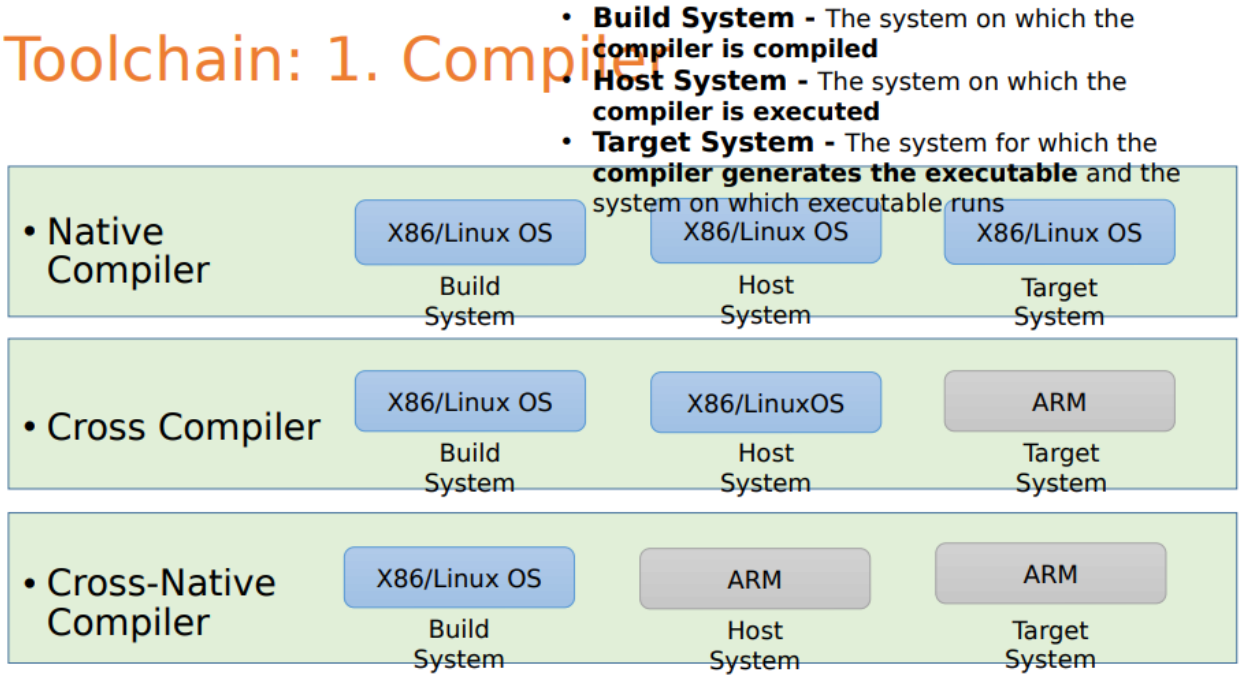
1) **If the build system is a platform of type A and the host and target systems are of platforms of type B where A and B are different physical hardware platforms, then a complier source code compiled on the build system will result in a compiler binary called**

a) Native Compiler
b) Cross Compiler
c) Cross Native Compiler
d) Platform Compiler

Explanation:-



2) If we use a driver for N number of files, then we have to create device files.

a) N+1
b) 1
c) N-1
d) N

Explanation:- (Linux Device Drivers Major-Minor Numbers Questions & Answers)

⇒ device file in **/dev**

⇒ Process file in **/proc**

⇒ **sys file** system contain all the **hardware file** running on system

⇒ **proc file** system contain all the **process file** running on system

3) Which of the following is a false statement regarding the differences between a linux kernel module and a user space application

a) Linux kernel modules are not expected to use floating point operations
b) Libraries are not existent for kernel modules
c) Infinite looping in the kernel module should be avoided.
d) There is an infinite stack in the kernel space for linux kernel modules

4.Compiler reordering optimization cannot be achieved using which of the following methods

wmb();

rmb();

barrier();

ioctl

5.If the binary utilities (binutils) of the linux toolchain must be shipped in the rootfs of the target device, it should be compiled on the host system using (Assume that the host and target platforms are different)

The native compiler of the host system

The native compiler of the target platform

The cross compiler of the target platform

The host compiler of the host system

6.Which of the following is false concerning compilation of the linux kernel module

The Linux kernel uses a 2-stage compilation process for dynamic module compilation

The compilation of a dynamic module requires the kernel image (uImage/zImage) to be present in the source tree.

A module compiled for a specific kernel version can only execute on systems running that kernel version

The Makefile of a linux kernel module invokes the kernel Makefile for its compilation

7.Which API (or) function call is used to unregister device numbers from the linux kernel?

void unregister_chrdev_region (dev_t first, unsigned int count)

int alloc_chrdev_region (dev_t first)

void unregister_chrdev_region (int count)

void unregister_chrdev_region (dev_t first)

8.A Mutex is also referred as

Counting Semaphore

Binary Semaphore

Spinlock

Monitor

9.The linux kernel records timing information for kernel operations using

Seconds counters

Microseconds counters

Jiffies variable

Milliseconds counter

10.Which of the following is false concerning compilation of the linux kernel module

The Linux kernel uses a 2-stage compilation process for dynamic module compilation

The compilation of a dynamic module requires the kernel image (uImage/zImage) to be present in the source tree.

A module compiled for a specific kernel version can only execute on systems running that kernel version

The Makefile of a linux kernel module invokes the kernel Makefile for its compilation

11.Which API (or) function call is used to unregister device numbers from the linux kernel?

void unregister_chrdev_region (dev_t first, unsigned int count)

int alloc_chrdev_region (dev_t first)

void unregister_chrdev_region (int count)

void unregister_chrdev_region (dev_t first)

12.A Mutex is also referred as

Counting Semaphore

Binary Semaphore

Spinlock

Monitor

13.The linux kernel records timing information for kernel operations using

Seconds counters

Microseconds counters

Jiffies variable

Milliseconds counters

14.What is the significance of the return value of the module init function?

Value of 0 should be returned if all operations in the init function are successful, otherwise any other number can be returned.

There is no return value for the module init function

Value of 1 should be returned if all operations in the init function are successful, otherwise any negative number can be returned.

There is no significance of the return value

16.Which of the following components is not considered part of the linux kernel compilation toolchain

Compiler

Init Program

Debugger

Binutils

17.Below three processes initialized with counting semaphore S11, S2 = 2 and S3 = 0. How many times 2 will be printed if three process

Process 1

Process 2

Process 3

{

While True:

{

Wait (S1)

Wait (S2)

Print "1"

Print "2"

Wait (S3)

Release (S2)

}

Release (S2)

Release (S3)

{

Exact 1 time

Does not print at all

At Least 2 times

Exact 2 times

18.Which of the following is least appropriate concerning the linux kernel?

It is the central component of most computer operating systems

One of its purposes is to manage resources and provide services

Some of the services it provides are process management, memory management, device drivers.

It can execute in the user space

19.Which of the following kernel synchronization mechanisms is best suited for short lock hold times

Semaphore

Atomic operations

Completion

Spinlock

20.Which is the best place to request for an IRQ line in a device driver which is sharing Interrupts

During read/write operations

In the init section

Anywhere in the code

In the open call

21.The function to initialize the mutex with value 0 statically is

void init_MUTEX_LOCKED(struct semaphore "sem);

DECLARE_MUTEX(name);

void init_MUTEX(struct semaphore *sem);

DECLARE_MUTEX_LOCKED(name);

22.What does the tag "modules_install" in the Makefile do if invoked during the kernel module compilation

Compiles the kernel module and deletes the source code

There is no tag called modules_install in the Makefile

Compiles the kernel module and installs it using insmod

Copies the kernel object file (.ko) to /lib/modules folder

23.How are wait queues initialized in the Linux kernel?

Static Initialization

Dynamic Initialization

Static or Dynamic Initialization

Static & Dynamic Initialization

24.The file generated as a result of the command "make <xyz_defconfig>" is

kernel.defconfig

.defconfig

.config

linux.config

25.A system call implementation in the linux kernel most appropriately refers to

A kernel library that performs operations for linux kernel modules.

A user space application that provides specific functionality pertaining to device.

drivers

A user space library that provides low level operations in the linux kernel

A piece of code residing in the kernel space that allows resources to be accessed and used from the user space.

26.Match the following:

(A) Semaphores

(1) Used in instances where the critical section is accessed through a pointer

(B) Spinlocks

(2) Used in cases where the writes are small and rare and should be executed quickly

(C) Sequential Locks

(3) If the critical section is large and permits sleeping

(D) Completions

(4) If the critical section is quite small and fast

(E) Read Copy Update

(5) Optimized Signalling mechanism

(A-5), (B-4), (C-3), (D-1), (E-2)

(A-3), (B-4), (C-5)), (D-2), (E-1)

(A-3), (B-4), (C-2), ((D-5), (E-1)

(A-3), (B-4), (C-5), (D-1), (E-2)

27.Which of the following comes under a bottom half mechanism?

Wait Queues

Tasklets & Work Queues

Work Queues

Tasklets

28.The significance of using "p" in in and out functions of the port access is

It prevents corruption of data

It allows synchronization between a high speed processor and low speed device by providing a pause functionality before data transfer.

It posts the data to an additional buffer for temporary storage

It pushes/pulls data urgently from a data register

29.The utility used to insert kernel modules after resolving dependencies is

insmod

modprobe -r

insmod -resolve-depends

modprobe -i

30.In ioctl, the macro for writing data to and the macro for reading data from device are

_IOWR and_IOR respectively

IO and_IOW respectively

_IOW and IOR respectively

_IOWT and_IORD respectively

31.Which of the following is not part of the dynamic linux kernel module program/code template

Include headers

Initialization and Cleanup functions.

MACROS for module initialization and exit functions

Makefile

32.In struct "file_operations", space methods will support open, close requests from user

open, release

init, exit

read, write

ioctl, Iseek

33.The system on which a compiler is compiled is generally called

Target System

Build System

Super Computer System

Host System

34.Which call is used to wake up all processes that are waiting on the wait queue?

Choose the most appropriate answer

Wake_up_all(&wq)

Wake_up(&wq)

Wake_up_interruptible(&wq)

Wake_up_all_interruptible(&wq)

35.Which of the following linux kernel versions is not a stable version

3.18

2.6

2.5

6.1

- Post 2.6 version of kernel, a sanitized version of the headers is generated for tool chain and application usage. This differs from the kernel headers, which contain inline assembly code, compromising the kernel, if used in application code

36.What is "vmlinuz?

It is a compressed linux kernel with a virtual memory support

It is a virtual machine used in linux without compression.

It is a type of bare linux operating system.

It is an uncompressed linux kernel

37.The kernel mechanism to share functions/variables with other modules in the kernel

space is

EXPORT_SYMBOL

Module_param

EXPORT_FUNCTION

EXPORT_VARIABLE

38.The major number identifies the associated with the device.

Driver

Protocol

Port

Bus

39.Which of the following methods provides a mechanism for user space applications to perform control operations on the device through its driver?

ioctl

open

read

write

40.Which of the following is false concerning a linux kernel module

A static module is one which has a module initialization function, but no module exit function

Linux Kernel modules can be dynamically linked to libc libraries in the user space

A module is a simple piece of C code

A dynamic module has both module initialization and module cleanup functions

41.Which of the following statements is true?

1.Tasklets possess normal priorities and high priorities

2.Tasklets does not have any priorities of processes

Only 2nd statement is true

Both statements are false

Only 1st statement is true

1st and 2nd statements are true

42.The function to schedule a tasklet for execution is

tasklet_schedule()

calling "call back function" in timers

schedule()

tasklet_next()

43.Character device drivers can access data in the form of

It is configurable

Data access is in blocks

In the form of packets of information

A stream of bytes

44.The Kernel keeps track of the flow of time by means of

Timer interrupts

Hardware interrupts

Non-maskable interrupts

Maskable Interrupts

45.From a device driver's perspective, knowledge of which of the following aspects of the device is not important for the driver to transact with the device

The address mapping of the device registers

The type of clock circuit used in the device.

The Interrupt number of the device

The type of device registers (Data, Control and Status)