


<b>Name:</b> <b>Enrolment No:</b>			
<b>UPES</b> <b>End Semester Examination, May 2024</b>			
<b>Course: DevOps Automation</b> <b>Program: B.Tech. CS+DevSecOps</b> <b>Course Code: CSDV 2008</b>		<b>Semester: IV</b> <b>Time : 03 hrs.</b> <b>Max. Marks: 100</b>	
<b>Instructions:</b>			
<b>SECTION A</b> <b>(5Qx4M=20Marks)</b>			
S. No.		Marks	CO
Q 1	Describe the role of automation in DevOps.	4	CO1
Q 2	Suggest open source tools for: i. Source Version Control ii. Continuous integration iii. Code Quality Analysis iv. Automated Builds	4	CO1
Q 3	Explain the significance of testing in software development.	4	CO1
Q 4	Assume a file named "data.txt" has the following permissions: -rwxr-x---. If a user belonging to the group "developers" attempts to access the file, what actions can they perform? Provide the binary (numerical) representation of the permissions for each category (owner, group, others) and explain the access rights granted or denied.	4	CO2
Q 5	Answer following: i. Name a package manager commonly used in Debian-based Linux distributions. ii. What command is used to create a new user account in Linux?	4	CO3
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b>			
Q 6	Identify common tasks in software development and IT operations that can benefit from automation.	10	CO1
Q 7	You've been tasked with setting up a secure shared directory for a project team called "marketing_campaign" to collaborate on campaign materials, including graphics, documents, and presentations. The team consists of five members: user1, user2, user3, user4, and user5. Each member should have read and write access to the shared directory, while ensuring that files created by any team member are accessible to all other members of the team. <b>Task:</b> I. Create a group named "marketing_campaign" to facilitate collaboration among team members.	10	CO2

	<p>II. Add the five users (user1, user2, user3, user4, and user5) to the "marketing_campaign" group.</p> <p>III. Set up a shared directory named "campaign_materials" with appropriate permissions so that members of the "marketing_campaign" group can read, write, and execute files within it.</p> <p>IV. Configure the setgid bit on the "campaign_materials" directory to ensure that new files created within it inherit the group ownership of the parent directory.</p> <p>V. Verify that the setup is correctly configured by checking the group memberships of users and confirming the permissions on the "campaign_materials" directory.</p> <p>Provide detailed step-by-step instructions, including the specific commands and options to execute, to accomplish the above tasks.</p>		
Q 8	<p>Explain the role of crontab in scheduling recurring tasks in Unix/Linux systems.</p> <p>“MarketPlus ltd” company generates weekly reports summarizing sales data for management review by running the script “Report.sh”. Develop a cron expression to schedule the automatic generation of these reports every Monday morning at 8:00 AM.</p> <p>And the company wants to set up automated email reminders for team meetings every Friday afternoon. The content and email configuration is there is the file “ScheduledMeeting.sh”. Develop a cron expression to schedule the sending of email reminders every Friday at 3:00 PM.</p> <p>&lt;Note: No need to write code for .sh files&gt;</p>	5+5	CO2
Q 9	<p>Explain the role of package management on Linux systems.</p> <p>OR</p> <p>Explain the package management tool Yum/Apt in Linux.</p>	10	CO3
<p><b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b></p>			
Q 10	<p>Explain the importance of monitoring CPU usage as key performance metrics in a Linux system. Provide examples of commands or tools used to monitor this.</p>	20	CO4
Q 11	<p>Discuss the advantages of Automation Scripts. Develop a script to automate backup rotation and management. The script should maintain a backup sets, remove outdated backups, and organize backup files into directories based on date or other criteria</p> <p>OR</p> <p>Explain targets, dependencies and phony targets, and when are they used in a Makefile? You have a C project consisting of three source files: main.c, functions.c, and utilities.c. Write a Makefile to compile these source files into an executable named myprogram. Additionally, ensure that any changes to header files (functions.h and utilities.h) trigger recompilation of dependent source files.</p> <p>I. Define targets for compiling individual source files and linking them into the final executable.</p> <p>II. Include dependency rules to handle header file changes.</p> <p>III. Use phony targets for cleaning up object files and the executable.</p> <p>Note: No need to write code for c files.</p>	20	CO2