B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2025
Eighth Semester
Information Technology
20ITEL801 - FREE AND OPEN SOURCE SOFTWARE TOOLS
Regulations - 2020

Duration: 3 Hours   Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)
Answer ALL Questions

		Marks	K–Level	CO

1. How does community-based software development benefit the growth of a project? — 1, K1, CO1
   (a) By restricting contributions to a limited group
   (b) By encouraging open collaboration and peer review
   (c) By limiting access to the source code
   (d) By keeping the development process confidential

2. Which of the following is NOT a benefit of community-based software development? — 1, K1, CO1
   (a) Open collaboration   (b) Increased software transparency
   (c) Dependence on a single vendor   (d) Rapid security patches

3. Why is GRUB preferred over LILO as a bootloader in modern Linux systems? — 1, K1, CO2
   (a) GRUB supports more filesystems and advanced features
   (b) GRUB does not require manual configuration
   (c) LILO is more flexible than GRUB
   (d) GRUB is only used in Windows systems

4. Which of the following tools is commonly used for creating bootable USB drives for Linux installation? — 1, K1, CO2
   (a) MS Word   (b) Rufus   (c) VLC Media Player   (d) Notepad++

5. How can you configure the X Windows System to change the default display settings? — 1, K1, CO3
   (a) By modifying the /etc/x11/xorg.conf file (b) By restarting the system in safe mode
   (c) By deleting the root user account   (d) By uninstalling the X Windows System

6. Why is it important to implement a backup and restore procedure? — 1, K1, CO3
   (a) To prevent data loss in case of system failures   (b) To improve CPU performance
   (c) To reduce internet bandwidth usage   (d) To make the system boot faster

7. How can you declare a scalar variable in Perl? — 1, K1, CO4
   (a) var $name;   (b) $name = "John";
   (c) string name = "John";   (d) declare $name = "John";

8. How can you handle runtime errors in Perl using eval? — 1, K1, CO4
   (a) By wrapping the code inside eval { } and checking $@ for errors
   (b) By using try-catch blocks like in Java
   (c) By ignoring the errors completely
   (d) By using exit(1); after every statement

9. When should developers use a bug tracking system? — 1, K1, CO5
   (a) Only after software deployment
   (b) During the entire software development lifecycle
   (c) Only when there are major issues in production
   (d) Only before software testing

10. Why is package management important in Linux-based systems? — 1, K1, CO6
    (a) It automates software installation and dependency resolution
    (b) It speeds up the internet connection
    (c) It helps in debugging Python scripts
    (d) It prevents software from being uninstalled

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create   **13405**

PART - B (12 × 2 = 24 Marks)
Answer ALL Questions

11. Define the four degrees of freedom in free software.	2	K1	CO1
12. List any four examples of FOSS software.	2	K1	CO1
13. How do you check hardware compatibility before installing Linux?	2	K2	CO2
14. Show the steps of the Linux boot process from startup to login.	2	K1	CO2
15. Interpret why troubleshooting X Windows System issues is crucial for Linux users.	2	K2	CO3
16. Compare full backup and incremental backup in Linux.	2	K2	CO3
17. Label the key differences between Lists and Hashes in Perl.	2	K2	CO4
18. Why is Object-Oriented Perl beneficial for large-scale applications?	2	K1	CO4
19. What are the key features of an effective bug tracking system?	2	K1	CO5
20. Compare distributed and centralized version control systems.	2	K2	CO5
21. Recall two key characteristics of open-source software.	2	K1	CO6
22. Infer the importance of community-driven development in the sustainability of LibreOffice.	2	K2	CO6

PART - C (6 × 11 = 66 Marks)
Answer ALL Questions

23.	a)	Explain the concept of Free and Open Source Software and its significance in modern software development.	11	K2 CO1
		OR		
	b)	Illustrate the differences between various FOSS licenses such as GPL, AGPL, LGPL, and FDL with suitable examples.	11	K2 CO1
24.	a)	Explain in detail a secure and efficient boot process for a Linux system by configuring LILO or GRUB.	11	K2 CO2
		OR		
	b)	Interpret a strategy for setting up a dual-boot system with Linux and another operating system.	11	K2 CO2
25.	a)	Construct a system administration plan for configuring the X Windows System and managing backup and restore procedures in Linux.	11	K3 CO3
		OR		
	b)	Apply various security strategies to protect a Linux server from potential threats and attacks.	11	K3 CO3
26.	a)	Organize different types of data in Perl interact with operators and variable interpolation to enhance program functionality.	11	K3 CO4
		OR		
	b)	Developing a web application using Perl CGI. Explain how CGI modules handle form data processing and security.	11	K3 CO4
27.	a)	Construct a structured development workflow using Argo UML for design and Git for version control to enhance team collaboration.	11	K3 CO5
		OR		
	b)	Utilize the importance of Package Management Systems in modern software development and how they help in dependency management.	11	K3 CO5
28.	a)	Select the impact of LibreOffice on the open-source software ecosystem and its role as an alternative to proprietary office suites.	11	K3 CO6
		OR		
	b)	Identify the best practices for deploying and configuring Samba in a corporate network environment.	11	K3 CO6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create