**General Instructions:**

* **Follow the instructions given in each section.**
* **Make sure that you attempt the questions in order.**

**SECTION-A (10\*1 mark=10 marks)**

***(All questions are compulsory)***

Q1. What is GCC?

a. A programming language

**b. A compiler**

c. An operating system

d. An IDE

Q2. Which command is used to compile a C program using GCC?

a. gcc -e program.c

b. gcc -c program.c

c. gcc -o program.c

**d. gcc program.c**

Q3. Which option of the gcc command is used to include header files?

a. -l

**b. -I**

c. -h

d. -a

Q4. What is the default output file name when a C program is compiled using GCC?

**a. a.out**

b. program.out

c. program.exe

d. output.bin

Q5. Which command is used to run an executable file generated by GCC?

a. run program

b. execute program

c. ./program

d. program.exe

Q6. Which option of the gcc command is used to display warnings during compilation?

a. -w

b. -Wall

c. -Werror

d. -Wno-error

Q7. What is the purpose of time stamping in GCC?

a. To track the number of times a program has been compiled

b. To measure the time taken to execute a program

c. To compare the modification times of the source and object files

d. To generate a unique identifier for a program

Q8. Which command is used to display the version of GCC installed on a system?

a. gcc -v

b. gcc --version

c. version gcc

d. gcc -version

Q9. Which option of the gcc command is used to optimize the compiled code for speed?

a. -O0

b. -O1

c. -O2

d. -O3

Q.10 Which option of the gcc command is used to link a program with a shared library?

a. -static

b. -dynamic

c. -shared

d. -o

**SECTION-B (10\*2 mark=20 marks)**

***(All questions are compulsory)***

Q1. What is the default shell used in Linux?

**A. Bash**

B. Csh

C. Ksh

D. Zsh

Q2. Which of the following is the correct syntax for a variable assignment in a shell script?

A. var = value

B. var =value

C. var= value

**D. var=value**

Q3. What is the purpose of the "chmod" command in Linux?

**A. To change the permissions of a file or directory**

B. To create a new file or directory

C. To rename a file or directory

D. To move a file or directory

Q4. What is the "$?" variable represent in a shell script?

A. The PID of the last executed command

**B. The exit status of the last executed command**

C. The name of the current user

D. The current working directory

Q5. Which of the following commands will create a new directory called "testdir" in the current directory?

**A. mkdir testdir**

B. touch testdir

C. cp testdir

D. mv testdir

Q6. What is the maximum length of a file name in Linux?

a. 128 characters

**b. 256 characters**

c. 512 characters

d. 1024 characters

Q7. Which command is used to create a new directory in Linux?

**a. mkdir**

b. touch

c. rm

d. rmdir

Q8. What is the purpose of the "sudo" command in Linux?

a. to switch to the root user

**b. to execute a command with elevated privileges**

c. to display system information

d. to list the contents of a directory

Q9. Which command is used to search for a file or directory in Linux?

**a. find**

b. grep

c. locate

d. which

Q10. Which command is used to display the contents of a file in Linux?

**a. cat**

b. echo

c. touch

d. mkdir

**SECTION-C() (4x5 marks=20 marks)**

Q1.Write a shell script that uses a do-while loop to repeatedly prompt the user to enter a password until they enter a correct one. The correct password is "open sesame". If the user enters an incorrect password, the script should display an error message and ask them to try again. When the correct password is entered, the script should exit with a success status code.

Ans: #!/bin/bash

password="open sesame"

entered\_password=""

while [ "$entered\_password" != "$password" ]

do

echo "Enter the password: "

read entered\_password

if [ "$entered\_password" != "$password" ]; then

echo "Error: Incorrect password. Try again."

fi

done

echo "Success: Access granted!"

exit 0

Q2. You are a computer science student working on a Windows operating system. You have written a C++ program to calculate the factorial of a given number, and you want to compile and execute it using the GCC compiler. How would you compile and execute the program on Windows using the GCC compiler?

Ans- To compile and execute the C++ program using the GCC compiler on Windows, you

need to follow these steps: g++ program\_name.cpp -o program\_name.exe

To execute the program, type the following command in the terminal: ./program\_name.exe

Q3. Print a square pattern of asterisks with it’s side as n.

Example n=5

\*\*\*\*\*

\*\*\*\*\*

\*\*\*\*\*

\*\*\*\*\*

\*\*\*\*\*

Ans: #!/bin/bash

# This script prints a square pattern of asterisks

read n

for (( i=1; i<=n; i++ ))

do

for (( j=1; j<=n; j++ ))

do

echo -n "\*"

done

echo ""

done

Q4.

a. How do you view the exit status of a command in Linux?

Answer: To view the exit status of a command in Linux, you can use the echo

command with the special shell variable $?.

b. What is the importance of exit status in shell scripts?

ans: The exit status of a command or program is essential in shell scripts as it helps to determine whether the script execution was successful or not. The exit status can be used to make decisions based on the outcome of the command or program execution.

**SECTION-C (1x10 marks=10 marks)**

Q1.

1. What is the difference between compilation and execution of a program?

ans : Compilation is the process of translating source code into machine code, while execution is the process of running the compiled program.

1. What is the purpose of the -o flag in GCC?

ans : Answer: The -o flag specifies the output file name for the compiled program.

1. What is the difference between static and dynamic linking?

ans : Static linking links libraries into the executable file, while dynamic linking links libraries at runtime.

1. What is the purpose of time stamping?

ans : The purpose of time stamping is to provide a reference point for when an event

occurred, allowing for accurate sequencing of events and enabling the tracking of

time-sensitive information.

1. What are some challenges associated with time stamping?

ans : Challenges associated with time stamping include maintaining accuracy and consistency across multiple systems, dealing with time synchronization issues in distributed environments, and ensuring data integrity and security.