

Operating System Fundamentals Exam-26/10

closed Book exam , Total time is 60 minutes

* Required

1

Please Write Your Name *

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Please choose your Track *

- ☐ Enterprise & Web Applications Development-Java
- ☐ Native Mobile Applications Development
- ☐ Web & User Interface Development
- ☒ Cross Platform Mobile Applications Development

3

By using the virtual memory, the logical address space can be much larger than physical address space * (1 Point)

- ☒ True
- ☐ False

4

The System calls are calling for hardware interrupts * (1 Point)

- ☐ True
- ☒ False

5

Bootstrap program is loaded after power-up or reboot * (1 Point)

- ☒ True
- ☐ False

6

Any process may pass data to other process * (1 Point)

- ☒ True
- ☐ False

7

Open(Ni) – as a File operation- means: move the content of entry *Ni* in memory to directory structure on disk * (1 Point)

- ☐ True
- ☒ False

8

The one program running at all times on the computer is the **kernel**
* (1 Point)

- ☒ True
- ☐ False

9

Cloud computing can be defined as a new style of computing in which dynamically scalable and virtualized resources are provided as a network service
* (1 Point)

- ☒ True
- ☐ False

10

Operating System Protection refers to a mechanism for controlling access by programs, or users to system resources
* (1 Point)

- ☒ True
- ☐ False

11

The user program deals with logical addresses; it never sees the real physical addresses
* (1 Point)

- ☒ True
- ☐ False

12

Process is a passive entity
* (1 Point)

- ☐ True
- ☒ False

13

We can describe the Process Control Block (PCB) as:
* (1 Point)

- ☐ It is just using by operating system designers for design purpose
- ☐ A way to transfer a process between different types of operating systems

☒ Each process is represented in the operating system by a PCB

☐ type of addressing

14

Interrupt transfers control to the interrupt subroutine (subprogram) generally, through the:
* (1 Point)

☒ Interrupt vector

☐ Interrupt service routine.

☐ Interrupt sector.

☐ Interrupt section

15

Device Queue is: * (1 Point)

☐ A set of all processes in the system

☒ A set of all processes residing in main memory, ready and waiting to execute.

☐ A set of processes waiting for an I/O device.

☐ A set of terminated processes

16

One of the scheduling optimization ways is minimizing:
* (1 Point)

☐ Turnaround time of each process.

☐ Average waiting time of processes.

☐ Response time for each process.

☒ All of the above.

17

All the following are directory operations except: * (1 Point)

☐ Read from a File.

☒ Search for a file.

☒ Delete a file.

☒ Rename a file

18

Client-Server system is a type of:
* (1 Point)

☐ Real Time systems

☐ Desktop Systems

☐ Clustered Systems

☒ Distributed System

19

In memory management, compaction is an operation to reduce: * (1 Point)

- ☐ Internal Fragmentation
- ☒ External Fragmentation
- ☐ Overhead allocation problem
- ☐ None of the above

20

Traps or exceptions are happening because: * (1 Point)

- ☒ Error, division by zero or invalid memory access
- ☐ A process need to call an API of its operating system
- ☐ A process communicates another process
- ☐ All of the above

21

The types of addressing in a computer system: * (1 Point)

- ☒ Physical address
- ☐ Real address
- ☒ Logical address
- ☐ None of the above

22

The base register is a register which include: * (1 Point)

- ☒ The first physical address of the currently running program
- ☐ The first logical address of the currently running program
- ☐ The first physical address of the finished program
- ☐ The first logical address of a waiting program

23

The types of deployment models of cloud – way of access to the cloud- are: * (1 Point)

- ☒ Private
- ☒ Public
- ☒ Community
- ☒ Hybrid

24

Select the file access methods from the following:

* (1 Point)

- ☐ Random Access

☒ Sequential Access

☒ Direct Access

☐ None of the above

25

The Deadlock can arise if the following conditions hold simultaneously:

* (1 Point)

☒ Mutual Exclusion

☒ Hold and wait

☒ Circular wait

☐ No preemption resources

26

For any modern time-sharing operating system, select the common available process operations which may be managed: * (1 Point)

☒ Creation/termination

☐ Memory compaction

☐ Open/close file

☐ Going to trap module

27

Select the most appropriate statement to describe the relations between a child process and its parent process: * (1 Point)

☒ OS does not allow a child process to continue after termination of its parent.

☐ OS allows a child process to continue after termination of its parent.

☐ OS allows a child process to be created without parent process.

☐ There is no relation between a child process and its parent process.

28

The Dispatch latency is: * (1 Point)

☐ Time to get a process from ready queue to be running in CPU.

☒ Time it takes for the dispatcher to stop one process and start another running.

☐ Time to remove all the processes from ready queue.

☐ None of the above.

29

Select the advantages of virtual machines from the following: * (1 Point)

☒ Run operating systems where the physical hardware is unavailable

☒ Emulate more machines than are physically available

☐ Enhance the memory management performance

☒ Run legacy systems

30

Any process may be at one of the following states: * (1 Point)

☒ Ready

☒ Running

☐ Interrupting

☒ Waiting

31

Select the file allocation Methods from the following: * (1 Point)

☒ Contiguous Allocation

☒ Linked Allocation

☒ Indexed Allocation

☐ Discrete Allocation

32

Multi-tasking system is a: * (1 Point)

☐ Multi-programmed batch system

☒ Time-Sharing system

☐ Simple Batch system

☐ None of the above

33

Ready Queue is: * (1 Point)

☐ A set of all processes in the system

☒ A set of all processes residing in main memory, ready and waiting to execute.

☐ A set of processes waiting for an I/O device.

☐ A set of terminated processes

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The Deadlock problem is: * (1 Point)

☒ A set of blocked processes each holding a resource and waiting to acquire a resource held by another process in the same set

☐ Any number of blocked processes more than 2 processes

☐ More than two processes wait I/O operations

☐ None of the above

35

Short-term schedulers used to: * (1 Point)

- ☐ Select which job to be putting into ready queue
- ☒ Select which job to be running next.
- ☐ Release all processes from Operating System.
- ☐ All of the above

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The process which spend most of its time doing I/O requests is called: * (1 Point)

- ☐ CPU-Bound Process
- ☐ Active Process.
- ☐ Passive Process.
- ☒ I/O-Bound Process

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Select the system calls categories from the following: * (1 Point)

- ☒ File management
- ☒ Device Management
- ☒ Process control
- ☒ Hardware maintenance
- ☒ Communications

38

Some of the main reasons of processes cooperation are: * (1 Point)

- ☐ Data sharing.
- ☐ Modularity.
- ☐ Speedup the performance.
- ☒ All of the above.

39

How to satisfy a request of size n from a list of free holes in main memory- in **Dynamic Storage-Allocation technique**: * (1 Point)

- ☐ First-fit
- ☐ Best-fit
- ☐ Worst-fit
- ☒ All of the above.

40

The main function of the process dispatcher: * (1 Point)

- ☒ Gives control of the CPU to the selected process to be run by the short-term scheduler.
- ☐ Takes control of the CPU from the selected process to be run by the short-term scheduler.
- ☐ Release all the processes from ready queue.

☐ None of the above.

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The requirements for any process are: * (1 Point)

- ☒ CPU Burst time
- ☒ Size of needed memory
- ☒ The needed I/O devices
- ☒ The needed files

42

The meaning of **preemptive** CPU scheduling schema is:
* (1 Point)

- ☐ Waiting for another process.
- ☐ Bring a process from ready queue.
- ☒ Process is releasing the CPU before finishing its execution to execute another process.
- ☐ None of the above.

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The advantages of Multi-processing system: * (1 Point)

- ☐ Increase throughput
- ☐ Increase reliability
- ☐ If CPU fail, other CPU's pick up work
- ☒ All of the above

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Some of Scheduling Algorithms are: * (1 Point)

- ☒ First Come First Served.
- ☐ Ideal Job First.
- ☒ Priority.
- ☒ Round Robin.

45

The data file types are: * (1 Point)

- ☐ Numeric
- ☐ Character
- ☐ Binary
- ☒ All of the above

46

Advantages of using virtual memory are: * (1 Point)

- ☒ Logical address space can therefore be much larger than physical address space
- ☒ Allows address spaces to be shared by several processes
- ☒ Allows for more efficient process creation
- ☒ Start the new process very fast

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Which of the following are file attributes:

* (1 Point)

- ☒ Type.
- ☐ Delete.
- ☒ Location.
- ☒ Protection

48

You are given the following information about some of processes which are ready to be running with a CPU in an Operating System:

In case of using FCFS scheduling algorithm, the average waiting time for the above situation is:

* (1 Point)

Process	Arrival Time	Burst Time	Priority
P1	0.0	7	5
P2	5.0	8	1
P3	7.0	6	4
P4	8.0	2	2

- ☒ 23/4.
- ☐ 45/4.
- ☐ 43/4.
- ☐ 36/4.

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In case of using Non-preemptive Shortest Job First (SJF) scheduling algorithm, the process P3 starts at time unit:

* (1 Point)

Process	Arrival Time	Burst Time	Priority
P1	0.0	7	5
P2	5.0	8	1
P3	7.0	6	4
P4	8.0	2	2

- ☒ 7.0
- ☐ 17.0
- ☐ 27.0
- ☐ 8.0

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In case of using preemptive Priority scheduling algorithm, the waiting time for process P3 is:

* (1 Point)

Process	Arrival Time	Burst Time	Priority
P1	0.0	7	5
P2	5.0	8	1
P3	7.0	6	4
P4	8.0	2	2

☐ 8

☐ 7

☒ 15

☐ 17

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In case of using **Round Robin** scheduling algorithm (with quantum 5), the process P4 ends its work at time unit:

* (1 Point)

Process	Arrival Time	Burst Time	Priority
P1	0.0	7	5
P2	5.0	8	1
P3	7.0	6	4
P4	8.0	2	2

☐ 10.0

☐ 19.0

☒ 17.0

☐ 25.0

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In case of using **preemptive Shortest Job First (SJF)** scheduling, the response time for processes P1, P2, P3, P4 are:

* (1 Point)

Process	Arrival Time	Burst Time	Priority
P1	0.0	7	5
P2	5.0	8	1
P3	7.0	6	4
P4	8.0	2	2

☐ 0, 15, 0, 0

☒ 0, 10, 0, 0

☐ 5, 10, 15, 20

☐ 0, 5, 3, 7

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