frame bit
- b) page number
- c) page offset
- d) frame offset

Answer: b

Explanation: None.

5. The _____ table contains the base address of each page in physical memory.

- a) process
- b) memory
- c) page

d) frame

Answer: c

Explanation: None

6. The size of a page is typically

a) varied

b) power of 2

c) power of 4

d) none of the mentioned

Answer: b

Explanation: None.

7. If the size of logical address space is 2^m and a page size is 2^n addressing units, then the high order _____ bits of a logical address designate the page number, and the _____ low order bits designate the page offset.

a) m, n

b) n, m

c) $m - n, m$

d) $m - n, n$

Answer: d

Explanation: None.

8. With paging there is no _____ fragmentation.

a) internal

b) external

c) either type of

d) none of the mentioned

Answer: b

Explanation: None.

9. The operating system maintains a _____ table that keeps track of how many frames have been allocated, how many are there, and how many are available.

- a) page
- b) mapping
- c) frame
- d) memory

Answer: c

Explanation: None.

10. Paging increases the _____ time.

- a) waiting
- b) execution
- c) context – switch
- d) all of the mentioned

Answer: c

Explanation: None.

11. Smaller page tables are implemented as a set of _____

- a) queues
- b) stacks
- c) counters
- d) registers

Answer: d

Explanation: None.

12. The page table registers should be built with _____

- a) very low speed logic

- b) very high speed logic
- c) a large memory space
- d) none of the mentioned

Answer: b

Explanation: None.

13. For larger page tables, they are kept in main memory and a _____ points to the page table.

- a) page table base register
- b) page table base pointer
- c) page table register pointer
- d) page table base

Answer: a

Explanation: None.

14. For every process there is a _____

- a) page table
- b) copy of page table
- c) pointer to page table
- d) all of the mentioned

Answer: a

Explanation: None.

15. Time taken in memory access through PTBR is _____

- a) extended by a factor of 3
- b) extended by a factor of 2
- c) slowed by a factor of 3
- d) slowed by a factor of 2

Answer: d

Explanation: None.

1. Each entry in a translation lookaside buffer (TLB) consists of _____

- a) key
- b) value
- c) bit value
- d) constant

Answer: a

Explanation: None.

2. If a page number is not found in the TLB, then it is known as a _____

- a) TLB miss
- b) Buffer miss
- c) TLB hit
- d) All of the mentioned

Answer: a

Explanation: None.

3. An _____ uniquely identifies processes and is used to provide address space protection for that process.

- a) address space locator
- b) address space identifier
- c) address process identifier
- d) none of the mentioned

Answer: b

Explanation: None.

4. The percentage of times a page number is found in the TLB is known as _____

- a) miss ratio
- b) hit ratio
- c) miss percent

d) none of the mentioned

Answer: b

Explanation: None.

5. Memory protection in a paged environment is accomplished by _____

a) protection algorithm with each page

b) restricted access rights to users

c) restriction on page visibility

d) protection bit with each page

Answer: d

Explanation: None.

6. When the valid – invalid bit is set to valid, it means that the associated page

a) is in the TLB

b) has data in it

c) is in the process's logical address space

d) is the system's physical address space

Answer: c

Explanation: None.

7. Illegal addresses are trapped using the _____ bit.

a) error

b) protection

c) valid – invalid

d) access

Answer: c

Explanation: None.

8. When there is a large logical address space, the best way of paging would be

-
- a) not to page
 - b) a two level paging algorithm
 - c) the page table itself
 - d) all of the mentioned

Answer: b

Explanation: None.

9. In a paged memory, the page hit ratio is 0.35. The required to access a page in secondary memory is equal to 100 ns. The time required to access a page in primary memory is 10 ns. The average time required to access a page is?

- a) 3.0 ns
- b) 68.0 ns
- c) 68.5 ns
- d) 78.5 ns

Answer: c

Explanation: None.

10. To obtain better memory utilization, dynamic loading is used. With dynamic loading, a routine is not loaded until it is called. For implementing dynamic loading

-
- a) special support from hardware is required
 - b) special support from operating system is essential
 - c) special support from both hardware and operating system is essential
 - d) user programs can implement dynamic

loading without any special support from hardware or operating system

Answer: d

Explanation: None.

11. In paged memory systems, if the page size is increased, then the internal fragmentation generally _____

- a) becomes less
- b) becomes more
- c) remains constant
- d) none of the mentioned

Answer: b

Explanation: None.

1. Because of virtual memory, the memory can be shared among _____

- a) processes
- b) threads
- c) instructions
- d) none of the mentioned

Answer: a

Explanation: None.

2. _____ is the concept in which a process is copied into the main memory from the secondary memory according to the requirement.

- a) Paging
- b) Demand paging
- c) Segmentation
- d) Swapping

Answer: b

Explanation: None.

3. The pager concerns with the

- a) individual page of a process
- b) entire process
- c) entire thread
- d) first page of a process

Answer: a

Explanation: None.

4. Swap space exists in _____

- a) primary memory
- b) secondary memory
- c) cpu
- d) none of the mentioned

Answer: b

Explanation: None.

5. When a program tries to access a page that is mapped in address space but not loaded in physical memory, then _____

- a) segmentation fault occurs
- b) fatal error occurs
- c) page fault occurs
- d) no error occurs

Answer: c

Explanation: None.

6. Effective access time is directly proportional to _____

- a) page-fault rate
- b) hit ratio

- c) memory access time
- d) none of the mentioned

Answer: a

Explanation: None.

7. In FIFO page replacement algorithm, when a page must be replaced _____

- a) oldest page is chosen
- b) newest page is chosen
- c) random page is chosen
- d) none of the mentioned

Answer: a

Explanation: None.

8. Which algorithm chooses the page that has not been used for the longest period of time whenever the page required to be replaced?

- a) first in first out algorithm
- b) additional reference bit algorithm
- c) least recently used algorithm
- d) counting based page replacement algorithm

Answer: c

Explanation: None.

9. A process is thrashing if _____

- a) it is spending more time paging than executing
- b) it is spending less time paging than executing
- c) page fault occurs
- d) swapping can not take place

Answer: a

Explanation: None.

10. Working set model for page replacement is based on the assumption of _____

- a) modularity
- b) locality
- c) globalization
- d) random access

Answer: b

Explanation: None.

1. Virtual memory allows _____

- a) execution of a process that may not be completely in memory
- b) a program to be smaller than the physical memory
- c) a program to be larger than the secondary storage
- d) execution of a process without being in physical memory

Answer: a

Explanation: None.

2. The instruction being executed, must be in _____

- a) physical memory
- b) logical memory
- c) physical & logical memory
- d) none of the mentioned

Answer: a

Explanation: None.

3. Error handler codes, to handle unusual errors are _____

- a) almost never executed
- b) executed very often
- c) executed periodically
- d) none of the mentioned

Answer: a

Explanation: None.

4. The ability to execute a program that is only partially in memory has benefits like

-
- a) The amount of physical memory cannot put a constraint on the program
 - b) Programs for an extremely large virtual space can be created
 - c) Throughput increases
 - d) All of the mentioned

Answer: d

Explanation: None.

5. In virtual memory. the programmer _____ of overlays.

- a) has to take care
- b) does not have to take care
- c) all of the mentioned
- d) none of the mentioned

Answer: b

Explanation: None.

6. Virtual memory is normally implemented by _____

- a) demand paging
- b) buses
- c) virtualization

d) all of the mentioned

Answer: a

Explanation: None.

7. Segment replacement algorithms are more complex than page replacement algorithms because _____

- a) Segments are better than pages
- b) Pages are better than segments
- c) Segments have variable sizes
- d) Segments have fixed sizes

Answer: c

Explanation: None.

8. A swapper manipulates _____ whereas the pager is concerned with individual _____ of a process.

- a) the entire process, parts
- b) all the pages of a process, segments
- c) the entire process, pages
- d) none of the mentioned

Answer: c

Explanation: None.

9. Using a pager _____

- a) increases the swap time
- b) decreases the swap time
- c) decreases the swap time & amount of physical memory needed
- d) increases the amount of physical memory needed

Answer: c

Explanation: None.

10. The valid – invalid bit, in this case, when valid indicates?

- a) the page is not legal
- b) the page is illegal
- c) the page is in memory
- d) the page is not in memory

Answer: c

Explanation: None.

11. A page fault occurs when?

- a) a page gives inconsistent data
- b) a page cannot be accessed due to its absence from memory
- c) a page is invisible
- d) all of the mentioned

Answer: b

Explanation: None.

12. When a page fault occurs, the state of the interrupted process is _____

- a) disrupted
- b) invalid
- c) saved
- d) none of the mentioned

Answer: c

Explanation: None.

13. When a process begins execution with no pages in memory?

- a) process execution becomes impossible
- b) a page fault occurs for every page brought into memory
- c) process causes system crash

d) none of the mentioned

Answer: b

Explanation: None.

14. If the memory access time is denoted by 'ma' and 'p' is the probability of a page fault ($0 \leq p \leq 1$). Then the effective access time for a demand paged memory is

-
- a) $p \times ma + (1-p) \times \text{page fault time}$
 - b) $ma + \text{page fault time}$
 - c) $(1-p) \times ma + p \times \text{page fault time}$
 - d) none of the mentioned

Answer: c

Explanation: None.

15. When the page fault rate is low

-
- a) the turnaround time increases
 - b) the effective access time increases
 - c) the effective access time decreases
 - d) turnaround time & effective access time increases

Answer: c

Explanation: None.

16. Locality of reference implies that the page reference being made by a process

-
- a) will always be to the page used in the previous page reference
 - b) is likely to be one of the pages used in the

last few page references

c) will always be one of the pages existing in memory

d) will always lead to page faults

Answer: b

Explanation: None.

1. Which of the following page replacement algorithms suffers from Belady's Anomaly?

a) Optimal replacement

b) LRU

c) FIFO

d) Both optimal replacement and FIFO

Answer: c

Explanation: None.

2. A process refers to 5 pages, A, B, C, D, E in the order : A, B, C, D, A, B, E, A, B, C, D,

E. If the page replacement algorithm is FIFO, the number of page transfers with an empty internal store of 3 frames is?

a) 8

b) 10

c) 9

d) 7

Answer: c

Explanation: None.

3. In question 2, if the number of page frames is increased to 4, then the number of page transfers _____

a) decreases

b) increases

- c) remains the same
- d) none of the mentioned

Answer: b

Explanation: None.

4. A memory page containing a heavily used variable that was initialized very early and is in constant use is removed, then the page replacement algorithm used is _____

- a) LRU
- b) LFU
- c) FIFO
- d) None of the mentioned

Answer: c

Explanation: None.

5. A virtual memory system uses First In First Out (FIFO) page replacement policy and allocates a fixed number of frames to a process. Consider the following statements.

P : Increasing the number of page frames allocated to a process sometimes increases the page fault rate

Q : Some programs do not exhibit locality of reference

Which of the following is TRUE?

- a) Both P and Q are true, and Q is the reason for P
- b) Both P and Q are true, but Q is not the reason for P
- c) P is false but Q is true

d) Both P and Q are false

Answer: c

Explanation: None.

6. Users _____ that their processes are running on a paged system.

a) are aware

b) are unaware

c) may unaware

d) none of the mentioned

Answer: b

Explanation: None.

7. If no frames are free, _____ page transfer(s) is/are required.

a) one

b) two

c) three

d) four

Answer: b

Explanation: None.

8. When a page is selected for replacement, and its modify bit is set _____

a) the page is clean

b) the page has been modified since it was read in from the disk

c) the page is dirty

d) the page has been modified since it was read in from the disk & page is dirty

Answer: d

Explanation: None.

9. The aim of creating page replacement

algorithms is to _____

- a) replace pages faster
- b) increase the page fault rate
- c) decrease the page fault rate
- d) to allocate multiple pages to processes

Answer: c

Explanation: None.

10. A FIFO replacement algorithm associates with each page the _____

- a) time it was brought into memory
- b) size of the page in memory
- c) page after and before it
- d) all of the mentioned

Answer: a

Explanation: None.

11. What is the Optimal page – replacement algorithm?

- a) Replace the page that has not been used for a long time
- b) Replace the page that has been used for a long time
- c) Replace the page that will not be used for a long time
- d) None of the mentioned

Answer: c

Explanation: None.

12. Optimal page – replacement algorithm is difficult to implement, because _____

- a) it requires a lot of information

- b) it requires future knowledge of the reference string
- c) it is too complex
- d) it is extremely expensive

Answer: b

Explanation: None.

13. LRU page – replacement algorithm associates with each page the _____

- a) time it was brought into memory
- b) the time of that page's last use
- c) page after and before it
- d) all of the mentioned

Answer: b

Explanation: None.

14. For 3 page frames, the following is the reference string:

7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1

How many page faults does the LRU page replacement algorithm produce?

- a) 10
- b) 15
- c) 11
- d) 12

Answer: d

Explanation: None.

15. What are the two methods of the LRU page replacement policy that can be implemented in hardware?

- a) Counters

- b) RAM & Registers
- c) Stack & Counters
- d) Registers

Answer: c

Explanation: None.

1. When using counters to implement LRU, we replace the page with the _____

- a) smallest time value
- b) largest time value
- c) greatest size
- d) none of the mentioned

Answer: a

Explanation: Whenever a reference to a page is made, the contents of the clock register are copied into the time-of-use field in the page-table entry for that page. In this way, we always have the time of the last reference to each page.

2. In the stack implementation of the LRU algorithm, a stack can be maintained in a manner _____

- a) whenever a page is used, it is removed from the stack and put on bottom
- b) the bottom of the stack is the LRU page
- c) the top of the stack contains the LRU page and all new pages are added to the top
- d) none of the mentioned

Answer: b

Explanation: None.

3. There is a set of page replacement

algorithms that can never exhibit Belady's Anomaly, called _____

- a) queue algorithms
- b) stack algorithms
- c) string algorithms
- d) none of the mentioned

Answer: b

Explanation: None.

4. Applying the LRU page replacement to the following reference string.

1 2 4 5 2 1 2 4

The main memory can accommodate 3 pages and it already has pages 1 and 2. Page 1 came in before page 2.

How many page faults will occur?

- a) 2
- b) 3
- c) 4
- d) 5

Answer: c

Explanation: None.

5. Increasing the RAM of a computer typically improves performance because _____

- a) Virtual memory increases
- b) Larger RAMs are faster
- c) Fewer page faults occur
- d) None of the mentioned

Answer: c

Explanation: None.

6. The essential content(s) in each entry of a page table is/are _____

- a) Virtual page number
- b) Page frame number
- c) Both virtual page number and page frame

number

- d) Access right information

Answer: b

Explanation: None.

7. The minimum number of page frames that must be allocated to a running process in a virtual memory environment is determined by _____

- a) the instruction set architecture
- b) page size
- c) physical memory size
- d) number of processes in memory

Answer: a

Explanation: None.

8. What is the reason for using the LFU page replacement algorithm?

- a) an actively used page should have a large reference count
- b) a less used page has more chances to be used again
- c) it is extremely efficient and optimal
- d) all of the mentioned

Answer: a

Explanation: None.

9. What is the reason for using the MFU page replacement algorithm?

- a) an actively used page should have a large reference count
- b) a less used page has more chances to be used again
- c) it is extremely efficient and optimal
- d) all of the mentioned

Answer: b

Explanation: None.

10. The implementation of the LFU and the MFU algorithm is very uncommon because _____

- a) they are too complicated
- b) they are optimal
- c) they are expensive
- d) all of the mentioned

Answer: c

Explanation: None.

1. In segmentation, each address is specified by _____

- a) a segment number & offset
- b) an offset & value
- c) a value & segment number
- d) a key & value

Answer: a

Explanation: None.

2. In paging the user provides only _____ which is partitioned by the hardware into _____ and _____

- a) one address, page number, offset
- b) one offset, page number, address
- c) page number, offset, address
- d) none of the mentioned

Answer: a

Explanation: None.

3. Each entry in a segment table has a

- a) segment base
- b) segment peak
- c) segment value
- d) none of the mentioned

Answer: a

Explanation: None.

4. The segment base contains the

- a) starting logical address of the process
- b) starting physical address of the segment in memory
- c) segment length
- d) none of the mentioned

Answer: b

Explanation: None.

5. The segment limit contains the

- a) starting logical address of the process
- b) starting physical address of the segment in memory
- c) segment length

d) none of the mentioned

Answer: c

Explanation: None.

6. The offset 'd' of the logical address must be _____

a) greater than segment limit

b) between 0 and segment limit

c) between 0 and the segment number

d) greater than the segment number

Answer: b

Explanation: None.

7. If the offset is legal _____

a) it is used as a physical memory address itself

b) it is subtracted from the segment base to produce the physical memory address

c) it is added to the segment base to produce the physical memory address

d) none of the mentioned

Answer: a

Explanation: None.

8. When the entries in the segment tables of two different processes point to the same physical location _____

a) the segments are invalid

b) the processes get blocked

c) segments are shared

d) all of the mentioned

Answer: c

Explanation: None.

9. The protection bit is 0/1 based on

- a) write only
- b) read only
- c) read – write
- d) none of the mentioned

Answer: c

Explanation: None.

10. If there are 32 segments, each of size 1Kb, then the logical address should have

- a) 13 bits
- b) 14 bits
- c) 15 bits
- d) 16 bits

Answer: a

Explanation: To specify a particular segment, 5 bits are required. To select a particular byte after selecting a page, 10 more bits are required. Hence 15 bits are required.

11. Consider a computer with 8 Mbytes of main memory and a 128K cache. The cache block size is 4 K. It uses a direct mapping scheme for cache management. How many different main memory blocks can map onto a given physical cache block?

- a) 2048
- b) 256
- c) 64
- d) 8

Answer: c

Explanation: None.

12. A multilevel page table is preferred in comparison to a single level page table for translating virtual address to physical address because _____

- a) it reduces the memory access time to read or write a memory location
- b) it helps to reduce the size of page table needed to implement the virtual address space of a process
- c) it is required by the translation lookaside buffer
- d) it helps to reduce the number of page faults in page replacement algorithms