1……

1 . (22)=10110, offset is last 2 bits, 101 indicates page 5, frame 9, so PA = (9 × 4) + 2= 38 (Ans:38)

2. (29) =11101 , 111 indicates page 7 which is not present (Ans: Invalid)

3. (27)=11011 , 110 indicates page 6 which is not present (Ans: Invalid).

2……

The method is contiguous memory allocation .Because, we know in contiguous memory allocation whenever a process asks to access the main memory, we allocate a continuous segment from the empty region to the process based on its size. contiguous memory allocation executes fast, easy to control, minimal overhead is noticed. But, external fragmentation problem arises in this method. As processes are added and removed several times from memory, we will notice small gaps appear between allocated memory blocks. These gaps are too small for adding any new processes. To solve this problem, paging and Compaction is used. Paging divides memory into fixed-size blocks and compaction periodically moves processes in memory to create larger free space that will help to remove external fragmentation.

3……

Fixed partition allocation mechanism matches with the scenario. Because , In fixed partitioning, the memory is divided into fixed-size blocks, with each block being reserved for a specific process. Process size doesn't matter in this case no matter if they are small or huge they have the same size blocks. So, this mechanism is easy to implement, low overhead. But, internal fragmentation, external fragmentation problems are noticed in this mechanism similar to the scenario in question .

4……

Best fit dynamic allocation method is similar to the scenario. Because, the best fit algorithm searches the whole list of memory to find out the perfect block that is closest in size to the memory request from the process. This is the most optimized memory allocation method, as it minimizes wasted space like the scenario in the question . As it searches the whole list it takes too much time. Moreover, best fit can leave smaller memory blocks scattered throughout the memory space, which could lead to more fragmentation.