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

Autonomous Institute Affiliated to VTU

JAN / FEB - 2021 Semester End Main 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: 04.02.2021**

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) List and explain the salient features of UNIX operating system **10**

b) Analyse the differences between Internal & External commands **05**

c) Identify the commands for the following requirements and explain the same: **05**

i. Copy the entire directory by name CSE located in /usr/temp/BMSCE to the current directory
ii. Rename all the files interactively starting from class01, class02
iii. Remove the files in the directory /home/kumar/prgm from the home directory
iv. Display the common contents between two files chap01 and chap02
v. Display an octal dump (both character and its value) for the content of file "abc.txt"

abc.txt

```
White space is
Newline Char is
Tab is
```

UNIT - II

2. a) List all shell parameters and explain their significance **05**

b) Write the syntax of case conditional statement and write a shell script that simulates the simple basic calculator **10**

c) Identify the errors in the given script, list them and rewrite the correct script **05**

```
 script
Echo  "there are ls no of directories"
a=30
b=20
c=a * b
echo "The Product=%d", p
script -app USP
cat USP
```

OR

3. a) Using if-else statement, write a shell script to display the Pass Grade of a student. Read three subject marks. **10**

   i. If the average marks are more than or equal to 90, then display 'S' grade.
   ii. If the average marks between 75 to 90, then display 'A' grade
   iii. If that is between 60 to 75 then display 'B' grade.
   iv. If the average marks scored by the student is less than 40, then display fail.

   b) Write a shell script to print the following pattern **10**

```
     #
    ##
   ###
  ####
 #####
######
```

UNIT - III

4. a) Differentiate between hard link and soft link **05**

   b) List and explain any five wildcards available in Shell **05**

   c) Write a shell script to perform string-related tests. Read the variables "patname" for pattern and "fname" for file and perform the following operations **10**

   i. If the pattern is null, then display "null string is entered" and exit from the script
   ii. If file is null, then display "file name is not entered" and exit from the script
   iii. If pattern and file names, together are not null, then run the script to search for a pattern in a file and display those lines containing the pattern else display "at least one input was null" exit from the script.

UNIT - IV

5. a) List the differences between ANSI C and K & R C. Discuss any 2 differences in detail **10**

   b) Write a C/C++ program that illustrates the use of fcntl( ) for file locking **10**

UNIT - V

6.	a)	What are setjmp and longjmp function? Explain with a program to transfer the control across functions using them.	**10**
	b)	Write a C/C++ program that prints the POSIX-defined configuration all options supported on any given system using POSIX feature test macros	**10**

OR

7.	a)	With a neat diagram, explain how a C program is started and how it terminates	**10**
	b)	Write a C/C++ program that send the data from parent to child over a pipe	**05**
	c)	Write a C/C++ program that illustrates the usage of vfork( ) function	**05**

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