

COMPUTER SYSTEMS (1st TERM EXAM)

- 1) What is the function of the Control Unit (UC) in the CPU?
- a) Perform arithmetic operations
 - b) Store temporary results of operations
 - c) Decode instructions and prepare signals for execution
 - d) Set the pace at which things are done
- 2) Which of the following options correctly uses a pipe (|) to display the content of the file "example.txt" and count the number of lines?
- a) `cat example.txt | wc -l`
 - b) `less example.txt | count -l`
 - c) `wc -l | cat example.txt`
 - d) `count -l < example.txt`

- 3) We have this information about services:

UNIT FILE	STATE	VENDOR PRESET
rsync.service	disabled	enabled
rsyslog.service	enabled	enabled
rtkit-daemon.service	disabled	enabled
saned.service	masked	enabled
saned@.service	indirect	enabled
secureboot-db.service	enabled	enabled
serial-getty@.service	disabled	enabled

What will happen if we run "systemctl start saned"?

- a) Nothing, because we should have written "systemctl start saned.service"
 - b) The service won't be started because it's masked
 - c) The service will start immediately
 - d) It won't start because the service is already started
- 4) You have this panel with six switches that can be either on or off. How many tests would you have to do to make sure that all the combinations work correctly?



- a) 36
- b) 64
- c) 6
- d) 18

- 5) What is a potential advantage of virtualizing operating systems on virtual machines?
- a) Increased hardware costs
 - b) Reduced resource utilization
 - c) Enhanced hardware efficiency through consolidation
 - d) Limited flexibility in resource allocation
- 6) What is a potential advantage of using virtual machines in disaster recovery scenarios?
- a) Slower recovery times compared to physical environments
 - b) Limited flexibility in restoring backups
 - c) Higher cost of implementing disaster recovery solutions
 - d) Recovering exact replicas or snapshots of the real machines
- 7) What technology do SSDs use to store data permanently?
- a) Magnetic storage
 - b) Flash memory
 - c) SATA interface
 - d) Mechanical platters
- 8) Which number is bigger:
- a) 0101001101 in base 8
 - b) 0101001101 in base 2
 - c) 0101001101 in hexadecimal
 - d) 0101001101 in decimal
 - e) They have the same value
- 9) Which of the following options correctly uses redirection to create a file named "output.txt" and write the text "Hello, world!" into it?
- a) `echo "Hello, world!" 1> output.txt`
 - b) `cat "Hello, world!" < output.txt`
 - c) `echo "Hello, world!" 2> output.txt`
 - d) `cat output.txt > "Hello, world!"`
- 10) An AppImage:
- a) Can only be run on Canonical distributions
 - b) Can only run on Ubuntu
 - c) Can only run on the distribution it was compiled for
 - d) Can only be used on Linux systems

11) Assuming a job composed by the next 2 processes:

P1	CPU	CPU	DISK	DISK	DISK	CPU	DISK
P2	DISK	CPU	CPU	DISK	DISK	CPU	DISK

And that you have to execute the job in a computer with one CPU and one Disk, which would be the **return time** of the **whole job** if the scheduling algorithm is FCFS (First Comes First Served)? You can use the next table to help you:

Instant	Queue CPU	CPU	Queue Disk	Disk
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

- a) 15
- b) 10
- c) 8
- d) 12

12) In the context of managing I/O in computer systems, which method is characterized by the operating system detecting completed I/O operations, notifying the running process, and allowing the CPU to read the results only when necessary, with the process in a "Waiting" state during I/O operations?

- a) Programmed I/O
- b) Interruptions
- c) DMA (Direct Memory Access)
- d) Monotask I/O

13) What is the primary function of the POST program in the BIOS?

- a) Provide a graphical interface for system settings
- b) Control the hardware elements of the computer
- c) Run when the computer is turned on and locate all devices needed to load the operating system into RAM
- d) Manage system settings saved in the CMOS memory