1.    **Answer:**
a)    Logical address: 16 bits
b)    Physical address: 18 bits

2.    **Answer:**
a)    A frame has the same size as a page, $2^{10}$ bytes.
b)    There is one entry for each page in the logical address space. Therefore, there are $2^{16}$ entries.
c)    The number of bytes in the logical address space is ($2^{16}$ pages) × ($2^{10}$ bytes/page) = $2^{26}$ bytes.
d)    The number of frames needed to store the largest page table is ($2^{16}$ entries) × ($2^2$ bytes/entry) / $2^{10}$ bytes/frame = $2^8$ frames.
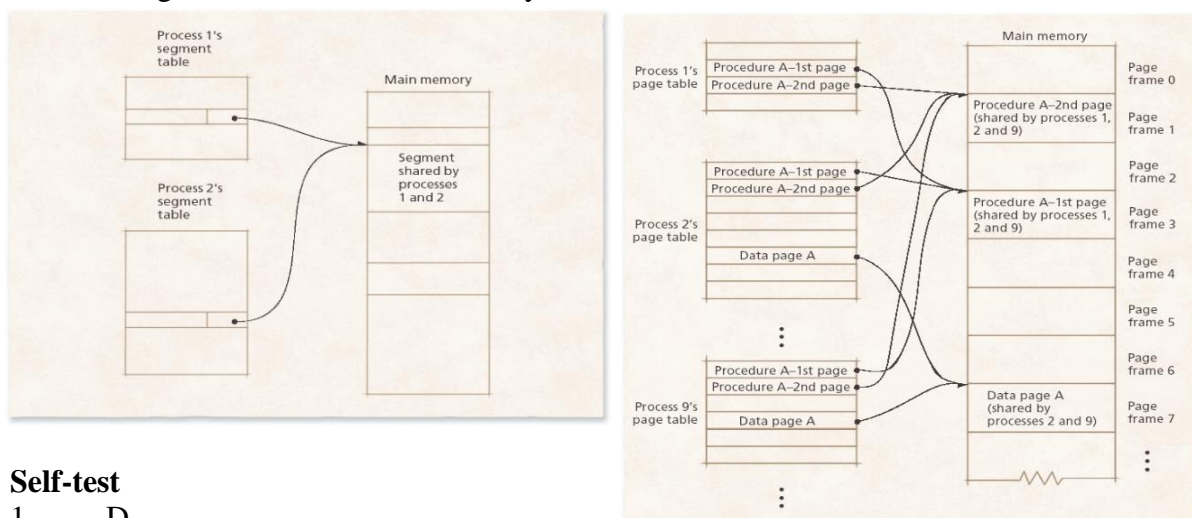
3.    **Answer:**
a)
660+198=858
b)
222+156=378
c)
Invalid address because the length of segment 1 is 422 <530.

4.    **Answer**:
- Segmentation: might require relocation of the segment that needs to be extended since there is not enough space for the segment to grow its allocated memory space.
- Paging: incremental allocation of new pages is possible without requiring relocation of the program's address space.

5.    **Answer**:
Multiple processes can share a segment/page when their segment/page table entries point to the same segment/frame in main memory.



**Self-test**
1.    D
2.    B
3.    B
4.    B
5.    C
6.    A