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**B.TECH. III SEM MAIN/BACK (NEW SCHEME)**  
**ACADEMIC SESSION 2023-24**

**COMPUTER SCIENCE AND ENGINEERING-III**  
**And Other Branches**

**3CS4-06 - Linux and Shell Programming**

**Common to CS, IT**

Time : 3 Hours]

[Max. Marks : 70

[Min. Passing Marks :

**Instructions to Candidates :**

**Part-A :** Short Answer Type Questions (up to 25 words)  $10 \times 2 = 20$  marks. All 10 questions are compulsory.

**Part-B :** Analytical/Problem Solving questions  $5 \times 4 = 20$  marks. Candidates have to answer 5 questions out of 7.

**Part-C :** Descriptive/Analytical/Problem Solving questions  $3 \times 10$  marks = 30 marks. Candidates have to answer 3 questions out of 5.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of the following supporting materials is permitted during examination.  
 (Mentioned in form no. 205).

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**Part-A**

10×2=20

- Q. 1. What do you mean by pipe in Unix ?
- Q. 2. What do you mean by super user how it differs from normal user in Unix/Linux based systems ?
- Q. 3. Explain the functionalities of NULL or USET variables.
- Q. 4. What do you mean by awk utility ?
- Q. 5. How user is created in Unix/Linux system ?
- Q. 6. Explain cp and mv command and what is difference between them ?
- Q. 7. Write and explain Unix/Linux command to remove directory with files and without files.
- Q. 8. Who mathematical expressions are evaluated in shell script ?
- Q. 9. What do you mean by filters, explain with help of example ?
- Q. 10. Explain chmod command.

**Part-B**

5×4=20

- Q. 1. Write a Note on evolution of Linux and Unix system.
- Q. 2. Explain umask and its role in permission authorization for the users.
- Q. 3. Write a shell script to display the following pattern :

```
*  
* *  
* * *  
* * * *  
* * * * *
```

- Q. 4. In shell script, how looping operations are performed, explain with help of syntax and example ?

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- Q. 5. What do you mean by text editor ? Explain vi editor along with its various commands.
- Q. 6. Explain various text processing commands.
- Q. 7. Explain the compiling & linking C, C ++ programs and usage of make utility.

**Part-C**

3×10=30

- Q. 1. What do you mean by system calls ? Explain various file management system calls with diagrams.
- Q. 2. What do you mean by operators ? List and explain logical operators used in shell scripting.
- Q. 3. What do you mean by directory in Unix/Linux based systems and explain various directory API's used for directory management ?
- Q. 4. Write a shell script to make a basic calculator (using case to choose user input) to performs addition, subtraction, multiplication, division and modula operator.
- Q. 5. How software or application is installed in Linux/Unix based system Explain following software packages :
- (i) apt-get
  - (ii) rpm
  - (iii) dpkg

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