

# Multiple Choice Question Examination on Basics

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## Instructions

- This paper contains 70 multiple-choice questions.
- You need to answer all the questions within 60 mins ie 1 hour meaning you shall be getting 0.85 mins per question.
- Each question has only one correct answer.
- For each correct answer, you will be awarded +4 marks.
- For each incorrect answer, 1 mark will be deducted (-1).
- Unattempted questions will receive 0 marks.
- Please read each question carefully before answering.

## Syllabus Overview

The questions in this paper are based on the following topics:

- **Linux Commands:** `cp`, `mv`, `mkdir`, `grep`, `ls`, `pacman`, `sudo`, `rm`, etc.
- **Number Systems:** Definitions and conversions (Binary, Decimal, Octal, Hexadecimal).
- **Python Fundamentals:** Functional programming, list, tuples, set, dictionary, for and while loops, print statements.

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### Category A: Linux Commands

1. Which command is used to copy files and directories in Linux?
  - (a) `mv`
  - (b) `cp`
  - (c) `cpr`
  - (d) `copy`
2. To move a file named `report.txt` from the current directory to `/home/user/documents/`, which command is correct?
  - (a) `cp report.txt /home/user/documents/`
  - (b) `mv report.txt /home/user/documents/`
  - (c) `move report.txt /home/user/documents/`
  - (d) `rn report.txt /home/user/documents/`
3. What does the command `mkdir -p project/docs/notes` do?
  - (a) Creates only the `notes` directory if `project/docs` exists.
  - (b) Creates all directories `project`, `docs`, and `notes` if they don't exist.
  - (c) Prompts before creating each directory.
  - (d) Creates a protected directory `notes`.
4. Which option for the `grep` command makes the search case-insensitive?
  - (a) `-c`
  - (b) `-i`
  - (c) `-s`
  - (d) `-v`
5. To list all files, including hidden files, in long format, which `ls` command is used?
  - (a) `ls -l`
  - (b) `ls -a`
  - (c) `ls -la`
  - (d) `ls -lh`

6. In Arch Linux and its derivatives, which command is used to install a package (e.g., `firefox`)?
  - (a) `apt-get install firefox`
  - (b) `yum install firefox`
  - (c) `pacman -S firefox`
  - (d) `dnf install firefox`
7. What is the primary purpose of the `sudo` command?
  - (a) To switch user.
  - (b) To execute a command as another user, typically the superuser.
  - (c) To search for files.
  - (d) To stop a running process.
8. Which command is used to remove a non-empty directory named `old_stuff` and its contents recursively without prompting?
  - (a) `rm old_stuff`
  - (b) `rmdir old_stuff`
  - (c) `rm -rf old_stuff`
  - (d) `del -r old_stuff`
9. What does the command `ls -l` display that `ls` alone does not?
  - (a) Only filenames.
  - (b) File permissions, owner, size, modification date, etc.
  - (c) Files sorted by size.
  - (d) Only hidden files.
10. To find lines containing the exact word "error" (not "errors" or "terror") in `log.txt`, which `grep` command is most appropriate?
  - (a) `grep error log.txt`
  - (b) `grep -w "error" log.txt`
  - (c) `grep -i "error" log.txt`
  - (d) `grep -v "error" log.txt`
11. How can you view the contents of a text file page by page in Linux?
  - (a) `cat filename`
  - (b) `less filename`
  - (c) `head filename`
  - (d) `tail filename`
12. Which command displays the current working directory?
  - (a) `cwd`
  - (b) `dir`
  - (c) `pwd`
  - (d) `path`
13. To rename `file1.txt` to `file2.txt`, you would use:
  - (a) `rename file1.txt file2.txt`
  - (b) `mv file1.txt file2.txt`
  - (c) `cp file1.txt file2.txt rm file1.txt`
  - (d) `rn file1.txt file2.txt`
14. The command `pacman -Syu` in Arch Linux is used to:
  - (a) Search for a package.
  - (b) Remove a package and its dependencies.
  - (c) Synchronize package databases and upgrade all installed packages.
  - (d) Install a specific new package.
15. If you try to remove a directory with `rm mydir` and it's not empty, what happens?
  - (a) The directory and its contents are removed.
  - (b) An error message is shown, and the directory is not removed.
  - (c) You are prompted to confirm removal for each file.
  - (d) Only the files are removed, the directory remains.
16. Which command shows the first 10 lines of a file?
  - (a) `first file.txt`
  - (b) `top file.txt`
  - (c) `head file.txt`
  - (d) `cat -n 10 file.txt`
17. The `chmod` command is used for:
  - (a) Changing file ownership.
  - (b) Changing file permissions.
  - (c) Changing file modification time.
  - (d) Checking disk usage.
18. What does `grep -c "pattern" file.txt` output?
  - (a) The lines containing "pattern".
  - (b) The count of lines containing "pattern".
  - (c) The line numbers where "pattern" is found.
  - (d) Lines not containing "pattern".
19. Which command would you use to find all files named `config.ini` within your home directory and its subdirectories?
  - (a) `grep config.ini ~/*`
  - (b) `ls -R ~/* | grep config.ini`
  - (c) `find ~ -name "config.ini"`
  - (d) `locate config.ini --home`
20. The `cat` command is primarily used to:
  - (a) Create new files.
  - (b) Concatenate and display file content.

- (c) Catalog files in a directory.  
(d) Compress files.
21. To execute **updatedb** which usually requires root privileges, you would type:
- (a) **root updatedb**  
(b) **admin updatedb**  
(c) **sudo updatedb**  
(d) **su updatedb**
22. Which option for **rm** makes it interactive, prompting before every removal?
- (a) **-f** (force)  
(b) **-i** (interactive)  
(c) **-r** (recursive)  
(d) **-v** (verbose)
23. The command **ls -ltr** will list files:
- (a) In long format, sorted by time (newest first), recursively.  
(b) In long format, sorted by time (oldest first).  
(c) In long format, sorted by type, then reverse.  
(d) In long format, with total size, then reverse.
24. What is the purpose of the **man** command?
- (a) To manage network connections.  
(b) To display the user manual of most commands.  
(c) To manually create files.  
(d) To monitor system processes.
25. Which command is used to change the current directory to the user's home directory?
- (a) **cd /home**  
(b) **cd ~** or just **cd**  
(c) **cd ..**  
(d) **cd /root**
- (d) **01101<sub>2</sub>**
28. The octal equivalent of the binary number **110101<sub>2</sub>** is:
- (a) **55<sub>8</sub>**  
(b) **65<sub>8</sub>**  
(c) **56<sub>8</sub>**  
(d) **35<sub>8</sub>**
29. Convert the hexadecimal number **A5<sub>16</sub>** to decimal.
- (a) **155**  
(b) **160**  
(c) **165**  
(d) **170**
30. The term "radix" in a number system refers to its:
- (a) Most significant digit.  
(b) Least significant digit.  
(c) Base.  
(d) Number of unique digits allowed.
31. What is the hexadecimal equivalent of the decimal number **42<sub>10</sub>**?
- (a) **2A<sub>16</sub>**  
(b) **A2<sub>16</sub>**  
(c) **20<sub>16</sub>**  
(d) **42<sub>16</sub>**
32. The binary equivalent of the octal number **73<sub>8</sub>** is:
- (a) **111011<sub>2</sub>**  
(b) **101111<sub>2</sub>**  
(c) **111001<sub>2</sub>**  
(d) **110111<sub>2</sub>**
33. Convert the decimal number **0.625<sub>10</sub>** to binary.
- (a) **0.101<sub>2</sub>**  
(b) **0.011<sub>2</sub>**  
(c) **0.110<sub>2</sub>**  
(d) **0.500<sub>2</sub>**
34. Which of the following is NOT a valid digit in the octal number system?
- (a) **0**  
(b) **7**  
(c) **8**  
(d) **1**
35. The hexadecimal number **1F<sub>16</sub>** is equivalent to which decimal number?
- (a) **20**  
(b) **30**  
(c) **31**  
(d) **19**
36. What is **101<sub>2</sub> + 11<sub>2</sub>**?

## Category B: Number Systems

26. The decimal equivalent of the binary number **10110<sub>2</sub>** is:
- (a) **20**  
(b) **22**  
(c) **26**  
(d) **18**
27. What is the binary representation of the decimal number **25<sub>10</sub>**?
- (a) **11001<sub>2</sub>**  
(b) **10011<sub>2</sub>**  
(c) **11010<sub>2</sub>**

- (a)  $1000_2$   
(b)  $110_2$   
(c)  $1001_2$   
(d)  $1010_2$
37. The number system with base 16 is called:  
(a) Binary  
(b) Octal  
(c) Decimal  
(d) Hexadecimal
38. What is the decimal value of the hexadecimal digit 'C' ?  
(a) 10  
(b) 11  
(c) 12  
(d) 13
39. Convert  $34_8$  to decimal.  
(a)  $24_{10}$   
(b)  $28_{10}$   
(c)  $32_{10}$   
(d)  $40_{10}$
40. The binary number  $10000_2$  represents which decimal number?  
(a) 8  
(b) 16  
(c) 32  
(d) 4
41. The positional value of a digit in a number system depends on:  
(a) The digit itself only.  
(b) The base of the system only.  
(c) Both the digit and its position, and the base of the system.  
(d) The total number of digits in the number.
42. Convert  $BEEF_{16}$  to binary. Each hex digit corresponds to how many binary digits?  
(a) 2  
(b) 3  
(c) 4  
(d) 8
43. The decimal value of  $110.1_2$  is:  
(a)  $5.5_{10}$   
(b)  $6.1_{10}$   
(c)  $6.5_{10}$   
(d)  $3.5_{10}$
44. Which of these is the largest number?  $100_{10}$ ,  $1100100_2$ ,  $F0_{16}$ ,  $200_8$ .  
(a)  $100_{10}$   
(b)  $1100100_2$  (Decimal 100)  
(c)  $F0_{16}$  (Decimal 240)  
(d)  $200_8$  (Decimal 128)
45. How many unique symbols (digits) are used in a base-7 number system?  
(a) 6  
(b) 7  
(c) 8  
(d) 10
- ### Category C: Python Fundamentals
46. What is the output of `print(type([]))`?  
(a) `<class 'tuple'>`  
(b) `<class 'list'>`  
(c) `<class 'set'>`  
(d) `<class 'dict'>`
47. Which of the following is a mutable data type in Python?  
(a) Tuple  
(b) String  
(c) List  
(d) Integer
48. What will be the output of the following Python code?  

```
my_set = {1, 2, 3, 3, 2}
print(len(my_set))
```

  
(a) 2  
(b) 3  
(c) 5  
(d) Error
49. Consider the code: `my_dict = {'a': 1, 'b': 2, 'c': 3}`. What does `my_dict.get('d', 0)` return?  
(a) `KeyError`  
(b) `None`  
(c) 0  
(d) 3
50. Which keyword is used to define a function in Python?  
(a) `func`  
(b) `define`  
(c) `def`  
(d) `function`

51. What is the output of: `print(list(range(1, 5)))`?
- (a) [1, 2, 3, 4, 5]
  - (b) [1, 2, 3, 4]
  - (c) [0, 1, 2, 3, 4]
  - (d) [1, 5]
52. Which of these is NOT a characteristic of a Python tuple?
- (a) Ordered
  - (b) Immutable
  - (c) Allows duplicate members
  - (d) Elements can be changed after creation
53. What does the `map()` function in Python primarily do?
- (a) Filters elements from an iterable based on a function.
  - (b) Applies a function to all items in an input iterable.
  - (c) Reduces an iterable to a single cumulative value.
  - (d) Creates a dictionary from two iterables.
54. What is the output of the following?
- ```
x = 5
if x > 2:
    print("A")
elif x > 4:
    print("B")
else:
    print("C")
```
- (a) A
  - (b) B
  - (c) C
  - (d) A B
55. How do you create an empty set in Python?
- (a) `s = {}` (This creates an empty dictionary)
  - (b) `s = set()`
  - (c) `s = []`
  - (d) `s = ()`
56. What will be the output of: `print("Hello", "World", sep="-")`?
- (a) Hello World-
  - (b) Hello-World
  - (c) -HelloWorld
  - (d) HelloWorld-
57. Which loop is better when you know the number of iterations in advance?
- (a) `while` loop
  - (b) `for` loop
  - (c) `do-while` loop (not directly in Python)
  - (d) `infinite` loop
58. What is a lambda function in Python?
- (a) A named function with multiple expressions.
  - (b) A small, anonymous function defined with the `lambda` keyword.
  - (c) A function that can only be used once.
  - (d) A function used for mathematical operations only.
59. What is the result of `my_list = [1, 2, 3]; my_list.append([4, 5]); print(len(my_list))`?
- (a) 3
  - (b) 4
  - (c) 5
  - (d) Error
60. Which statement is used to stop the current iteration of a loop and continue with the next one?
- (a) `break`
  - (b) `exit`
  - (c) `continue`
  - (d) `pass`
61. What is the primary difference between a list and a tuple?
- (a) Lists are ordered, tuples are unordered.
  - (b) Lists are mutable, tuples are immutable.
  - (c) Lists can store mixed data types, tuples cannot.
  - (d) Lists use `[]`, tuples use `()`.
62. The `filter()` function in Python returns:
- (a) A single value.
  - (b) A list of boolean values.
  - (c) An iterator containing elements for which the function returned true.
  - (d) The original iterable unchanged.
63. What will `print(my_tuple[1])` output if `my_tuple = (10, 20, 30)`?
- (a) 10
  - (b) 20
  - (c) 30
  - (d) (20,)
64. How are key-value pairs stored in Python?
- (a) List
  - (b) Set
  - (c) Tuple
  - (d) Dictionary

65. What is the output of the following code?

```
count = 0
while count < 3:
    print(count, end=" ")
    count += 1
```

- (a) 0 1 2
- (b) 1 2 3
- (c) 0 1 2 3
- (d) 0 1

66. Which of these functions from the 'functools' module is commonly associated with functional programming for accumulating results?

- (a) 'map'
- (b) 'filter'
- (c) 'reduce'
- (d) 'partial'

67. What does `my_dict.keys()` return for `my_dict = {'name': 'Alice', 'age': 30}`?

- (a) ['Alice', 30]
- (b) `dict_keys(['name', 'age'])` (or similar view object)

(c) `[('name', 'Alice'), ('age', 30)]`

(d) `TypeError`

68. If `s = "Python"`, what is `s[::-1]`?

- (a) "Python"
- (b) "nohtyP"
- (c) "" (empty string)
- (d) `Error`

69. Which of the following correctly creates a dictionary?

- (a) `d = ["apple": 1, "banana": 2]`
- (b) `d = {"apple": 1, "banana": 2}`
- (c) `d = ("apple": 1, "banana": 2)`
- (d) `d = <"apple": 1, "banana": 2>`

70. What is the output of `print(3 * 'abc' + 'xyz')`?

- (a) `abcabcxyz`
- (b) `abcbcabxyz`
- (c) `Error`
- (d) `9abcxyz`