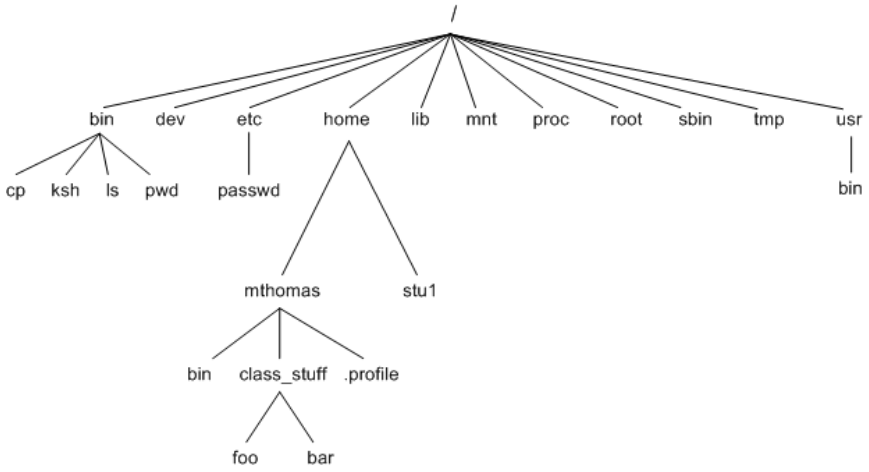
	B.M.S. COLLEGEOF ENGINEERING, BANGALORE-19 (Autonomous Institute, Affiliated to VTU) **Department Name: Computer Science & Engineering**

FIRST INTERNALS		
CourseCode: 20CS5PCUSP	**CourseTitle: Unix Shell & System Programming**	
Semester: 5th A, B, C	**MaximumMarks: 40**	**Date:22/10/2020**
Faculty Handling the Course:	Prof. Vikranth B. M and Prof. Saritha A. N	
Instructions: ***Internal choice is provided in Part C.***		

PART-A

[CO-1, PO-1, BL -2]

Total 5 Marks (No choice)

Q. No	Question	Marks
1	With a neat diagram, explain the UNIX parent-child relationship. **Solution: Diagram-2M** **Explanation: 3M**  	5

PART-B

[CO-2, PO-2, BL -4]

Total 15 Marks (No Choice)

Q. No	Question	Marks

2a)	Analyse the differences between Internal and External commands with an example **Solution: Differences- 5M** Internal commands are the built in commands of the shell. Which means that when you execute an internal command, no process will be launched to execute the command. Therefore the speed of executing an internal command will be very high. Example – cd,pwd,echo etc. External commands are those command which are stored as a separate binaries. Shell starts separate sub-process to execute them. Most external commands are stored in the form of binaries in /bin directory. To execute external command shell check $PATH variable . If command present in the location mentioned in $PATH variable shell will execute it , otherwise it will give error. example – ls,mv,cat etc. type utility can be used to check whether a command is internal or external. if the command is internal, the output will say that the command is shell builtin. If the command is external, the output will give you the path to the command.	**5**

2b)	Identify the commands for the following requirements and explain the same
	Solution:
	i) Copy the entire directory by name CSE located in /usr/temp/BMSCE to the current directory
	
	$pwd
	/home/bmsce/CSE
	$cp –r /usr/temp/BMSCE
	
	ii) Rename all the files interactively starting from class01, class02
	$ mv -i class01, class02
	
	iii) Remove the files in the directory /home/kumar/prgm from the home directory
	
	$ rm –rf /home/kumar/prgm
	
	iv) Display the common contents between 2 files chap01 and chap02
	
	$ comm chap01 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
		5

	$ od –bc abc.txt	
2c)	Identify the errors in the given script, list them and rewrite the correct script script Echo "Today's date is `date' " a=30 b=20 c=a * b echo "The Product=%d", p script -app USP cat USP **Solution:** Errors: 1) Capital E in 2nd line Echo 2) date command has to be enclosed with set of backticks/backquotes 3) c should be used instead of product p 4) -a should be used instead of -app 5) exist should be used before executing cat USP	**5**

PART- C

[CO-3, PO-3, BL - 6]

Total 20 marks (Answer any one question in Q.no 3 and 4)

Q. No	Question	Marks
3a	Write the syntax of case-conditional statement. Using "case", write a Shell script to perform the basic arithmetic operations on two integer nos. But the quotient has to be displayed in 3 decimal precisions. Default case is mandatory. **Solution: syntax + script : 5+5** case word in pattern1) Statement(s) to be executed if pattern1 matches ; ; pattern2) Statement(s) to be executed if pattern2 matches ; ; pattern3) Statement(s) to be executed if pattern3 matches ; ; *) Default condition to be executed ; ; esac clear echo ----------	**10**

	echo '\tEvaluation of Arithmetic expression' echo ---------- echo Enter the a value read a echo Enter the b value read b echo 1.Addition echo 2.Subtraction echo 3.Multiplication echo 4.Division echo 5.Modules echo Enter your choice read choice case $choice in 1) echo Addition : $(expr $a + $b); ; 2) echo Suubtraction : $(expr $a - $b); ; 3) echo Multiplication : $(expr $a * $b); ; 4) echo Division : scale=3; $(expr $a / $b); ; 5) echo Modules : $(expr $a % $b); ; *) echo This is not a choice esac	
	OR	
3b	Write a shell script to check for a the pattern in a file using command line arguments such as $0, $1, $2. If the pattern is found in a file, then display the message that pattern is found and also display those lines containing the pattern. If pattern is not found then display the message saying pattern is not found. **Solution: 10** !/bin/sh #Echo "Enter the Filename" #Read $1 #Echo "Enter the pattern" #Read $2 Grep "$2" $1 || echo "pattern Not found in file" Echo "pattern displayed as shown above	**10**
4a	Write a shell script to perform string related tests. Read the variables "patname" for pattern and "fname" for file. Perform the following operations 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	**10**

	else display "at least one input was null" exit from the script. **Solution: 3+3+4** #!/bin/sh Echo “Enter the Filename” Read fname Echo “Enter the pattern” Read pattrn If [-z pname] Then Echo “"null string is entered"” exit Elif [-z fname] Then Echo "file name is not entered" exit	
	OR	
4b	Write a Shell script to display the Pass Grade of a student. Read three subject marks. Use if-else statement. i) If the average marks is 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. **Solution: 10** echo "enter the name" read name echo "enter the student number" read no echo "enter the marks m1,m2,m3 " read m1 m2 m3 total=`expr $m1 + $m2 + $ m3` avg=`expr $total / 3` if [$avg -lt 40] then echo "fail" elif [$avg -ge 90] then echo "S grade" elif [$avg -ge 60 && $avg -le 75]	**10**

	then echo "B grade " elif [$avg -ge 75 && $avg -le 90] echo "A grade " fi fi fi	

***** ALL THE BEST*****