

Class Test – II

MCA 2nd Year 2nd Semester

Session: 2014-15

Date: 22/04/2015

Full Marks: 30

Time: 50 minutes

Name: _____

Class Roll: _____

Marks Obtained: _____

Write proper justifications for all your answers

1. Given five non contiguous memory partitions of 100 KB, 500 KB, 200 KB, 300 KB, and 600 KB (in order), how would each of the first-fit, best-fit, and worst-fit algorithms place processes of 250 KB, 400 KB, 150 KB, and 300 KB (in order)? Which allocation strategy results in maximum fragmentation.
2. Consider a paging system with 36 bit logical address and 32 bit physical address. Page size is 4 KB and size of each page table entry is 4 bytes. Determine the size of page table if single level page table is used. Now, assume that you want to implement a multi level page table. Determine how many levels of page table is required if you need to store each page of the page table possibly in non contiguous frames. Determine the division of bits of the logical address that is required to address each levels of the multi level page table. Also, determine the additional memory space that will be required to store the multi level page table compared to the single level page table. If physical memory access time is 10 nanoseconds, compare the effective memory access time of the single level and proposed multi level paging scheme.
3. In a computer the sequence of logical addresses generated by a process are 100, 130, 550, 140, 260, 400, 64, 540, 320, 648, 380, and 520. The page size is 128 bytes. The process has been allocated 3 frames in physical memory. Determine the number of page faults that these references will generate using FIFO, LRU and Optimal page replacement policy. What are the page numbers of the pages present in the main memory at the end of the sequence for each of the page replacement policy?
4. State the actions performed by the Operating System to service a page fault. What is the use of dirty bit in page replacement?

7+12+8+3=30