1. _____ permits the physical address space of processes to be noncontiguous.
   a) Paging b) segmentation c) paging with segmentation d) all
2. Paging is a memory management scheme that suffer from external fragmentation. T/F
3. Best fit memory management is fater than first fit. T/F
4. Paging divides logical memory into blocks of same size called frames. T/F
5. _____ is a contiguous allocation method that produces the largest leftover hole.
   a) First fit b) Worst fit c) Next fit d) Best fit
6. _____ is a contiguous allocation method that produces the smallest leftover hole.
   a) First fit b) Worst fit c) Next fit d) Best fit
7. Which of the following is not correct about paging memory management scheme?
   a) Physical address consists of frame number and offset.
   b) Logical address consists of frame number and offset.
   c) Logical address consists of page number and offset.
   d) Physical address consists of frame number and page number.
8. Paging divides physical memory into blocks of same size called _____
   a) Frames b) segments c) pages d) blocks
9. _____ are contiguous allocation methods must search the entire holes first.
   a) Best fit, Next fit b) Best fit, First fit
   c) First fit, Next fit d) Best Fit, Worst fit
10. In non-contiguous allocation, each process is contained in a single contiguous section of memory. T/F
11. First-fit and worst-fit better than best-fit in terms of speed and storage utilization. T/F
12. Paging avoids internal fragmentation and the need for compaction. T/F
13. _____ strategy begins each search for an available hole at the point where the search ended.
    A. Best-fit. B. First-fit. C. Forward-fit. D. Next-fit.
14. In _____ a program is divided into several blocks that is placed throughout the main storage.
    A. contiguous allocation. B. non contiguous allocation.
    C. variable partition. D. fixed partition.
15. First fit and best fit strategies for memory allocation suffer from ____ and _____ fragmentation, respectively.
    A) Internal,internal B) Internal,external C) External,external D) External,internal
16. A program is located in the smallest available hole in the memory is _____
    A) Best – fit B) First – bit C) Worst – fit D) Buddy

M.A.S

17. Which one of the following statements is TRUE?
    A) The hole created by worst fit is always larger than the hole created by first fit.
    B) The hole created by best fit is never larger than the hole created by first fit.
    C) The hole created by first fit is always larger than the hole created by next fit.
    D) The hole created by next fit is never larger than the hole created by best fit.

18. 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 – bit C) Worst – fit D) Buddy

19. External fragmentation will not occur when?
    a) first fit is used b) best fit is used c) worst fit is used d) no matter

20. 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

21. 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

22. _____ 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

23. Best-fit memory allocation memory allocation scheme results in the smallest amount of wasted space. T/F

24. _____ address is combined with the page offset to define the physical memory address that is sent to the memory unit.
    a) Base b) page c) offset d) none

25. In paging, Page size _____ frame size.
    a) greater than b) equals to c) less than d) none

26. In paging, to run a program of size n pages, need to find _____ free frames and load program.
    a) n^2 b) n^3 c) a or b d) n

27. In paging, User program views memory as multiple contiguous space. T/F

28. Paging enables user process to access other process's frames in the main memory. T/F

29. A data structure used by the operating system to keep track of allocated and free blocks in main memory is known as _____ table.
    a) page b) frame c) block d) none

30. Each process has its own paging table. T/F

31. When context switch occur the memory manager loads the page table of the process into hardware page table. T/F

32. Paging decrease context-switch time. T/F increase

33. Reducing the page size leads to increasing the number of pages that belong to the process. T/F

34. Reducing the page size increases the page table size. T/F

35. If a logical address in a paged memory management system means the 133 byte on page 2, what is the value of the address

a) <133, 2> b) <2,133> c) <0,2,133> d) <133,2,0>

36. 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

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

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

38. The primary advantage of storing programs in noncontiguous page frames is that main memory is used more efficiently because an empty page frame can be used by any page of any job. T/F

39. Implementing paging support without care will lead to a faster machine. T/F

40. A large job can have problems with a first-fit memory allocation scheme. T/F

41. . The ____ technique uses the smallest free memory area.

a) First-fit b) Next-fit c) best-fit d) none of all

42. In Non-contiguous memory allocation the kernel allocates a single memory area to a process. T/F

43. 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

44. A process cannot be executed if its logical address space is bigger than the size of the physical memory. T/F False

45. Which of the following techniques are correct for physical address?

a. Physical address = virtual address + translation
b. Physical address = virtual address + bounds
c. Physical address = virtual address + limits
d. Physical address = virtual address + base

46. 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

47. An incoming job is placed in the hole in main storage in which it fits more tightly in ____ strategy.

A. best-fit. B. first-fit. C. worst-fit. D. storage.

48. In a fixed partition system, main memory is divided into several partitions of the same size. F

49. 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

50. 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

51. Paging increases the _____ time.

a) waiting b) execution c) context – switch d) all

52. A virtual address is identical to a logical address. T/F

53. The number of virtual pages is always identical to the number of physical pages. T/F

54. External fragmentation can occur in a paged virtual memory system. T

55. External fragmentation can be prevented (almost completely) by frequent use of compaction, but the cost would be too high for most systems. T

56. A page frame is a portion of main memory. T

57. In a relocatable dynamic partition scheme, the ____ contains a value that must be added to each address referenced in a program so that the system will be able to access the correct memory addresses after relocation.

a. bounds register
b. load register
c. relocation register
d. compaction register

58. The purpose of the page table is to map page frames onto virtual pages. T/F

59. Which technique is used to temporarily removing non-active programs from the memory of computer system?

a. Swapping b. Spooling c. Scheduler d. None of the above.

60. 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

61. The size of a page is typically _____

a) varied b) power of 2 c) power of 4 d) none

62. If the size of logical address space is 2 to the power of m, and a page size is 2 to the power of 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

63. Instructions that are requested by the system after decoding are _____

a) fetched b) executed c)aborted d) none

64. In the memory hierarchy, a backing store is faster than the memory layer above that uses that backing store. T/F

65. The OS can run multiple processes whose total allocated address space exceeds the amount of physical memory available in the system. T/F

66. A large job can have problems with a first-fit memory allocation list. TRUE

67. _____ is where the data and instructions of a computer must reside to be processed.

a. I/O memory b. Read-only memory c. Main memory d. CPU

68. In the instruction execution cycle, fetching the operands from main memory occurs during _____ phase.

a) Fetch b) execute c) decode d) tes

69. In paging with segmentation memory management, the physical address consists of _____

a) Page number, offset b) Frame number, offset
c) Segment number, Page number, offset d) Page number, segment number, offset

70. In paging with segmentation memory management, the logical address consists of _____

a) Page number, offset b) Offset
c) Segment number, Page number, offset d) Page number, segment number, offset

71. Which of the following is not correct about segmentation memory management scheme?

a) Segmentation solved the external fragmentation problem.
b) The program is a collection of segments.
c) Segmentation support user view of memory.
d) The logical address consists of segment number and offset.

72. An operating system is responsible for loading programs into memory and running them. T/F

73. Paging divides logical memory into blocks of same size called _____

a) Frames b) segments c) pages d) blocks

74. The paging with segmentation memory management scheme divides the physical memory into _____

a) Frames b) segments c) pages d) blocks

75. The paging with segmentation memory management scheme divides the logical address into _____

a) Segmented pages b) paged segments c) pages d) segments

76. In memory hierarchy, the higher levels are cheap, but they are fast. T/F
77. In memory hierarchy, as we move down, the cost per bit increases and the access time decreases. T/F
78. _____ enables the operating system to allocate memory to several jobs.
    a) Memory management b) CPU management c) Memory scheduling d) none
79. In single-partition memory, when a partition is free, a process is selected from the input queue and is loaded into the free partition. T/F
80. In the variable-partition scheme, the operating system keeps a table indicating which parts of memory are available and which are occupied. T/F
81. Paging and segmentation allow a process to be allocated physical memory wherever such memory is available. T/F
82. Paging in its various forms is used in most operating systems, from those for mainframes through those for smartphones. T/F
83. Page-table base register (PTBR) points to the address of page table. T/F
84. Page-table length register (PRLR) indicates number of the page tables. T/F
85. The memory access problem in paging can be solved by the use of TLB. T/F
86. TLB is a special fast-lookup hardware cache called associative memory that reduces access time in paging. T/F
87. Page table consists of two parts key and value. T/F
88. In TLB, when it is presented with an item, it is compared with all keys simultaneously. If the item is found, the corresponding value field is returned. T/F
89. TLB contains ALL of page table entries. T/F
90. If page number is found in TLB would results in TLB _____ and a memory reference must be made.
    a) hit b) miss c) memory d) none
91. The percentage of times that the page number of interest is found in the TLB is called the_____.
    a) hit ratio b) miss ratio c) main ratio d) none
92. 80-percent hit ratio means that we find the desired page number in the TLB 80 percent of the time. T/F
93. 20-percent miss ratio means that we didn't find the desired page number in the TLB 80 percent of the time. T/F

94. Memory protection in a paged environment is accomplished by protection bits associated with each frame. T/F

95. An attempt to write to a read-only page causes _____ to the operating system.
a) boot b) trap c) error d) none

96. _____ bit indicates that the associated page is in the process' logical address space.
a) invalid b) valid c) present d) none

97. _____bit indicates that the page is not in the process' logical address space.
a) invalid b) valid c) present d) none

98. _____is memory-management scheme that supports user view of memory in which the program is a collection of _____.
a) paging, pages b) segmentation, segments c) paging, frames d) none

99. A _____ is a logical unit such as main program, procedure, function, method, object, local variables, global variables, etc.
a) frame b) page c) segment d) none

100. In segmentation, a logical address space is a collection of _____.
a) frame b) page c) segment d) none

101. In segmentation, a physical address space is a collection of _____.
a) frame b) page c) segment d) none

102. In segmentation, base contains the starting physical address of segments in memory.
a) limit b) base c) PTLR d) PTBR

103. In segmentation, _____ specifies the length of the segment.
a) limit b) base c) PTLR d) STBR

104. _____ points to the segment table's location in memory.
a) limit b) base c) PTLR d) STBR

105. _____ indicates number of segments used by a program.
a) limit b) PTLR c) STBR d) none

106. In paging with segmentation scheme, page table entry contains the base address of a segment table for this segment. T/F

107. A smaller page size leads to more TLB misses. T/F

108. A smaller page size reduces paging I/O throughput. T/F

109. A logical address specifies an actual location in main memory. F

110. An address in a single contiguous memory management system is made up of a page and an offset. F

111. Which of the following memory allocation scheme suffers from external fragmentation ?

A Segmentation
B Pure demand paging
C Swapping
D Paging

112. The chunks of a memory are known as

A. Sector B. Offset C. Page D. Frame

113. The memory allocation scheme subject to "external" fragmentation is

A. segmentation B. swapping C. pure demand paging D. multiple contiguous fixed partitions

114. What hole will allocates in "Worst-Fit" algorithm of memory management?

A. It allocates the smaller hole than required memory hole
B. It allocates the smallest hole from the available memory holes
C. It allocates the largest hole from the available memory holes
D. It allocates the exact same size memory hole

115. 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

116. With paging there is no _____ fragmentation.

a) internal b) external c) either type of d) none of the mentioned

117. 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

118. 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

119. Boundary registers _____.

a. Are available in temporary program variable storage
b. Are only necessary with fixed partitions
c. Track the beginning and ending the program
d. Track page boundaries

120. Paging is implemented in

a. Operating System b. Hardware c. Software d. All of them

121. Page-Table length register (PTLR) indicates size of

a. Page Table b. Paging File c. Main Memory d. Virtual Memory

122. Dived logical memory into blocks with the same size as frames are called

a. Pages b. Frames c. Page Table d. Segmentation

123. With paging, each process is divided into relatively small, fixed-size pages. T/F
124. Segmentation provides for the use of pieces of varying size. T/F
125. Paging permits pages to be of arbitrary size. T/F
126. When a page is swapped into main memory, it is always brought in from the swap area of the disk. T/F
127. The use of a translation look-aside buffer (TLB) for a paging memory system eliminates the need for keeping a page table in memory. T/F
128. Given a constant number of bits in a virtual address, the size of a linear page table decreases with larger pages. T/F
129. The size of a virtual page is identical to the size of a physical page. T/F
130. If the valid bit is clear (equals 0) in a PTE needed for a memory access, the desired page will be swapped in from the backing store. T/F
131. Paging introduces a problem that page tables are too big and thus consume too much memory. T/F
132. Implementing paging support without care will lead to a faster machine. T/F
133. Internal fragmentation happens when big pages waste space within each page. T/F
134. Fragmentation does not occur in a paging system. T/F
135. Two processes reading from the same virtual address will access the same contents. T/F
136. A disadvantage of segmentation is that different portions of an address space cannot grow independently. T/F
137. A disadvantage of segmentation is that segment tables require a significant amount of space in memory. T/F
138. A TLB caches translations from full virtual addresses to full physical addresses. T/F
139. On a TLB miss, the desired page must be fetched from disk. T/F
140. If the valid bit is clear (equals 0) in a PTE needed for a memory access, the running process is likely to be killed by the OS. T/F
141. One advantage of adding segmentation to paging is that it potentially reduces the size of the page table. T/F
142. One advantage of adding paging to segmentation is that it reduces the amount of internal fragmentation. T/F
143. A page fault is identical to a page miss. T/F
144. A TLB miss is usually faster to handle than a page miss. T/F
145. Segmentation can be supported alongside the paging. T/F
146. Paged memory allocation offers the advantage that it doesn't require the entire job to be stored in memory during its execution. T/F

147. With segmented memory allocation, each job is divided into several segments of the same size, one for each module containing pieces that perform related functions. T/F

148. The best-fit free list scheme uses memory more efficiently than the first-fit free scheme but it is slower to implement. T/F

149. The first-fit algorithm assumes that the Memory Manager keeps only one list containing free memory blocks. T/F

150. One of the problems with the best-fit algorithm is that the entire table must be searched before the allocation can be made because the memory blocks are physically stored in sequence according to their location in memory. T/F

151. Enables a computer to execute programs and manipulate data files larger than main memory.

a) fragmentation b) swapping c) memory d) none

152. The phenomenon of less-than-complete use of memory space in a fixed partition is called _____

a) internal fragmentation b) external fragmentation c) memory d) none

153. ____ consists of fragments of free memory inside blocks of allocated memory.

a) internal fragmentation b) external fragmentation c) memory d) none

154. The fixed partition scheme does not work well if all of the jobs run on the system are of the same size or if the sizes are known ahead of time and don't vary between reconfigurations. T/F

155. In a fixed partition scheme, large jobs will need to wait if the large partitions are already booked, and they will be rejected if they're too big to fit into the largest partition. T/F

156. A translation-look aside buffer, or TLB is part of the chip's memory-management unit (MMU). T/F

157. A TLB is sometimes known as an associative memory. T/F

158. Each entry of a TLB contains the information about one page, including the virtual page number and the corresponding page frame. T/F

159. When a virtual memory system manages memory in fixed length units, which of the following terms correctly represents its unit?

a. Frame b. Page c. Block d. Segment

160. What is the name for fragments of free memory between blocks of allocated memory?

a) internal fragmentation b) external fragmentation c) memory d) none

161. To access a location in memory when using segmented memory management, the address is composed of two entries:

a) segment bit & page number b) segment number & page offset

c) page offset & frame bit d) frame offset & page offset

162. Search the entire list, from beginning to end, and takes the smallest hole that is adequate
a) best fit b) first fit c) worst fit d) a&c

163. The physical memory is divided up into units of the same size corresponding in the physical memory called
a) page frame b) page c) segment d) offset

164. Is the function with page number is argument and the page frame as result _____
a) page table b) frame table c) segment table d) offset

165. Internal fragmentation means:
a. Space inside the allocated unit is not all used but fragmented
b. Space inside the allocated unit is unfragmented
c. Space inside the allocated unit is all used but fragmented
d. Space inside the allocated unit is not unfragmented

166. Internal fragmentation happens when big pages waste space within each page. T/F

167. When free space gets chopped into little pieces of sizes and is thus fragmented.
a. Splitting b. Internal fragmentation c. Coalescing d. External fragmentation

168. Instructions that are requested by system are first
A. Fetched B. Decoded C. Executed D. Deleted

169. After fetching an instruction, computer performs
A. Storage B. Decoding C. Execution D. Evaluation

170. External fragmentation means that the total memory space exists to satisfy a request, but it is not contiguous. T/F

171. To minimize external fragmentation, a technique known as compaction is used. T/F

172. Page can be defined as same sized blocks in logical memory. T

173. TLB decrease the performance of page frame access. T/F

174. With best fit, variable partitions minimize internal fragmentation. T/F

175. Which of the following is/are fastest memory allocation policy?
A. First Fit B. Best Fit C. Worst Fit D. Next Fit

Which of the following is a technique of temporarily removing inactive programs from the memory of computer system?
A. Swapping B. Compaction C. Semaphore D. Scheduler

177. An address in a single contiguous memory management system is made up of a page and an offset. T/F

178. A base register is used to transform physical addresses (generated by the program) into virtual addresses. T/F

179. _____ is the process of collecting fragments of available memory space into contiguous blocks by moving programs and data in a computer's memory or disk.A.

a)Swapping B. Compaction C. Semaphore D. Scheduler

180. Illegal addresses are trapped using the _____ bit.

a) error b) security c) valid – invalid d) access

181. Each entry in a segment table has a _____

a) segment base b) segment peak c) segment value d) none

182. 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

183. Contiguous memory allocation faces the problem of

a) Memory fragmentation b) Page Faults c)less throughput d) none

184. The technique of memory compaction and reuse of memory can be applied to overcome the problem of

a) internal fragmentation b) external fragmentation c) memory d) none

185. The effective memory access time depends on a

a) miss ratio b) hit ratio c) bit ratio

186. . _____ technique incurs higher allocation overhead

a) worst fit b) next fit c) best fit d) first fit

187. In ..... technique, each process is divided into a number of segments and process loaded by loading all of its segments into dynamic partitions that need not be contiguous.

A) Fixed partitioning B) Simple Paging

C) Virtual memory paging D) Simple segmentation

188. Multiprogramming of the computer system increases

a., memory **b.**, storage **c.**, CPU utilization **d.**, cost

189. Any program, no matter how small, occupies an entire partition results in _____

a. fragmentation **b.** prior fragmentation

c. internal fragmentation **d.** external fragmentation

190. LRU is a page replacement scheme that can be implemented using stack and counters. T/F

191. Each page fault must be followed by a page replacement. T/F

192. Virtual memory allows the logical address space to be larger than the physical address space. T/F

193. Which of the following page replacement algorithms that produces the best page fault.

FIFO LRU Optimal MFU