In the Linux operating system, the control of the processes execution is done by:
- A. Sockets
- B. Semaphores
- C. Signals
- D. Interrupts (IRQs)
- E. Shared memory area

Any kernel can run on any microprocessor architecture?
- A. No, because the bootloader must recognize the kernel
- B. No, because the BIOS must recognize the kernel
- C. No, because certain parts of the kernel are closely related to microprocessor architecture
- D. Yes, because the kernel is independent of microprocessor architecture
- E. Yes, because the bootloader does not have to recognize that the kernel can load it

In the Linux operating system, it is possible that from the userspace to be generated and to be transmitted signals to processes?
- A. Yes, by the following methods: input from the keyboard, 'kill' command or the 'kill' system call
- B. Yes, by the following methods: input from the keyboard, 'kill' command, exceptions or kernel
- C. No, because the signals can be generated only by the kernel or the hardware events
- D. Yes, because the kernel in change of generating signals, runs in the userspace
- E. No, because the signals can be generated onlyk by the kernel

When running the command "ls-l some_file" to get the following result:
-r--r-xrw- 1 giosif users 3182 2011-12-11 13:42 some_file
What rights does the user root (system administrator)?
- A. None of the presented versions
- B. Just writing
- C. Read-only
- D. Only delete
- E. Only read and execution

The connection between a process and a thread is:
  A. A process can contain only one thread with common address space
  B. A thread has its own address space, different from the process/processes to which it belongs
  C. A thread can be part of one or more processes
  D. None of the presented options
  E. A process can contain only one thread with different address space

Considering that, in an Ext2 filesystem, any file occupies one inode, is it true that a directory also occupies one inode?
  A. No, because it is just a container for the files and the directories under it
  B. No, because the information about the directories is stored in superblock
  C. Yes, because a directory is a file, but with special properties
  D. Yes, except directories belonging to the system administrator (root)
  E. No, because it represents a different object than the file in the file system

The kernel of the operating system manages:
  A. Only access to hardware and the possible memory area used by the processes
  B. All the resources of the computer system that runs, less the memory access
  C. Only access the hardware
  D. All the resources of the computer system that runs, less the processor access (for execution time of the processes)
  E. None of the presented options

In a system, a process permissions are determined by:
  A. The command and parameters with which the process was started
  B. UID and GID
  C. Only GID (Group ID)
  D. PID (Process ID)
  E. Only the UID (User ID)

Under a multitasking operating system, the size of the time and frequency with which a process is executed is determined by:
  A. The priority of the process
  B. The UID of the process
  C. Command and parameters with which the process has been started
  D. The PID of the process
  E. Is independent of the process

Address space layout randomization (ASLR) is a way to protect against the attacks like:
   A. Social engineering
   B. Memory area access/execution
   C. None ot the presented options
   D. Man-In-The-Middle (MITM)
   E. Denial of Service (DoS)

In an Ext2 file system type, is it possible that a director, to have a file and a (sub)directory, both in the same name?
   A. No, because the directory name must be unique within the file system
   B. No, because the directories are files, but with special properties
   C. Yes, because they represent different types of objects in the file system
   D. Yes, because file names are stored in the superblock
   E. Yes, because the directory names are stored in the superblock

In an Ext2 file system type, the information about the entire file system (size, space, logical block size etc.) are stored in:
   A. Inode
   B. Superblock
   C. Directory
   D. Indirect data block
   E. Direct data block

In the Linux operating system, is it possible that a thread to give up certain capabilities, then regain them?
   A. Yes, through init parent process
   B. Yes, through the signals
   C. Yes, through system calls
   D. No, because a thread can only drop capabilities
   E. No, because giving up/restore capabilities to process level is not at the thread

In the Linux operating system, a process can ignore all received signals?
   A. No, because the kernel does not allow it
   B. No, because a process can not ignore the signals
   C. Yes, if you have UID (User ID) 0
   D. Yes, except: SIGKILL and SIGSTOP
   E. Yes, if you have the PID (Process ID) 0

Question 15 of 20

Generally speaking, the drivers communicate with the hardware devices:
- A. Only through the I/O ports and IRQs
- B. Through the I/O ports, IRQs and DMA channels
- C. Only through IRQs
- D. Only through the I/O ports and DMA channels
- E. Only through IRQs and DMA channels

Question 16 of 20

The system calls allow:
- A. The access of the processes from the kernelspace to the drivers within the kernel
- B. The access of the processes from the kernelspace to the functions/services within the kernel
- C. The access of the processes from the userspace to the functions/services within the kernel
- D. The access of all processes (kernelspace and userspace) to the drives within the kernel
- E. The access of the processes from the userspace to the drivers within the kernel

Question 17 of 20

Please choose the correct answer: in the source code auditing - static analysis of white-box testing, the 'Bottom-Up Approach':
- A. Start from data entry points and search for data validation measures
- B. None of the presented options
- C. Start from application entry point (main function) and follow all code paths with focus on code that handles user input and data I/O
- D. Analyze target program at runtime
- E. Observe behaviour and try to induce error states

Question 18 of 20

Which one from the following sentences are NOT common for the generation of fuzzing data - Mutation based fuzzing:
- **A.** The tester may not have knowledge about the data format
- **B.** The tester should modify valid data in order to obtain various mutations
- **C.** None of the presented options
- **D.** The tester may break data validation measures - e.g. checksums
- **E.** The tester easy can setup and automate the process

Question 19 of 20

What are the White-Box testing features?
- A. Send unexpected, semi-valid input data to application's interfaces
- B. None of the presented options
- C. Little knowledge about t

D.Detect unexpected behaviour, crashes, denial of service

E.Fuzzing aka 'fault injection'

20/20

The Black-Box Testing involves:
    A. Focus on the data entry points on terms of pipes
    B. None of the pres. options
    C. **Focus on the data entry points on terms of user input**
    D. **access** to the source code and documentation
    E. focus on the data entry point in terms of network sockets

IoT_Embedded quiz