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326408

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B.Sc. (MATHS & COMPUTING) IV SEMESTER

Design of UNIX Operating System (BCG–204–V)

Time : 3 Hours] [Maximum Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any **four** questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART–A

1. (a) Define Operating system. (1.5)

   (b) Differentiate between UNIX & LINUX. (1.5)

   (c) Differentiate between file and directory in UNIX. (1.5)

   (d) List various permissions in Unix. (1.5)

   (e) What is a superblock? (1.5)

   (f) Who is a superuser in Unix? (1.5)

   (g) Differentiate between swapping & paging in UNIX. (1.5)

(h) What is a shell? (1.5)

(i) Differentiate between a process and a program. (1.5)

(j) What is a kernel in UNIX? (1.5)

PART–B

2. (a) Explain, in detail, the significant features of Unix Operating System. (10)

   (b) What is an Inode? Explain the need of accessing and releasing inodes. (5)

3. (a) With the help of a diagram, explain the process state transition cycle. (10)

   (b) Describe the working of Fair Share Scheduler. (5)

4. (a) Define File in UNIX. Explain various types of files and the structure of a regular file in Unix. (10)

   (b) Explain process subsystem in UNIX. (5)

5. (a) Write a shell script to print all prime numbers between 1-200. (10)

   (b) Explain data structures used for Demand Paging. (5)

6. (a) Explain various types of scheduling supported by Unix. (10)

   (b) Define System administration. Explain the role of a system Manager. (5)

7. Write short notes on (any **3**) : (5×3=15)

   (a) Page Stealer Process.

   (b) I/O Redirection.

   (c) Layout of System Memory.

   (d) File Subsystem in Unix.
