Fall 2023 Set-A

3 b) A system with an associative lookup time of 7ns, and memory access time of 59ns, what should be the approximate hit ratio to achieve Effective Access Time of 92ns?

c) Assume that, page size of a process is 8 bytes and size of the main memory is 72 bytes. Logical memory and page table of the process are given below.

i. How can the user’s view of memory be mapped into the main memory?

ii. Find out corresponding physical addresses of the following logical addresses – 18(10010), 44(101100) and 27(11011)

4. Consider a computer with a main memory that has 3 frames and page reference string of 0-7 page [0, 1, 6, 6, 4, 0, 0, 5, 5, 4]. The page reference string represents the order in which the pages are accessed by a program. Apply LRU & OPT algorithm to stimulate the page replacement that occurs when the main memory can hold at most 3 pages at a time. Record the number of page faults and compare the result. Mention which algorithm performs better in this scenario.

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Fall 2023 Set-B

3 b) A system with an associative lookup time of 2ns, and memory access time of 72ns, what should be the approximate hit ratio to achieve Effective Access Time of 95ns?

c) Assume that, page size of a process is 8 bytes and size of the main memory is 72 bytes. Logical memory and page table of the process are given below.

i. How can the user’s view of memory be mapped into the main memory?

ii. Find out corresponding physical addresses of the following logical addresses – 25(11001), 37(100101) and 23(10111)

4. Consider a computer with a main memory that has 3 frames and page reference string of 0-7 page [5, 5, 3, 1, 7, 3, 3, 5, 2, 0]. The page reference string represents the order in which the pages are accessed by a program. Apply LRU & OPT algorithm to stimulate the page replacement that occurs when the main memory can hold at most 3 pages at a time. Record the number of page faults and compare the result. Mention which algorithm performs better in this scenario.

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Fall 2023 Set-C

3 b) A system with an associative lookup time of 5ns, and memory access time of 85ns, what should be the approximate hit ratio to achieve Effective Access Time of 146ns?

c) Assume that, page size of a process is 8 bytes and size of the main memory is 72 bytes. Logical memory and page table of the process are given below.

i. How can the user’s view of memory be mapped into the main memory?

ii. Find out corresponding physical addresses of the following logical addresses – 11(1011), 4(100) and 21(10101)

d) If the page size is 7 KB, how many

4. Consider a computer with a main memory that has 3 frames and page reference string of 0-7 page [3, 5, 4, 6, 7, 4, 2, 6, 7, 6]. The page reference string represents the order in which the pages are accessed by a program. Apply LRU & OPT algorithm to stimulate the page replacement that occurs when the main memory can hold at most 3 pages at a time. Record the number of page faults and compare the result. Mention which algorithm performs better in this scenario.