

- **Choose correct answers :** 3

1- The queue which contains a set of all processes in the system :
a. The Job Queue b. The Ready Queue
c. The Waiting Qucue d. The Device Queue

2- The scheduler that selects which process should be executed nexts and allocates CPU is called :
a. Long-term scheduler b. Medium-term scheduler
b. Short-term scheduler d. High-term scheduler

3- Amount of time required to execute a particular processes :
a. Turnaround time b. Waiting time
c. Response time c. Burst time

4-It is a process that cannot affect or be affected by other processes executing in the system :
a. Cooperating process b. An independent process
c. A passive process d. A Terminated process

5-An abstract hardware a single computer into several different execution environments :
a. Virtual machine b. Live migration
c. Cloud computing d. Network address translation

6- Which of the following is not an advantage of multiprocessor systems:
a. Increasing throughput b. Reducing reliability
c. Economy of scale d. Fault tolerance

- **Mark the below statement True or False :**

1- process is a passive entity, program is active entity… [F]

2- when the time quantum increase ,the number of context switches increase [F]

3- main memory is the only large storage media that the CPU can access directly [T]

4-SJF scheduling gives maximum average waiting time for a given set of processes [F]

5-Protection is used to defence of the system against internal and external attacks [F]

6-CPU utilisation means keeping the CPU as busy as possible [T]

- **Fill in the blank with the exact word or phrase :**

1- Debugging ..... is Activity of finding errors , and fixing it in both hardware and software

2- Cooperating ..... process can affect or be affected by the execution of another process

3- Peterson's solution is a solution to the critical section problem

4- Short-term ..... scheduler selects which process should be extended next and allocate CPU

5- securing ..... defence of the system against internal and external attacks

6-The DMA ..... is used for high-speed I/O devices able to transmit information at close to memory speed
direct memory access

- **short answer type questions :**

1-List three different possible states for a process, Give a description

1. new → The Process are started / created
2. ready → The process is waiting to be assigned to processor.
3. witing → The Proces witing for some event
4. running → The process are will exacute
5. termatied → The proces are finsh execution.

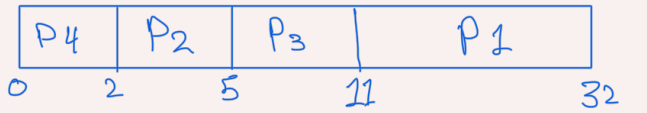
2- In priority scheduling techniques low priority process may never execute, what is this problem called and what is the solution to prevent such a problem?

Problem : Stavation

Solve : Aging

- **consider the following table :**

Process	Duration (Bust time)
P1	21
P2	3
P3	6
P4	2



Waiting average: $\frac{2+5+11+0}{4} = 4.5$

assume that the processes arrived at time 0, use the Non pre-emptive shortest job first scheduling technique, draw the Grantt chart for the process ,and calculate the average waiting time: