**Answer the questions**

**Introduction to Operating Systems (CSC 343)**

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1 What is an Operating System?…….

An operating system (OS) is system software that manages computer hardware, software resources, and provides common services for computer programs.

-Abstraction

-Arbitration

2. What is abstraction in the operating system for?…

-Hides details of different hardware configurations

-Applications do not need to be tailored for each possible device that might be present on a system

3. What is arbitration in the operating system for?

-Manages access to shared hardware resources

-Enables multiple applications to share the same hardware simultaneously

4. What hardware resources are there in the operating system?

-CPU

-Memory

5. What is a central processor for?

-Executes program instructions

-Multiple CPU cores execute instructions in parallel

6. What is memory for?

-Hierarchy of different memory speeds

-Fastest memory attached to CPU

-Registers

-Chache

-RAM

-disk

7. What types of memory are there?

working memory.

sensory memory.

short-term memory.

long-term memory.

8. Random access cache (RAM) - slow or fast?

slow

9. Registers - slow or fast memory?

fast

10. Persistent memory (disk) - slow or fast memory?

slow

11. What hardware resources are there?

The five types of hardware resources are Printer, Memory, Screen network windows system, Disk, CPU

12. . What are the input-output devices?

-Keyboard

-Mouse

-NIC

-Screen

-Printer

-others…

13. What devices are there Power and system management?

-Power Supply

-Internal Cooling

14. What is the essence of abstraction for the operation of the operating system?

-Hardware devices manufactured by different manufacturers

-Require different low-level instructions to operate

-Have different capabilities

-If a common interface did not exist

-Variety of hardware might be limited

-Every application would have to be limited

-Every application would have to be programmed to use all required devices

-Example: 1990s-era computer games that required internal programming for video and sound cards

15. Supporting both Intel and AMD processors - is it abstraction or arbitration?

arbitration

16. Switching between applications - is it abstraction or arbitration?

arbitration

17. Separating memory allocated to different applications - is it abstraction or arbitration?

arbitration

18. Separating memory allocated to different applications- is it abstraction or arbitration ?

arbitration

19. Enabling video conferencing software to use different camera devices-- is it abstraction or arbitration?

abstraction

20. Accessing two different hard disks- is it abstraction or arbitration?

arbitration

21. Sending and receiving messages over a network - is it abstraction or arbitration?

abstraction AND arbitration

22. What layers of the system exist?

-Applications

-Libraries and Utilities

-Operating System

-Hardware

23. What is the application layer in the system for?

The application layer is used by end-user software such as web browsers and email clients. It provides protocols that allow software to send and receive information and present meaningful data to users.

24. What is the Libraries and Utilities layer in the system for?

For control Libraries and Utillities

25. What is the operating system layer in the system for?

The operating system is an integral layer in the modern computer. The operating system (OS) is specialized computer software that allocates memory and manages system resources. When a computer is turned on, the OS is loaded into memory and works as an abstraction layer between the physical hardware and the software.

26. What is the hardware layer in the system for?

27. What is included in the system kernel?

Operating System

28. What is included in the system user space?

-Applications

-Libraries and Utilities

29. How the operating system communicates with the hardware?

-Operating systems implements a common mechanism for allowing applications to acess hardware

-Applications can make requests from the operating system via system calls

-Operating system can alert applications via signals

30. How application hardware connectivity is ensured?

31. How the operating system can alert applications?

Operating system may terminate application

32. The operating system may or may not terminate the application robot?

may

33. What operating systems are Multiple Operating Systems?

-Microsoft Windows

-Unix systems

-Mainframe system

-Embedded system

34. What operating systems are Mainframe systems?

Some Unix-like, others custom OS

35. . What operating systems are Embedded systems?

-Embedded Linux:

-Android

-Other

-Symbian

-BlackBerry OS

-TinyOS

36.  What is the system Multics?

Multics ("Multiplexed Information and Computing Service") is an influential early time-sharing operating system based on the concept of a single-level memory.

37. What is the idea of creating a system Multics?

Idea was to make computing a remote service that could be accessed by terminals using telephone liness

38. System Multics- Multiplayer system or not?

Yes

39. What is Unix?

Generic term for a class of operating systems

-Term is actually trademarked

-Some authors use NIX to refer to the family of systems UNIX for commercial distributions

40. What types of Unix programs exist?

Free versions: BSD and Linux

41.  What is BSD?

The Berkeley Software Distribution or Berkeley Standard Distribution (BSD) is a discontinued operating system based on Research Unix, developed and distributed by the Computer Systems Research Group (CSRG) at the University of California, Berkeley.

42. What types of programs BSD exist?

FreeBSD

OpenBSD

Mac OS X

43. What is Linux?

Operating system kernel project started by Linus Torvalds as an undergrad at the University of Helsinki

44. What types of programs Linux exist?

45. What set of libraries and utilities  does Linux work with?

Often combined with a set of libraries and utilities created by the GNU Project

Resulting combination sometimes called GNU/Linux

46. Where Linux is used?

Today, Linux systems are used throughout computing, from embedded systems to virtually all supercomputers, and have secured a place in server installations such as the popular LAMP application stack. Use of Linux distributions in home and enterprise desktops has been growing.

47. What popular Linux operating systems do you know?

Ubuntu.

openSUSE. ...

Manjaro. ...

Fedora. ...

Zorin. ...

Elementary. ...

CentOS. ...

Arch Linux. Arch Linux stands out in the Linux ecosystem because it is not based on any other distribution and yet it is well-known and extensively used by the community.

48. Can the linux kernel scale into supercomputer operating systems?

  As one author wrote "Linux will likely catch up, but we have large-scale systems now". Nevertheless, that trend continued to gain momentum and by 2005, virtually all supercomputers used some Unix-like OS. These variants of Unix included IBM AIX, the open source Linux system, and other adaptations such as UNICOS from Cray. By the end of the 20th century, Linux was estimated to command the highest share of the supercomputing pie.

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