U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E. **Semester: V**
Branch: Computer Science And Engineering **Duration: 3 hrs.**
Course Code: 20CS5PCUSP **Max Marks: 100**
Course: Unix Shell and System Programming **Date: 23.09.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may suitably assumed.

UNIT - I

1 a) Explain with a figure, the kernel and shell relationship in UNIX operating system. **05**

b) i) Write the output of the following commands **05**
- cal 8 1979
- echo "Today date is `date`"
- date "Date is: %d %h %y"

ii. Write the commands to perform the following
- Change the current directory to home directory
- Change to parent of parent directory

c) With the help of a neat diagram, explain the parent child relationship with respect to UNIX file system. **05**

d) Discuss any five ordinary file handling commands with an example. **05**

UNIT - II

2 a) Write a shell program to perform a simulated cp command. Proceed this program using positional parameter and the usage will be the form of copy <source-file> <target-file> and ensure that parameters are properly used. **05**

b) Write a shell script which takes current directory files and perform the following (Use Case) **10**
- Convert all .txt extension files to .doc extension
- Move all the zero size files to another directory

c) Write a shell script that receives any number of file names as arguments checks if every argument supplied is a file or directory and reports accordingly. Whenever the argument is a file, it reports no of lines present in it. **05**

OR

3 a) Explain positional parameters and role of set and shift command with an example. **06**

b) Write a shell script that receives even number of filenames as its arguments and copies the contents of the files at the odd-numbered positions on to the files at the following even-numbered positions. If odd number of filenames is supplied then copying does not take place, instead an error message will be displayed. **08**

c) Write a shell script to copy multiple files to a directory. **06**

UNIT - III

4 a) Translate the following permissions to octal code and discuss the command used for changing the owner of a file as well as the group of a file **06**

i. rwxr-x- -x
ii. r-xr-xr-x
iii. - -xrwx—x

b) Write a shell script which will greet you "Good Morning"," Good Afternoon", "Good Evening' and "Good Night" according to current time. **06**

c) Write a shell script that takes certain filenames as it arguments and searches for a specific word in these files one by one. It stops as soon as the search word is found on a file and reports the name of the file. In case search word is not found on any of the input files, a suitable message will be displayed. **08**

UNIT - IV

5 a) Implement a C program to emulate the mv UNIX command using system call. **05**

b) Write a C program that displays the contents of a directory, specifying the type for each of its files. The name for the directory should be an input parameter. **10**

c) Discuss Lock promotion and Lock splitting. **05**

UNIT - V

6 a) How are shared libraries used? What are the advantages and disadvantages? **05**

b) Identify the functionality of the following functions **05**

```
pid_t getpid(void);
pid_t getppid(void);
uid_t getuid(void);
uid_t geteuid(void);
gid_t getgid(void);
```

c) Write a C/C++ program to create a FIFO. Read from a file and write into another file. Skip digits while writing as well convert all lowercase characters to uppercase characters. **10**

OR

7 a) The following is the parent process **05**

```
int increment=0;
ans=fork();
if (ans ==0)
{
  printf ( “Increment value in child program is =%d”, increment);
}
else
{
increment =increment +1;
}
```

Analyze the above code and write the value of increment for child and parent process after execution of above code.

b) Discuss different process termination methods and write a C program to demonstrate how exit handlers are registered to handle different task during exit. **10**

c) Explain client -server communication using a FIFO. **05**

****