

OSSA MID EXAM QUESTIONS

Sample Questions from Lecture 1: Introduction to Operating Systems

1. What are the main components of a computer system?

A) Hardware, Operating System, Application Programs, Users

B) CPU, Memory, I/O devices, Internet

C) Keyboard, Mouse, CPU, OS

D) BIOS, OS, Users, CPU

Answer: A

2. What is the primary function of an Operating System (OS)?

A) Execute programs efficiently and provide a user interface

B) Manage the computer's hardware and software resources

C) Control user access to the system

D) All of the above

Answer: D

3. Which system call is used to create a new process in UNIX?

A) exec()

B) fork()

C) kill()

D) wait()

Answer: B

Sample Questions from Lecture 2: Operating System Structure

4. Which of the following is a non-volatile storage?

A) Cache

B) Main Memory

C) Registers

D) Solid-state Disks

Answer: D

5. What is a Bootstrap Program?

- A) A program that handles hardware interrupts
- B) A small program that loads the operating system
- C) A system call to load programs into memory
- D) A type of virus

Answer: B

6. Which memory is the fastest in the hierarchy?

- A) Cache
- B) Main Memory
- C) Magnetic Disks
- D) Optical Disks

Answer: A

Sample Questions from Lecture 3: Processes

7. What is the state of a process when it is waiting for an event to occur?

- A) Running
- B) Ready
- C) Waiting
- D) Terminated

Answer: C

8. Which of the following is not part of a Process Control Block (PCB)?

- A) Process state
- B) Program counter
- C) CPU registers
- D) Network settings

Answer: D

9. What is inter-process communication (IPC)?

- A) Communication between threads
- B) Communication between processes within the same system or network
- C) Communication between operating systems
- D) Communication between a user and the system

Answer: B

Sample Questions from Lecture 4: CPU Scheduling

10. Which scheduling algorithm may suffer from the convoy effect?

- A) Shortest Job First (SJF)
- B) Round Robin (RR)
- C) First-Come, First-Served (FCFS)
- D) Priority Scheduling

Answer: C

11. Which of the following is preemptive scheduling?

- A) FCFS
- B) SJF
- C) Round Robin
- D) None of the above

Answer: C

12. What is the primary goal of CPU scheduling?

- A) Maximize CPU utilization
- B) Minimize CPU utilization
- C) Allow users to access I/O devices faster
- D) Ensure long-term scheduling fairness

Answer: A

Sample Questions from Lecture 5: UNIX Commands & Shell Programming

13. Which symbol is used to redirect standard output in UNIX?

- A) >
- B) <
- C) |
- D) &

Answer: A

14. What does the following command do: `echo "Hello" > file.txt`?

- A) Prints "Hello" to the screen
- B) Appends "Hello" to file.txt
- C) Overwrites file.txt with "Hello"
- D) Redirects errors to file.txt

Answer: C

15. Which command is used to view the current working directory in UNIX?

A) pwd

B) ls

C) cd

D) whoami

Answer: A

Sample Questions from Lecture 6: Shell Programming

16. Which of the following is used to create a new shell script in UNIX?

A) vi scriptname.sh

B) touch script.sh

C) cat > script.sh

D) All of the above

Answer: D

17. How do you change the shell prompt in UNIX?

A) PS1="new_prompt"

B) echo \$PS1

C) cd \$SHELL

D) bash new_prompt

Answer: A

18. In shell programming, which command reads user input?

A) input

B) read

C) scanf

D) write

Answer: B

Sample Questions from Lecture 6: Shell Programming (continued)

19. What does the command `chmod u+x script.sh` do?

A) Changes the file owner to user

B) Executes the script without saving

C) Adds execute permissions for the user on the script

D) Removes execute permissions from the script

Answer: C

20. Which special shell variable represents the exit status of the last executed command?

A) \$!

B) \$?

C) \$\$

D) \$@

Answer: B

21. In a shell script, what does the read command do?

A) It reads input from a file

B) It reads a single line of input from the user

C) It writes output to the terminal

D) It redirects output to a file

Answer: B

22. What is the output of the following shell script: `echo "Hello World" | tr 'a-z' 'A-Z'?`

A) hello world

B) HELLO WORLD

C) Hello World

D) Syntax error

Answer: B

23. Which command will append the output to a file without overwriting it?

A) >

B) <

C) >>

D) |

Answer: C

24. What does the following command do: `date | cut -d' ' -f1?`

A) Displays the current date

B) Cuts the first character from the date

C) Displays the day of the week from the current date

D) Removes spaces from the date output

Answer: C

25. What is the purpose of the case statement in shell scripting?

- A) It loops through a list of options
- B) It makes decisions based on multiple conditions**
- C) It terminates the script
- D) It executes background processes

Answer: B

26. What does the #!/bin/bash line at the start of a shell script indicate?

- A) It comments out the first line of the script
- B) It specifies the shell to interpret the script**
- C) It gives root permissions to the script
- D) It closes the script

Answer: B

27. In shell scripting, which command is used to terminate a script and return a status code?

- A) break
- B) exit**
- C) continue
- D) return

Answer: B

28. What is the output of the command `expr 5 + 3` in shell scripting?

- A) 8**
- B) 5+3
- C) Error
- D) 53

Answer: A

29. Which of the following commands can be used to list all environment variables?

- A) printenv
- B) env**
- C) echo \$ENV
- D) setenv

Answer: B

30. **What does the following command do: while [\$num -le 5]; do echo \$num; num=\$(expr \$num + 1); done?**

A) Prints numbers from 1 to 5

B) Prints numbers from 0 to 5

C) Loops indefinitely

D) Prints the number 5

Answer: B

31. **In a shell script, what is the meaning of \$0?**

A) The first argument passed to the script

B) The exit status of the last command

C) The name of the script itself

D) The PID of the current process

Answer: C

32. **Which of the following operators is used for comparison in a shell script?**

A) ==

B) eq

C) +

D) !=

Answer: B

33. **Which of the following is used to capture the output of a command and assign it to a variable in a shell script?**

A) var=command

B) var=\$(command)

C) var=>(command)

D) var<command

Answer: B

34. **What does the following command do: find /home -name "*.txt"?**

A) Finds all text files in the current directory

B) Finds all text files in the /home directory and subdirectories

C) Creates a new text file in /home

D) Deletes all text files in /home

Answer: B

35. In shell scripting, which of the following denotes a loop that continues until a condition becomes true?

- A) for loop
- B) while loop
- C) until loop
- D) case loop

Answer: C

36. Which command will display the contents of a file page by page in a shell?

- A) cat
- B) more
- C) head
- D) echo

Answer: B

37. What is the effect of running `chmod 755 script.sh`?

- A) No effect
- B) Sets read, write, and execute permissions for the owner, and read/execute for group and others
- C) Grants execute permission only to the owner
- D) Makes the file hidden

Answer: B

38. What does the pipe | symbol do in UNIX commands?

- A) Redirects the output of one command to a file
- B) Combines multiple commands into one
- C) Sends the output of one command as input to another command
- D) Terminates the current command

Answer: C

39. Which command is used to schedule a task in UNIX to run at a specific time?

- A) cron
- B) at
- C) time
- D) schedule

Answer: A

40. What does the following shell script output? for i in {1..5}; do echo \$i; done

A) 1 2 3 4 5

B) 5 4 3 2 1

C) i

D) Error

Answer: A

Sample Questions from Lecture 6: Shell Programming (continued)

41. What is the purpose of the && operator in a shell command?

A) It terminates a command

B) It runs the next command only if the previous command was successful

C) It runs two commands simultaneously

D) It redirects output to a file

Answer: B

42. Which command is used to check the disk usage of a directory in UNIX?

A) df

B) du

C) ls

D) diskfree

Answer: B

43. What is the output of the following command: echo \$((5 + 3))?

A) 5+3

B) 8

C) Error

D) 53

Answer: B

44. What is the output of expr 10 / 2 in shell scripting?

A) 5

B) 10/2

C) 2

D) Error

Answer: A

45. In UNIX, which command is used to terminate a process using its PID?

A) kill

B) end

C) exit

D) stop

Answer: A

46. Which command is used to view a file's permissions in UNIX?

A) chmod

B) ls -l

C) ps

D) cat

Answer: B

47. Which command in UNIX is used to print the last few lines of a file?

A) tail

B) head

C) grep

D) cat

Answer: A

48. Which command is used to search for a specific pattern in a file in UNIX?

A) cat

B) find

C) grep

D) search

Answer: C

49. What is the output of the following command: `echo "abc def" | cut -d ' ' -f2?`

A) abc

B) def

C) abc def

D) Error

Answer: B

50. What does the export command do in shell scripting?

- A) Exports the output of a command to a file
- B) Sets environment variables
- C) Runs a process in the background
- D) Terminates a process

Answer: B

51. What will the command ps display in UNIX?

- A) A list of all running processes
- B) A list of all files in the current directory
- C) Disk usage statistics
- D) Memory usage statistics

Answer: A

52. In UNIX, what does the mkdir command do?

- A) Creates a new file
- B) Deletes a directory
- C) Creates a new directory
- D) Moves a directory

Answer: C

53. Which command will change the owner of a file in UNIX?

- A) chmod
- B) chown
- C) cp
- D) mv

Answer: B

54. What does the following command do: ls -a?

- A) Lists all files, including hidden files
- B) Lists only hidden files
- C) Lists files in alphabetical order
- D) Lists only directories

Answer: A

55. In UNIX, which command is used to display the manual page for a command?

A) man

B) help

C) doc

D) info

Answer: A

56. Which shell command allows you to view the first few lines of a file?

A) head

B) tail

C) cat

D) grep

Answer: A

57. What does the command `rm -rf /` do?

A) Removes all files in the root directory forcefully and recursively

B) Reboots the system

C) Lists all files in the root directory

D) Moves all files to the trash

Answer: A

58. In shell scripting, what is the purpose of a for loop?

A) To execute a series of commands once

B) To repeatedly execute commands for a fixed number of iterations

C) To check conditions without looping

D) To set environment variables

Answer: B

59. What is the meaning of the `$?` variable in a shell script?

A) The process ID of the current shell

B) The exit status of the last executed command

C) The arguments passed to the script

D) The current working directory

Answer: B

60. What does the following command do: `touch filename.txt`?

A) Deletes filename.txt

B) Creates an empty file filename.txt

C) Opens filename.txt

D) Appends content to filename.txt

Answer: B

61. In shell scripting, which of the following statements allows decision-making?

A) if

B) while

C) for

D) echo

Answer: A

62. What is the purpose of the cron command in UNIX?

A) To display the contents of a file

B) To schedule tasks to run at specific times

C) To delete files

D) To create a new directory

Answer: B

63. Which of the following symbols is used to send a process to the background in UNIX?

A) &

B) |

C) ;

D) #

Answer: A

64. In shell programming, what does \$# represent?

A) The number of arguments passed to the script

B) The process ID of the script

C) The exit status of the last command

D) The name of the script

Answer: A

65. What is the correct syntax to declare a function in a shell script?

A) function_name() { commands }

- B) `function function_name { commands }`
- C) `func function_name() { commands }`
- D) `command() { function_name }`

Answer: A

66. Which command is used to compare two files line by line in UNIX?

- A) `cmp`
- B) `diff`
- C) `cat`
- D) `echo`

Answer: B

67. Which command in UNIX is used to monitor real-time system performance?

- A) `top`
- B) `grep`
- C) `ps`
- D) `df`

Answer: A

68. What does the `nohup` command do in UNIX?

- A) Sends a process to the background
- B) Allows a process to continue running after logout
- C) Kills a process
- D) Lists processes in the background

Answer: B

69. What is the purpose of the `echo` command in a shell script?

- A) Reads input from the user
- B) Outputs text to the terminal
- C) Deletes a file
- D) Copies files between directories

Answer: B

70. What is the output of the following command: `seq 1 5`?

- A) 12345
- B) 1 2 3 4 5

C) 54321

D) Error

Answer: B

Sample Questions from Lecture 6: Shell Programming (continued)

71. Which of the following symbols is used to comment out a line in a shell script?

A) #

B) //

C) ;;

D) %%

Answer: A

72. What does the sleep command do in a shell script?

A) Pauses the script for a specified number of seconds

B) Shuts down the system

C) Terminates a process

D) Puts the script in the background

Answer: A

73. In shell scripting, what does continue do inside a loop?

A) Stops the loop

B) Continues execution of the remaining commands in the loop

C) Skips the rest of the commands in the current loop iteration and starts the next iteration

D) Exits the script

Answer: C

74. Which command is used to display a calendar in UNIX?

A) cal

B) calendar

C) date

D) time

Answer: A

75. What is the purpose of the trap command in a shell script?

A) To catch and handle signals during script execution

- B) To start a process in the background
- C) To set environment variables
- D) To create a new file

Answer: A

76. Which of the following commands is used to extract a column from a text file?

A) cut

- B) grep
- C) sed
- D) awk

Answer: A

77. What will be the output of this shell script: for i in {1..3}; do echo "Loop \$i"; done?

A) Loop 1 Loop 2 Loop 3

- B) Loop Loop Loop
- C) 123
- D) Error

Answer: A

78. What does the awk command primarily deal with?

- A) File searching
- B) Pattern scanning and processing**
- C) Data backup
- D) Printing files

Answer: B

79. Which of the following commands is used to replace text in a file using a regular expression?

- A) cut
- B) sed**
- C) grep
- D) awk

Answer: B

80. In shell scripting, what does the break command do in a loop?

A) Ends the loop execution entirely

- B) Pauses the loop for a fixed time
- C) Skips to the next iteration of the loop
- D) Restarts the loop

Answer: A

81. Which command is used to display the current time in UNIX?

A) date

- B) time
- C) clock
- D) now

Answer: A

82. What does the following command do: touch newfile.txt?

- A) Deletes the file newfile.txt
- B) Edits the file newfile.txt

C) Creates an empty file named newfile.txt if it doesn't exist or updates the timestamp if it does

- D) Displays the content of the file newfile.txt

Answer: C

83. Which command is used to rename a file in UNIX?

- A) cp
- B) mv**
- C) rn
- D) rename

Answer: B

84. What is the purpose of the /etc/passwd file in UNIX?

- A) Stores user passwords
- B) Stores user account information**
- C) Stores system logs
- D) Stores system passwords

Answer: B

85. Which of the following commands will delete a directory in UNIX?

- A) rm -rf directoryname

B) rmdir directoryname

C) del directoryname

D) A and B

Answer: D

86. Which command is used to find the current working directory in UNIX?

A) ls

B) pwd

C) whoami

D) cd

Answer: B

87. What is the difference between > and >> in UNIX?

A) > appends to a file, while >> overwrites the file

B) > overwrites the file, while >> appends to the file

C) > moves a file, while >> copies it

D) They perform the same function

Answer: B

88. Which command will display the number of lines in a file in UNIX?

A) wc -l

B) nl

C) count

D) grep -c

Answer: A

89. What does the ln command do in UNIX?

A) Creates symbolic or hard links between files

B) Lists files in the current directory

C) Deletes a file

D) Creates a new file

Answer: A

90. Which of the following commands is used to clear the terminal screen in UNIX?

A) clear

B) cls

- C) reset
- D) refresh

Answer: A

91. What does the df command display in UNIX?

- A) Disk space usage
- B) Free memory
- C) File permissions
- D) Directory structure

Answer: A

92. What will be the output of this shell command: echo \$USER?

- A) Displays the current username
- B) Displays the current user's home directory
- C) Displays the root directory
- D) Displays all users on the system

Answer: A

93. What does the umask command do?

- A) Sets default file permissions for newly created files and directories
- B) Changes file ownership
- C) Modifies a file's permissions
- D) Lists file attributes

Answer: A

94. Which command is used to display the IP address of your machine in UNIX?

- A) ipconfig
- B) ifconfig
- C) netstat
- D) route

Answer: B

95. What does the history command show in UNIX?

- A) The list of files accessed
- B) The command history of the current session
- C) The system's boot log

D) A list of users logged in

Answer: B

96. **Which of the following is the correct syntax to redirect both stdout and stderr to a file in UNIX?**

A) `command > file 2>&1`

B) `command >> file 1&2`

C) `command > file 1>&2`

D) `command 2>>file 1&2`

Answer: A

97. **What will the command `ps aux` display in UNIX?**

A) The list of active network connections

B) The list of processes currently running, along with detailed information

C) The amount of disk space being used

D) The list of all available system users

Answer: B

98. **What is the purpose of the `/var/log` directory in UNIX?**

A) Stores user files

B) Stores system logs and other log files

C) Stores system configuration files

D) Stores executable system programs

Answer: B

99. **Which of the following commands is used to view the contents of a compressed file in UNIX?**

A) `tar -tvf`

B) `zcat`

C) `unzip`

D) `cat`

Answer: B

100. **Which command can be used to change both the group and owner of a file in UNIX?**

A) `chown`

B) `chmod`

C) chgrp

D) cmod

Answer: A