### **Branch: CSE & IT**

# **Subject : OPERATING SYSTEMS**

### **Topic: Memory Management**



### [MCQ]

- 1. The runtime mapping from virtual to physical address is done by a hardware device called the
  - (a) Disk management unit
  - (b) Memory management unit
  - (c) File management unit
  - (d) None of the above.

### [MCQ]

- 2. If the process is moved from one memory block to another block while execution period then binding must be
  - (a) Preponed to load time
  - (b) Preponed to compile time
  - (c) Delayed until run time
  - (d) None of the above

### [MSQ]

- 3. Choose the correct statement from the following:
  - (a) The set of all logical addresses generated by a program is called logical address space.
  - (b) The user program never accesses the real physical addresses.
  - (c) Dynamically linked libraries (DLLS) are system libraries that are linked to user programs when the programs are executed.
  - (d) None of the above

### [MCQ]

- **4.** Consider a system which has 256k words in main memory and each word has size of 64 bits, then the capacity is?
  - (a) 2MB
- (b) 4MB
- (c) 6MB
- (d) None of the above

#### [MCQ]

- **5.** Which one among the following is a non contiguous allocation?
  - (a) Segmented paging
- (b) Paging

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- (c) Segmentation
- (d) All of the above

### [MCQ]

- **6.** Consider the following statements:
  - S<sub>1</sub>: The basic method for implementing paging involves breaking physical memory into variable sized blocks called frames and breaking logical memory into blocks of same size called pages.
  - S<sub>2</sub>: Page table is kept in main memory.
  - (a)  $S_1$  is true and  $S_2$  is false.
  - (b)  $S_2$  is true,  $S_1$  is false.
  - (c) both  $S_1$  and  $S_2$  are true.
  - (d) None of the above

### [MCQ]

- 7. Thrashing will occur if:
  - (a) Processes on system frequently perform page replacement.
  - (b) Processes on system are in waiting state.
  - (c) Process on system is in running state.
  - (d) None of the above.

## **Answer Key**

1. (b)

2. (c) 3. (a, b, c)

4. (a)

5. (d) 6. (b) 7. (a)



### Hints and solutions

### 1. (b)

The memory management unit (MMU) is responsible for the translation of virtual addresses used by software to physical address used in the main memory.

### 2. (c)

In a RAM location, if a program is presenting an association of data and instruction then it is referred as the address binding. If a process is moved from one memory block to another physical address with all the instruction and the data, then the binding should be delayed until the runtime.

### 3. (a, b, c)

- Logical address space is set of all logical addresses generated by CPU in reference to a program.
- Generally, program uses logical addresses.
  MMU maps these logical addresses to physical address.

### 4. (a)

Memory Capacity =

Number of words × Number of bits per words

- $= 256 \times 2^{10} \times 64 \text{ bits}$
- $= 2^{24}$  bits  $/ 2^3$
- $= 2^{21} B$
- = 2 MB

### 5. (d)

The non-contiguous memory allocation techniques include:

- 1. Paging
- 2. Segmentation
- 3. Segmented Paging

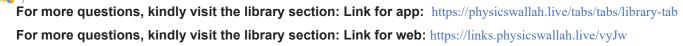
Distinct components of a processes are assigned to different location in main memory.

### 6. **(b)**

The implementation of paging involves breaking physical memory into fixed sized block called frames but not variable sized blocks.

### 7. (a)

If a process is in thrashing, it means process is spending more time in paging than executing and also thrashing results in severe performance problems.



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