Central University of Haryana
VI Semester Term End Examination, June/July 2023
B.Tech. Programmes
Branch: Computer Science and Engineering

Course Code: BT CS 622 Max Time: 3 Hours
Course Title: Unix and Linux Programming Max Marks: 70

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) Mention the command to zip a folder in Linux. (2 marks)
(b) Mention the command to open the calendar of 20 July 2023. (2 marks)
(c) Difference between grep, egrep, and fgrep. (2 marks)
(d) What is gcc compiler? (2 marks)
(e) How to debug using gdb? (2 marks)
(f) Differentiate between at, batch, cron? (2 marks)
(g) How linux I/O system works? (2 marks)

PART –II

Q. No. 2 Explain any 7 file oriented commands in detail.

OR

Q. No. 2 Discuss about various types of shells in Unix/Linux system.

(14 marks)

Q. No. 3 Explain regular expression pattern command with examples.

OR

Q. No. 3 Describe about AWK with a suitable example.

(14 marks)

Q. No. 4 What is debugging? How is gdb tool helpful to find the bugs in Linux programming?

OR

Q. No. 4 What do you mean by static and dynamic libraries? How is dynamic memory management performed in Linux?

(14 marks)

Q. No. 5 What is firewall? How does it helps to restrict unauthorized access of information?

OR

Q. No. 5 Explain job control commands in Linux with examples.

(14 marks)

Central University of Haryana
Term End Examination JUNE 2023
B.Tech Programmes
Branch: Computer Science and Engineering

Course Code: BT CS 604 A — **Max Time: 3 Hours**
Course Title: Data warehouse and Data mining — **Marks:70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 Write sort notes on each of the following items:

(a) Star schema and Snowflake schema.
(b) What is the need for developing data warehouse?
(c) Data Visualization.
(d) Integration.
(e) Constraint Based Frequent Pattern Mining.
(f) DBSCAN.
(g) Naïve Bayes Method.

PART –II

Q. No.2 (a) Discuss the various schematic representations in multidimensional model.
Q. No.2 (b) differences between OLAP and OLTP.

OR

Q. No.2 (a) briefly explain major issues and challenges of Data Mining.
Q. No.2 (b) Explain the different components of a data warehouse.

Q. No.3 (a) Discuss the activities of data cleaning with the process associated with it.
Q. No.3 (b) Can you briefly describe the four stages of Knowledge Discovery (KDD)?

OR

Q.No.3 (a) what is the need of Data Pre-processing? Discuss various forms of pre-processing
Q.No.3 (b) what do you mean by data reduction techniques? Discuss attribute subset selection method with the help of suitable example.

Q. No.4 what are association rules? Define frequent Sets, Support and Confidence. Discuss importance of discovering association rules.

OR

Q. No .4 what is the "Apriori property"? How it is used by the Apriori Algorithm? Explain the limitation of Apriori Algorithm.

Q. No.5 Discuss in detail about the Bayesian and decision tree classifier.

OR

Q. No.5 List out the differences between classification and clustering methods with example.

Central University of Haryana
IV/VI & Re-Appear VI Semester Term End Examination June/July 2023
B.Tech. Programmes
Branch: Computer Science and Engineering

Course Code: BT CS 602A
Course Title: Compiler Design

Max Time: 3Hrs.
Max Marks:70

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 2 x 7=14M

(a) Discuss various phases of a compiler .

(b)What is an Operator Precedence grammar.

(c) Discuss Transition diagram with example.

(d) Explain the concept of function overloading.

(e) What is a Recursive Descent Parsing?

(f) Define L-Attribute and S-Attribute.

(g)What is the Peep-Hole Optimization?

PART –II

Q. No.2

a) What is a Translator? Differentiate between Interpreter and Compiler. 7M

b) What are the two parts of compilation? Discuss in detail with diagram. 7M

OR

Q. No.2.

a) Discuss all issues in lexical analysis. Differentiate between lexeme, pattern and token. 7M

b) Show that the grammar S -> 0S1| SS |ϵ is ambiguous. 7M

Q. No.3

a) Differentiate between SLR, LALR and CLR. 7M

b) What is syntax directed translation? Write the semantic rules for conversion from Binary to Decimal conversion of a number. 7M

OR

Q: No 3

a) What is a parsing? Discuss all types of parser in detail. 8M

b) Explain LL(1) grammar for the sentence

'S-> iEts | iEtSeS |a E->b 6M

Q. No.4

a) Explain the concept of parameter passing in run time system. 7M

b) What do you mean by operators overloading? 7M

OR

Q. No .4

a) What is type checking and type conversion? Explain by taking an example. 7M

b) Define Dynamic Storage Allocation in run time system. 7M

Q. No.5

a) Translate the given expression into Quadruples, triples and indirect triples

$$x = (a + b) * (c - d) + (a * b - c) * b.$$

And list advantages and disadvantages. 7M

b) Differentiate various techniques used for machine independent and dependent optimizations. 7M

OR

Q. No.5. Write a short note on-

a) DAG 4M

b) Basic blocks and Flow Control 5M

c) Loop Optimization 5M

Central University of Haryana

Even Semester Term End Examination June-July 2023

B.Tech. Programmes

Branch: Computer Science & Engineering

Course Code: BT CS 633 Max Time: 03 Hr.

Course Title: Distributed System Max Marks: 70

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

a) List the characteristics of the distributed system?

b) What are the different types of switching used in computer networking?

c) Write a short note on the quality of service in distributed systems.

d) What are Software and hardware service layers in distributed systems?

e) What is the difference between RMI and RPC?

f) What are the Distributed file system requirements?

g) What is a napster file system?

PART –II

Q. No. 2 Explain the various challenges of distributed systems. Explain how inter-process communication is handled in UNIX/Linux Operating System?

OR

Q. No. 2 Describe in detail about client-server communication with suitable diagrams.

Q. No. 3 Explain in detail about Remote Procedure call with a case study

OR

Q. No. 3 **(a)** Discuss about threads in distributed systems

(b) Discuss about the distributed file system.

Q.No. 4 Discuss in detail about deadlock and locking schemes in concurrency control.

OR

Q.No. 4 What are the significant factors affecting the interacting processes in distributed systems? how does the interaction model deal with the difficulty of setting time limits in a distributed system? Explain.

Q.No. 5 **(a)** Name all modules of file system operations and write in detail about distributed file system requirements.

(b) Discuss the mounting issues of remote file systems on NFS client.

OR

Q. No. 5 **(a)** Describe the internal and external synchronization of Physical clocks.

(b) Explain the Chandy and Lamports snapshot algorithm for determining the global states of distributed systems.

Central University of Haryana
Term End Examination JUNE 2023
B.Tech. Programmes
Branch: Computer Science and Engineering

Course Code: BT CS 603 A
Course Title: Software Engineering

Max Time: 3 Hours
Marks: 70

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 Write sort notes on each of the following items:

(a) List of Software Engineering Challenge

(b) Write characteristics of software process.

(c) Role of architect.

(d) Staffing Level Estimation

(e) ISO 9000 and CMM

(f) Refactoring.

(g) Unified Modelling language language.

PART –II

Q. No.2 (a) Explain Software life cycle of spiral model and discuss various activities in each phase.

Q. No.2 (b) what is functional and non-function requirement?

OR

Q. No.2 (a) Explain about software engineering paradigm in details.

Q. No.2 (b) Describe SDLC Model with diagram.

Q. No.3 (a) Difference between cohesion and coupling.

Q. No.3 (b) Explain briefly about project management in detail.

OR

Q. No. 3 (a) List and Explain the step in risk management process.

Q. No.3 (b) Define Project size Estimation.

Q. No.4 how can we estimate the cost of software using COCOMO Modal? A company needs to develop digital signal processing software for one of its newest inventions. The software is expected to have 40000 lines of code. The company needs to determine the effort in person-months needed to develop this software using the basic COCOMO model. The multiplicative factor for this model is given as 2.8 for the software development on embedded systems, while the exponentiation factor is given as 1.20. What is the estimated effort in person-months?

OR

Q. No .4 Define various type of metrics.

Q. No.5 Discuss the Various Black box and white box testing technique with suitable example.

OR

Q. No.5 Discuss Software testing strategies. Differentiate between Verification and Validation.

Central University of Haryana
Even Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Computer Science & Engineering

Course Code: BT CS 601A
Course Title: Principle of Operating System

Max Time:3 hour
Max Marks:70

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

[2X7=14]

Q. No.1
a. What are the two main purposes of an operating system?.
b. What is the purpose of system calls?
c. Briefly explain the binary semaphores.
d. Define the term Waiting time and Response time in reference to scheduling algorithms.
e. Explain race condition in synchronization.
f. Explain starvation with example.
g. Discuss the threat logic bomb.

PART –II

Q. No.2
a. Explain in detail about the Storage-device hierarchy in operating system. [7]
b. Using diagram explain the Multiprocessor computer system architecture in detail. [7]

OR

c. What is process control block. Using diagram explain its working in detail [8]
d. Discuss the following (a) Multiprogramming and (b) Multitasking. [3+3]

Q. No.3
a. Discuss Readers-Writers problem? Give a solution and code to the Readers-Writers problem. [9]
b. Explain all the scheduling criteria based on which performance of the CPU scheduling algorithms are evaluated. [5]

OR

c. The following processes are being scheduled using a preemptive, round-robin scheduling algorithm

Process	Priority	Burst	Arrival
P_1	40	20	0
P_2	30	25	25
P_3	30	25	30
P_4	35	15	60
P_5	5	10	100
P_6	10	10	105

Each process is assigned a numerical priority, with a higher number indicating a higher relative priority. In addition to the processes listed above, the system also has an idle task (which consumes no CPU resources and is identified as **Pidle**). This task has priority 0 and is scheduled whenever the system has no other available processes to run. The length of a time quantum is 10 units. If a process is preempted by a higher-priority process, the preempted process is placed at the end of the queue.

i. Show the scheduling order of the processes using a Gantt chart.
ii. What is the turnaround time for each process?
iii. What is the waiting time for each process?

[14]

Q. No.4

a. The information in the file can be accessed in several ways. In this regard discuss different file access methods in detail. [14]

OR

b. Explain how the bit vector, linked list, and grouping free-space list are implemented? Use examples to explain the details. Discuss also the advantages and disadvantages of each technique.
c. Discuss the working of Tree Structured Directory. [10+4]

Q. No.5

a. Write short notes on the following: (a) Protection Domain, (b) Protection Matrix, (c) Access Control List, (d) Two Factor Authentication.

[3+3+4+4]

OR

b. Explain the symmetric key and Asymmetric Key Cryptography. [4]
c. The most sophisticated types of threats to computer systems are presented by programs that exploit vulnerabilities in computing systems. In this respect discuss the common methods like Trojan horse, Ransomware code-injection, virus, and worms by which programs cause security breaches. [10]