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Assignment's Answers

1 –

*In **internal** fragmentation fixed-sized memory, blocks square measure appointed to process.

Internal fragmentation happens when the method or process is larger than the memory.

*In **external** fragmentation, variable-sized memory blocks square measure appointed to the method.

External fragmentation happens when the method or process is removed.

2 - The type of fragmentation which is reduced by compaction is

External fragmentation Compaction takes all of the free memory, and puts it all in one place so as to be usable for the next process which are waiting for memory. This is only done with dynamic and relocatable dynamic memory systems.

3 - Reallocation should be performed before the running of any program.

Compilers or assemblers typically generate the executable with zero as the Lower-most, starting address. Before the execution of object code, these addresses should be adjusted so that they denote the correct runtime addresses.

4 – In **fixed partitioning**, the main memory is not utilized effectively. The memory assigned to each process is of the same size that can cause some processes to have more memory than they need.

In **dynamic partitioning**, the main memory is utilized very effectively. The memory assigned to each process is exactly what is needed for the execution of the process.

5 - **Relocatable** Memory Manager relocates programs to gather all empty

blocks and compact them to make 1 memory block.

Dynamic is an Available memory kept in contiguous blocks and jobs given only as much memory as they request when loaded.

6 – **a** :ANS: Job 1 is allocated to Block 1, Job 2 is allocated to Block 2, Job 3 is waiting
b : ANS: Job 1 is allocated to Block 1, Job 2 is allocated to Block 3, Job 3 is allocated to Block 2

7 – **a** :300 K (high order) Job 1 to Block 1, Job 2 to Block 3, Job 3 to Block 2 Job 1 to Block 2, Job 2 to Block 3, Job 3 to Block 1 Job 1 to Block 3, Job 2 to Block 2, Job 3 to Block 1.

b : Job 1 to Block 1, Job 2 to Block 2, Job 3 to 3 Job 1 to Block 2, Job 2 to Block 3, Job 3 to queue Job 1 to Block 1, Job 2 to Block 2, Job 3 queue.

8 - **a)** Assuming relocation cannot take place, free space in one continuous chunk is maximum 80K , so the process cannot fit as its requirement is 100K . However is relocation can take place, the process can be accommodated as total available space is 80+10+20 =110.

b)Contents of relocation registers -

For J1 , no relocation takes place, so content of reloc register is 0.

For J2 , it moves from 50K to 30K, so content of reloc register = 30K-50K = -20K = -20*1024= -20480

For J3, it moves from 75K to 45K, so contents of reloc register = 45K-75K = -30K = -30 * 1024= -30720

c) J4 is loaded after compaction, so reloc register content for it is 0

d)New memory location is given by (old location+ reloc register contents) so here it is

The instruction ADDI 4, 10 is part of Job 1 and was originally loaded into memory location 55K.

e)The instruction MUL 4, NUMBER is *** of Job 2 and was originally loaded into memory location 55K

So new location = 55K - 20K =35K

f) The instruction MOVE 3, SUM is part of Job 3 and was originally loaded into memory location 80K.

new location = 80K - 30K =50K