Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **17CS2044** | **Duration :** | **3hrs** |
| **Sub. Name :** | **INTRODUCTION TO SYSTEM ADMINISTRATION** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Describe the reason for keeping Linux commands under different directories /bin, /sbin and /usr. Sketch the Linux file system hierarchy standard and describe the first level directories. | CO1 | 10 |
| b. | Outline role of X window system in integrating desktops such as GNOME or KDE. | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | Illustrate modes of vi editor and any eight vi editor commands using appropriate examples. | CO1 | 10 |
| b. | The /app directory contains the following files. Write the necessary commands to perform the given tasks. Each operation should be solved by single command.  drwxr-xr-x 2 john users 6 Oct 17 19:51 data  -rw-r--r-- 1 john users 0 Oct 17 19:51 main.cpp   * perform the following in “main.cpp”   + add execute permission to owner   + add execute permission to group and other users   + remove the execute permission of other users   + add write permission to group   + assign rwx for owner, r for group and no permissions for others * perform the following in the “data”   + remove the execute permission of all users   + add write permission to group   + remove read permission of group and other users   + assign rwx to owner and no permissions to group and other users   + add read permission to group and other users | CO1 | 10 |
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| 3. | a. | The fruit.txt file has the following fruit details. Using the fruit details demonstrate any ten different applications of sed filter.  Indian apples 20  Indian oranges 5  German watermelons 12  US oranges 9  US peaches 7  Japan oranges 12  Australia grapes 39  Burma mangoes 7  Japan pineapples 3  China rockmelons 2  Sweden limes 14 | CO1 | 10 |
| b. | Review the following with necessary examples:   * kernel’s role in process management * life cycle of a process * bg and fg commands * increase and decrease the nice value of a process using renice * starting a process with nice level and top. | CO1 | 10 |
| **(OR)** | | | | |
| 4. | a. | Discuss the awk command with commonly used options and structure of awk script using an example. | CO1 | 10 |
| b. | Discover the correct commands to perform the following   * start gedit in the foreground * stop the gedit from the command line * print the job id of gedit * run gedit in the background * print the process id of gedit * kill gedit * start gedit with the nice value of 5 * change the nice value of gedit to 8 * print the relationship between all process * list the process associated with a terminal | CO1 | 10 |
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| 5. | a. | Assume that an organization XYZ has kept server1 in India and server2 in London. The administrator in India needs to connect with server2 using ssh. Illustrate the ssh connection process step by step using necessary figures and command examples. | CO3 | 10 |
| b. | Assume that the administrator of the XYZ organization needs to perform a recurring backup job. Illustrate the use of cron and its options using necessary diagrams and examples. | CO6 | 10 |
| **(OR)** | | | | |
| 6. | a. | Write necessary commands to perform the following operations:   * send 4 packets of icmp echo request to the server ftp.google.co.in * print the route packets trace to network host ftp.google.co.in * mirror the www.karunya.edu website using wget * download a website www.karunya.edu with 2 levels of links using wget * sync “/*data” directory with “*/backup/data/” using rsync * connect ftp.karunya.edu in command line * download centos7.iso from ftp.karunya.edu using ftp get. * Upload OpenSUSE-Leap15.iso to ftp.karunya.edu * list all the files of /software directory of ftp.karunya.edu * perform a remote copy the file ubuntu18.iso from server1 to server 2. | CO3 | 10 |
| b. | Assume that you have added 1TB hard disk to a running Linux server using hot plug option. Provide the steps to create partition using fdisk. Use the following partitioning scheme and size. Also provide the necessary entries required in fstab to mount each partition automatically.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Partition | Type | File System | Size | Mount point | | 1 | Primary | Ext3 | 100G | /data | | 2 | Primary | Ext4 | 200G | /data-backup | | 3 | Extended |  | 700G |  | | 4 | Logical | Btrfs | 300G | /website-backup | | 5 | Logical | XFS | 200G | /files | | CO6 | 10 |
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| 7. | a. | Describe the boot process of modern Linux operating system with a neat sketch. | CO1 | 10 |
| b. | Assess the importance of boot loader configuration and securing the boot menu edit option. | CO1 | 10 |
| **(OR)** | | | | |
| 8. | a. | Identify the appropriate rpm commands to perform the following operations query the package information, install, upgrade, upgrade if installed already, and erase for the downloaded rpm file anaconda-32.7-1.fc32.aarch64.rpm. Provide explanation for each option. | CO2 | 10 |
| b. | Identity correct Linux commands to perform the following:   * create a user named tux * set password to tux * modify the user’s description as “web app developer” * delete the user tux along with his home directory * create a group web-dev * add web-dev as the secondary group of tux * create a user joe with a primary group web-dev * modify the web-dev group as node-web-dev * set password for the group node-web-dev * create user tom with an id 5001 | CO5 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Outline the user security issues in production Linux machines. | CO3 | 10 |
| b. | Outline the importance of DHCP server and its components for a larger user and desktop usage scenario. | CO3 | 10 |