Questions	Answers
1. What are the featuring parameters of a desktop computer today?	A : Processors and disks are smaller in size but greater in efficiency. „Cloud" services, reach information universal! Smart devices, IoT (Internet of Things) 1 processor, multi (4,6,8,10,12) cores Microprocessors – Microcontrollers • CISC-RISC • Nowadays microprocessors are usually 64-bit types. • Microcontrollers are typically 8-bit types!
2. What is the role of the cache in the microprocessor? Cache :high speed menory in cpu for faster access to data	A : Cache memory is a high speed memory in the CPU that is used for faster access to data. It provides the processor with the most frequently requested data. Cache memory increases performance and allows faster retrieval of data.
3. How can you implement a number using two's complement? -x = inverse x +1 One zero on 1 byte numbers between -128 to +127 Conversion to two complement	A : Two's-complement representation • -x = inverse x +1 • One zero, on 1 byte numbers between -128 +127. Conversion to Two's Complement If you have -30, and want to represent it in 2's complement, you take the binary representation of 30: 0000 0000 0000 0000 0000 0000 0001 1110 Invert the digits. 1111 1111 1111 1111 1111 1111 1110 0001 And add one.

4. What do you know about UTF8 coding? What is it good for? Support many languages Accommodate mixture pages+forms of these language Eliminate server-side logic to individually character encoding for each forms and pages	A : UTF-8 (8-bit Unicode Transformation Format) is a variable width character encoding capable of encoding all 1,112,064(17×216 = 1,114,112 code points minus 2,048 technically-invalid surrogate code points) valid code points in Unicode using one to four 8-bit bytes. UTF-8 can support many languages and can accommodate pages and forms in any mixture of those languages. Its use also eliminates the need for server-side logic to individually determine the character encoding for each page served or each incoming form submission.
5. List at least 3 memory types! RAM ROM FLASH	A : • RAM : SRAM, DRAM, DDR, DDR2,DDR3,DDR4 • ROM: PROM, EPROM, EEPROM, FLASH • FLASH – nowadays it is used alone, cheap(er), solid-state based
6. List some devices from daily life in which there are "computers"! Smart phone Smart watch Washing machine	A: Mobiles, smartwatches, calculators, air conditioner, washing machine, HDTVs, Thermostat, barcode readers
7.What is the difference between a server and a client computer? **8.** Client : basic hardware configuration ; simple and less powerful machine. For ez task Server : high-end hardware configuration; Powerful and expensive machine For storing data and file and app	A: 1. A client machine is a small computer with a basic hardware configuration whereas a server machine is a high-end computer with an advanced hardware configuration. 2. A client is a simple and less powerful machine whereas a server is a powerful expensive machine. 3. A client is used for simple tasks whereas a server is used for storing huge data files and applications.
9.List at least 3 operating systems Windows Ios Linus-unix Mac os	A : Windows, LINUX-UNIX, macOS, Mobile operating systems (iOS,Android)

9. What is the difference between the ssh and the telnet connection? Telnet : Unencrypted connection Rarely used Communicate with remote device SSH: encrypted Widely used Access and manage device	A : 1.Telnet uses unencrypted connection but SSH uses encrypted connection. 2.Telnet is rarely used while SSH is widely used. 3.Telnet is a network protocol that allows a user to communicate with a remote device while SSH is a network protocol used to remotely access and manage a device.

10 . What kind of services has an operating system got today? Clients – server Distribute data and storage devices Printing device Mailing , web Network services Handling of user Informational database	A : • Clients – server differences • The usage of common, distributed data storage devices • The usage of the common printing service • Handling of services • Mailing, web, terminal connections etc. • Network services (DNS, DHCP, etc.) • Handling of users • Informational database
11.what do you mean by shell? Name at least two. Its a classical user interface from unix system Windowsban:CMD Unix: sh ; Ksh ; Csh ;	Shell : classical user interface program, derived from Unix system In Windowsban it is: CMD In Unix there are several : sh, Ksh, Csh , Csh, Bash
12.What is alias and where did you meet with it? Shortcut reference a command	A shell alias is a shortcut to reference a command. For example : [] for test
13.What unix file system features can you mention? Hierarchical structure Two main different types of entry : directory or file Devices also get filename Lick special file -entry	1. It's structure is hierarchical 2. Mainly there are 2 different types of entry a. Directory b. File 3. Devices also get "filenames" 4. Link, special file-entry 5. Today's version are logged, greater safety, consistency
14.What type of file systems do you know? Tree structure Entry points of windows Unix directory elements	Tree structure, several entry points in windows Typical Unix directory elements

15.What filename conventions do you know in Unix Not limited the Length of name （长度无限） Any type of character （字符不限） No file extension in the meaning of Windows（扩展名无意义） Sealed entry with starting dot（密封目录） Filename sensitive(区分大小写） 同目录下不能有相同文件名	1. Length of name is not limited. 2. Any type of character can be used.(but it is not adviced) 3. Suggestion : do not use in names spaces, accentuated characters, special characters(*%$ etc) 4. There is no file extension in the meaning of Windows 5. If the starting character is .(dot), then it is a sealed entry! 6. All filename are case sensitive. So filename FILENAME.txt and filename.txt are different 7. Recommended characters in filenames are : letter, numbers, dot, underscore and dash. 8. We can not have the files with the same names under the same directory(a filename must be unique in its directory)
16.What file features do you know in Unix? Name size 文件名 Date creation 创建日期 Owner 所有者 Group owner 所有者组 Hard link number 硬链接号 Permission 权限	Name, size, date of creation, owner, the group of owner, hard link number, permission
17.Explain the base Unix permission system 3*3 system （8进制） Chmod （设置权限用chmod） Permission as 3 bit numbers （三位数字处理权） Default permission : 644 （默认权限） Unmask ;giving bits no permission	1. Basically a 3*3 system exits (octal system) 2. To set permission : chmod 3. Handle of r,w,x permissions as 3 bit numbers 4. Default permission : 644 5. Unmask, giving bits, to which we do not give permissions 6. Additional permissions : eg: Chmod 664 apple

18.What extended permission do you know in Unix	Display Extended Permissions Up to now, we know the program 'ls' for displaying file information. With the long listing, using the option '-l', it shows permissions as well: chris@linux ~ $ ls -l Datei.txt -rw-r--r-- 1 chris chris 12 Apr 23 19:51 Datei.txt If a file has extended permissions , this will be seen with 'ls' only through a single character: directly after the Unix permissions follows a plus character ('+'). chris@linux ~ $ ls -l Datei.txt -rw-r--r--+ 1 chris chris 12 Apr 23 19:51 Datei.txt
19.what is the goal in Unix to use process priority	Linux, like most modern operating systems, can run multiple processes. It does this by sharing the CPU and other resources among the processes. If one process can use 100 percent of the CPU, then other processes may become unresponsive. (answer from Google but I am not sure what the question means)
20 . what do you know about quotation marks in Unix Negotiate 空格字符的含义	Quotation marks negotiate the meaning of space characters
21.What is the meaning of stdin, stdout?	stdin - keyboard, standard input channel (default input) stdout - monitor, standard output channel (default output)
22.How many filter you need for a pipeline?	three
23.Tell an example where we can use a regular expression?	Cat file | grep "^$" empty line
24. What is the ASCII code table? encoding standard for electronic communication.	is a character encoding standard for electronic communication. ASCII codes represent text in computers, telecommunications equipment, and other devices.
25. What are the environment variables? visible in the environment command started from the environment.	The environment variables are visible in the environment and in each command started from the environment.
26.Give the possible type(s) of a variable content in UNIX!	string (The content of a variable is always a string!)

26. What is command substitution? executed replaced with it's output.	the command will be executed and it will be replaced with it's output.
28. List the existing operators in UNIX shell!	Arithmetic Operators Relational Operators Boolean Operators String Operators File Test Operators。
29. Which shell instruction has got a result value?	Each instructions have got a result value!
30. How is the logical type implemented in UNIX shell?	test operand1 operator operand2 # the space
31. Is it possible to define a function using parameters in unix ?	YES
32. Are you able to execute (describe how if you say yes) a shell script without execution permission	No
33. What is IFS	Internal field separator
34. What kind of tasks can you solve with the help of sed	Complex substitutions, replaces working on the lines arriving on the standard input, result is written on to the standard output.
35. Describe generally the syntax of a sed command	[address]/pattern/new pattern/[marker]
36. What is the difference between " and ' in sed?	John; echo George is skillful!|sed "s/George/$x/" Result: John is skillful Eg :John; echo George is skillful!\|sed "s/George/$x/" Result: $x is skillful
37. Typify the possiblities of awk	Program directly Program is in a file Filter
38. Name the possible command blocks in awk	Print command Build in variables User defined functions Variables and syntax
39. Can awk be used for solving arithmetical tasks?	yes

40.What is MBR and what is its task? Master boot record Search for active partition Copy it into memory Transfer control to program	master boot record is a category of boot sector search the partition table for the active partition, copy the boot sector from the active partition into memory, and transfer control over to that program.
41.Describe the LINUX_UNIX boot process multi-stage initialization during booting a Linux installation	multi-stage initialization process performed during booting a Linux installation.
42.Write down at least one Unix lunix management possibility	SMIT YAST YAST2
43.What kind of network connections do you know	Mobile Internet / Broadband / Virtual Private Network / Local Area Network (LAN)
44.What do you mean by packet-switched network? Group data transmitted over digital network into packets	a method of grouping data is transmitted over a digital network into packets. Packets are made of a header and a payload.
45.What is described by OSI model	Open Systems Interconnection Physical Data link Network Transport Semssion Presentation application
46.List network topologies(topology)	Line topology, Star topology, Bus topology, Ring topology and tree topology
47.What is the task of a switch?	executive function that involves the ability to unconsciously shift attention between one task and another.
48.What is the task of a router	Different local and global network connection by router
49.How can you characterize the IPV4 addresses Four numbers (0 to 255) Separated by single dot	An IP address consists of four numbers; each can contain one to three digits. These numbers are separated with a single dot (.). These four numbers can range from 0 to 255.
50.Where do you meet DNS in informatics? host names and IP addresses	to map between host names and IP addresses Ping will check the existstance of connection
51. What is DHCP?	-) The Dynamic Host Configuration Protocol

52. What kind of server access modes do you know?	Ip configuration Terminal connection Web connection
53. What is HTTP protocol good for?	You can upload or download files with the help of HTTP as well! We can upload and download using a web-browser!
54. What happens if there is no index.html file in public_html directory?	• If there is no index.html file, then it works as an ftp catalog!
55. How can you save a web-directory with password?	htpasswd [-c] filename username • -c filename will be a new file • It asks the password and writes the username and the coded password into the file • -c must use only first case!
56. What do you mean by virtual host? reference an address with another name	Meaning: we can reference an address with another name
57. What are the meaning of SSI or CGI permissions in case of webservers? For a directory, .shtml extension Mod_userdir.conf	SSI, CGI permissions For a directory, .shtml extension Mod_userdir.conf
58. What kind of Windows script writing possibilities do you know? Is there any? Batch program Windows Script(ing) Host PowerShell	There are several script types in MS Windows! • Batch program (bases) • Windows Script(ing) Host (VB Script or JScript based) • PowerShell
59. How can you “implement” the role of autoexec.bat in PowerShell?	Creating group policy windows start up/ shut down User start up/shut down
60. How safe script execution is ensured in PowerShell?	• Default: Restricted – execution is not permitted! • Possible policy values: Allsigned, Remotesigned, Bypass • At Unrestricted it will ask at downloaded scripts, at Bypassnál it will not ask! • Scope process or currentuser or localmachine •Remotesigned: at scripts downloaded from the net it will execute them only

61.What are the structures of the Powershell command?	Powershell command structure : Verb noun Eg: Get command
62.List at least two different variable scopes in Powershell!	A scope may be : global, Local, private
63.How do we redirect the output in Powershell? Is it possible anyway?	Redirection (file creation) by > “overwrite” or >> “append”
64.Where and for what can dot sourcing be used?	1.You may declare a function within a function. An inner function may not be called directly -> Execute it with a dot: .Funct. The result of it that the inner functions also may be seen directly 2.Function local variable may not be seen from outside-> Execute it with a dot :.Fv. The result of it that the local function variables also may be seen directly.
65.What does the possibility of named parameters mean in Powershell?	Param($x,$y)
66.What is the difference between a microprocessor and a microcontroller?	1.Microporcessors are usually 64 bit types. Microcontrollers are typically 8 bit types 2.Microcontrollers operate from a few MHz to 30 to 50 MHz, microporcessor operate above 1GHz
67.What is the most important feature of a Harvard architecture? 物理上分离信号，并存储代码和数据存储器。	physically seperate signals and storage for code and data memory. It is possible to access program memory and data memory at the same time
68.What is the floating-point arithmetic used for?	represent with a fixed number of digits, numbers of different orders of magnitude.
69.What is asymmetric coding?（非对称编码/） （加密钥匙）	is a form of encryption where keys come in pairs. What one key encrypts, only the other can decrypt.(加密钥匙成双出现的形式，用其中一把解锁另一把)
70.What is the meaning of the binary ftp mode? Two way to transfer : ASCLL and Binary	The FTP protocol defines two ways of transferring files: ASCLL(text) and Binary. A binary transfer creates a byte-for-byte idential copy of the transferred file.
71.What is the meaning of ASCLL ftp mode? a mode for transferring files via FTP(通过ftp传输文件的模式)	It is a mode for transferring files via FTP. ASCII mode transfers files as ‘text’
72.How can you redirect the standard input in Powershell?	You cannot redirect input in powershell
73.How can the “here input” functionality be replaced in Powershell?	

74.What is the profile.ps1 file good for? Is there anything equivalent to it in Unix shell?	1.A powershell profile is a script that runs when Powershell starts. You can use the profile as a logon script to customize the environment. 2.You can add commands, aliases, functions, variables, snap-ins, modules, and Powershell drives. 3. You can also add other session-specific elements to your profile so they are available in every session without having to import or re-create them
75.What do we mean by Powershell module?	A script modules is any valid Powershell script saved in a .psm1 extension. This extension allows the Powershell engine to use rules and modules cmdlets on your file
76.Is the core Powershell module enough to modify the registry? Why?	Yes. Power provides a large set of tools for interacting with the Microsoft Windows registry, either on the local machine or remotely.
77.How do you use command substitution in Powershell?	There is no special form for command substitution! $dirlist=dir #There is no need for using the 'dir' form!
78.How do you create a loop in sed script?	For i in 'grep -l $oldstring $searchfiles'; do sed -i "s/${oldString}/${newstring}/g" $i; done
79.What type of files are usually in the / etc directory? 1.Many networking configuration files 2.Scripts or directories of scripts to run at startup	3.Many networking configuration files 4.Scripts or directories of scripts to run at startup(/etc/rc or etc/rc.d or /etc/rc.d)
80.Tell an example where the "setuid" bit is useful!	The setuid bit simply indicates that when running the executable, it will set its permissions to that of the user who created it(owner), instead of setting it to the user who launched it. An example of an executable with the setuid permission set is passwd, the utility we cab use to change our login password. We can verify that by using the ls command: ls -i/bin/passwd -rwsr-xr-x. 1 root root 27768 Feb 11 2017 /bin/passwd

81.What is the aim of using ACL in UNIX_LINUX system?	A: Access control list (ACL) provides an additional, more flexible permission mechanism for file systems. ACL allows you to give permissions for any user or group to any disc resource. Basically, ACLs are used to make a flexible permission mechanism in Linux.
82.Is there anything in Windows that is adequate to ACL possibility?	A: Yes there are two types of ACLs in windows as well. 1: Discretionary ACL – is a list of zero or more ACEs that describe access rights for a protected object. 2: System ACL- is a list of zero or more ACEs that describe auditing and alarm policy for a protected object.
83.What is the main difference between analog and digital signals?	A: Analog and digital signals are different types which are mainly used to carry the data from one apparatus to another. The main difference between analog and digital signals is, analog signals are represented with the sine waves whereas digital signals are represented with square waves.
84.What is the task of the data, the address and the controller bus?	Address Bus - It is used to carry location of data Data Bus - It is also called memory bus which is used to carry the data control bus It is part of t system bus, used by CPUs for communicating with other devices within the computer.
85.How can you create a filter in UNIX and in PowerShell? Is it possible anyway?	A: Yes it is possible. In unix wc [OPTION]... [FILE]... grep [options] pattern [files] cut OPTION... [FILE]... these are the filters used in unix where option is command for performing specific action and File is a parameter. In Powershell Get-Content -Path C:\File etc

86.What is the main difference between the result of the UNIX ls and the PowerShell Get-ChildItem?	A: The main difference between ls and Get-ChildItem is that ls is an alias to the Get-ChildItem.
87.On which platform can you use regular expressions? (In Unix, in PowerShell or in both?)	A: The regular expressions can be used on both of the platforms either unix or Powershell.
88.What is the special meaning if a filename starts with . in UNIX? Hidden file (dot file)	A: If a filename in unix starts with . is usually called as dotfile which refers to the hidden files.ls command doesn't show these files unless you use -a with ls.
89.When and why are the regular expression groups useful?	
90.What is the main difference between the data going through the pipe in UNIX shell and in PowerShell?	A: The main difference between unix shell and powershell in terms of data going through pipe is Unix commands spit out text. PowerShell commands spit out objects
91. What tool set do we have to write a script in UNIX and in PowerShell?	
92. Give the file extension of a script in UNIX and in PowerShell! Is there any restrictions or you can choose it freely?	.sh / .ps1 freely on UNIX, not sure on ps.
93. Is it possible to have a parameter of a filter command? If it is possible then give an example, if not, explain why it is not possible!	
94. What is the difference between stdout and stderr? Do they exist in PowerShell too?	Standard output - writes normal information to output device. Standard error - writes error information to output device. Typically stdout is line buffered or has full buffering while stderr is unbuffered
95. What is the "problem" with ones' complement?	Ones' complement has a "positive" zero and a "negative" zero.
96. How do you redirect the stdin in PowerShell?	in Powershell there is no input redirection

97. What is SED good for? What is the most frequent command of it?	Filter – it modifies the input lines with the given operations. – Most frequent command not yet known
98. Can we call a shell script in a SED script? Why?	
99. How is it decided what type of script is a script on the UNIX platform?	
100. What does it mean when a processor has 10-nanometer technology?	lithography figures tell you how tightly packed transistors are inside your processor, i.e how close they are. The lower the distance between two individual transistors, the faster electrons can travel between them, and the lesser energy that's wasted in transit. This means a lower thermal output across the board and more efficiency which translates to more speed with lesser power consumption.
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