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CBSE NET JAN 2017 PAPER III

OPERATING SYSTEM QUESTIONS

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

Ans:- 3

Explanation:

Page size = frame size for minimizing the internal fragmentation.

LOGICAL ADDRESS CALCULATION:

Number of bits for logical address = Number of bits to represent pages + Number of bits to represent bytes per page size.

Here, number of pages = 64, and 512 bytes page size.

64 = 26. So, number of bits to represent pages = 6.

512=29. So, number of bits to represent bytes per page size = 9.

So, the number of bits for logical address = 6 + 9 = 15

PHYSICAL ADDRESS CALCULATION:

Number of bits for physical address = Number of bits to represent frames+Number of bits to represent bytes per frame size.

Here, number of page frames = 32, and frame size is the same as page size which is 512 bytes. 32 = 25. So, number of bits to represent frames = 5.

512=29. So, number of bits to represent bytes per frame size = 9.

So, the number of bits for physical address = 5 + 9 = 14.

Therefore, the number of bits required in logical and physical address are 15 and 14 respectively.

So, the correct answer is 3.

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- 94. What do you mean by Virtual Memory? Write down its advantages?
- 95. Compare Paging and Segmentation?

- 96. What is Process Scheduling, CPU Scheduling, Disk Scheduling? Explain Short, Medium and Long term Scheduler?
- 97. Explain concept of a process with its components?
- 98. Explain the following in brief Contiguous and Linked list allocation for implementing file system?
- 99. Explain various Disk scheduling algorithms with Illustrations?
- 100. Define process and thread. What is PCB ? Explain its various entries with their usefulness ?
- 101. Discuss advantages and disadvantages of the Buffer cache?
- 102. Explain different types of OS with examples of each?
- 103. What is an Operating System? Write down its desirable characteristics?
- 104. Define a deadlock? Write down the conditions responsible for deadlock? How can we recover from deadlock?
- 105. What are the various services provided by Operating system?
- 106. What do you mean by PCB? Where is it used? What are its contents? Explain.
- 107. What is Binary and Counting semaphores?
- 108. What is File? What are the different File attribute and operations?
- 109. What are System call? Explain briefly about various types of system call provided by an Operating System?
- 110. Describe necessary conditions for deadlocks situation to arise.
- 111. What are points to be consider in file system design? Explain linked list allocation in detail?
- 112. Write a Semaphore solution for dining Philosopher's problem?
- 113. Consider the following page reference string:1,2,3,4,5,3,4,1,2,7,8,7,8,9,7,8,9,5,4,5.

 How many page faults would occur for the following replacement algorithm, assuming four frames:a) FIFOb) LRU
- 114. Explain CPU schedulers in operating system?

- 115. Write the different state of a process with the help of Process state deagram?
- 116. What is Mutex in operating system?
- 117. Explain Network operating system?
- 118. What do you mean by paging in operating system?