CSE321 Take-Home Quiz 3 Solution

1.

Page no	Frame no
0	**6**
1	**11**
2	**4**
3	**10**
4	**8**
5	**9**

Given the page table for a process, Find out the physical addresses of the following logical addresses. If the address is invalid, write “Invalid”.

i. 22 ((10110) b)
ii. 29 ((11101) b)
iii.27((11011) b)

The system you are using has 48 bytes of main memory and the memory is of the following structure(horizontal).

0	1	2	3	4	5	6	7	8	9	10	11

Marks: 6

Answer:
22 => 38
29 => invalid
27 => invalid

2. An array is stored in the main memory in such a location where it has available continuous address spaces equivalent to the size of the array.
Explain logically which allocation method of allocating processes in RAM is similar to the allocation of arrays in RAM and what problem arises in this allocation method.
What is the possible solution to the problem?

Marks: 2+1+2=5

Answer:
Allocation method: Contiguous allocation
Problem: External fragmentation and internal fragmentation

Solution: Compaction for external fragmentation, internal fragmentations have no solutions.

3. Alice went to an office where she had to face a certain rule while using the lift. According to the rule no matter what the weight capacity is at a time maximum 3 persons can enter in the lift. For that reason not more than 3 persons can use the lift at the same time although the lift has the capacity to carry more weight.
   Explain logically what type of partition allocation mechanism is similar to the scenario.
   Marks: 2

   Answer:
   Fixed-size partition.

4. Bob wants to keep the back up data of a hard drive in another hard drive of a different device. In the hard drive he intended to keep back up, there are multiple disk drives of multiple sizes. He decided to copy data in such a way that after copying data a particular disk drive will consist of a minimal amount of free space. Then he will continue copying to another such disk drive and this flow will continue until the copying completes.
   Logically explain what type of dynamic allocation method is similar to the scenario.
   Marks: 2

   Answer:
   Best-fit.