CP 211: Introduction to Linux/Unix Systems
Practical Test Questions– Shell Scripting

Time: 40 Minutes
Instruction: Attempt ANY TWO (2) questions.
All questions carry equal marks.

Question 1: System Information Script
Write a shell script that:

i. Displays:
   - Current logged-in user
   - Current working directory
   - Current date and time

ii. Saves the output into a file called system_info.txt.
iii. Displays the number of lines contained in system_info.txt.

Question 2: User Account Verification Script
Write a shell script that:

i. Accepts a username as input.
ii. Checks whether the username exists in /etc/passwd.
iii. If the user exists:
   - Display the user ID information using an appropriate command.

iv. If the user does not exist:
   - Display the message: "User does not exist".

Question 3: Simple User and Group Script
Write a shell script that:

1. Accepts a group name and a username.
2. Checks if the group exists.
3. If the group does not exist, create it.
4. Add the specified user to the group.
5. Display all groups the user belongs to.

(*Use standard user and group management commands. Avoid non-standard utilities.*)

Question 4: File Permission Script
Write a shell script that:

i. Creates a file named *secure.txt*.
ii. Sets permissions such that:
   - Owner has read, write, and execute permissions.
   - Group has read permission only.
   - Others have no permissions.

iii. Displays the permission string using ls -l.

Question 5: Text Processing Script

Write a shell script that:

i. Accepts a filename as input.
ii. Checks whether the file exists.
iii. Displays:
    - Total number of lines in the file.
    - Total number of words.
    - All lines containing the word "Linux" (case insensitive).

Question 6: /etc/passwd Processing Script

Write a shell script that:

i. Extracts usernames from /etc/passwd.
ii. Displays them in alphabetical order.
iii. Displays the total number of users.
iv. Displays only users whose default shell is /bin/bash.

(*Use tools such as cut, grep, sort, wc, or awk.*)

Question 7: Backup Script

Write a shell script that:

i. Creates a directory named *backup*.
ii. Copies all *.txt* files from the current directory into backup.
iii. Creates a compressed archive named *backup.tar* from the backup directory.
iv. Displays a confirmation message after completion.

(*Use tar. Avoid advanced compression options if not supported.*)

Question 8: Active Users Script

Write a shell script that:

i. Displays currently logged-in users.
ii. Removes duplicate usernames.
iii. Displays the total number of active users.

(*Use standard tools such as who, sort, uniq, wc.*)

Question 9: Basic Calculator Script

Write a shell script that:

i. Accepts two integers.
ii. Performs:
    - Addition
    - Subtraction

- Multiplication
- Division

iii. Prevents division by zero.
iv. Displays results clearly.

(*Use shell arithmetic expansion. Do NOT use bc.*)

Question 10: Loop and Pattern Script

Write a shell script that:

i. Accepts a positive integer.
ii. Displays a right-angled triangle of * of that height.

Example (Input: 4):

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

iii. Displays the total number of lines printed.