### Linux Mid Exam

#### Part 1: Theoretical Questions (40% of total grade)

1. File Types and Directory Structure:
   * Describe the differences between the following file types in Linux: regular file, directory, symbolic link.
   * What are the typical purposes of these directories: /usr, /etc, /boot, /var, /dev?
2. Basic Filesystem Commands:
   * Explain the usage of pwd, ls, cd, mkdir, rmdir, and touch. Give an example of when you might use each command.
3. Pipes and Filters:
   * Explain the concept of a pipe in Linux. How does it differ from simple command execution?
   * Provide an example of a command line that uses a pipe, including grep, awk, and sort.
4. Permissions:
   * Explain the difference between symbolic and numeric syntax for the chmod command. Provide an example of how to change a file’s permissions to "read and write for owner, read for group, and no access for others" using both syntaxes.

#### Part 2: Practical Tasks (60% of total grade)

1. Directory and File Management:
   * Create a directory structure ./exam/files/test under the current user's home directory.
   * Within the test directory, create a text file named notes.txt and write "JB mid exam notes for Linux" into it using command-line tools.
2. Using Basic FS Commands:
   * In the test directory, create a backup of notes.txt named backup\_notes.txt.
   * List all files in the test directory showing detailed information, including hidden files.
   * Show the disk usage of the test directory in a human-readable format.
3. Implementing Pipes and Filters:
   * From the test directory, use a pipe to display the first 5 lines of /etc/passwd that contain the letter 'v' and sort them in reverse order.
4. Set File Permissions:
   * Change the permissions of notes.txt to be readable and writable by the owner, and readable by the group, using numeric syntax.
   * Verify the permissions have been set correctly using commands.