KINGS

COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
ACADEMIC YEAR 2011- 2012 / ODD SEMESTER

Question Bank

Subject Code/Name: CS1005-Unix Internals
Year / Sem: IV / VII

UNIT I- GENERAL OVERVIEW OF THE SYSTEM

Part A - 2 MARKS

1. Define shell and mention the properties of UNIX OS.
2. Mention the use of the fork System call and command “Passwd”
3. Differentiate between Exceptions & interrupts.
4. List the building block primitives of UNIX with Examples.
5. Kernel said to be non-preemptive comment.
6. Define Swpping&paging
7. Advantages and disadvantages of kernel data Structure
8. Define pathname component
9. Differentiate user mode & kernel mode

10 Draw a diagram process Execution levels.

11. What are the 3 levels of UNIX operating system?
12. Define System call interface
13. What are the subsystems of UNIX Os
14. Define Zambia State process transition
15. Define Sleep and Wakeup

Part B (16 Marks)

1. (a)Explain the details about UNIX System Architecture. (8)

(b)Briefly details about System Structure . (8)

2. Explain the details Operating System services. (16)
3. Explain the details about process states & state Transition. (16)
4. Explain the details about system concepts (16)
5. Explain Assumption about Hardware (16)
6. Explain the details about the User perspective (16)

UNIT II- BUFFER CACHE

Part A (2 MARKS)

1. Define pipes
2. Define major & minor number
3. Define buffer cache.
4. Mention the use of LSEEK System call.
5. Write the I/O parameters saved in the U area.
6. Define Inode Cache
7. What does the kernel in buffer read-ahead?
8. List out the various status of the buffer.
9. State the advantages and disadvantages of buffer cache
10. Define inode.
11. List the data structures and their relationship when a regular file is opened
12. Define free list
13. What are the fields of super block?
14. Define super block
15. Define directories.

Part B 16 Marks

1. Explain in detail about the structure of regular file (16)

2.(a) Explain the algorithm for converting the path name to inode (8)

(b) Explain the system call used for creating the special files (8)

3. Write notes on

a) Directories (8)

b) Super blocks (8)

4. (a) Explain the details about buffer headers . (8)

(b) Explain the structure of buffer pool (8)

UNIT III- SYSTEM CALLS FOR FILE SYSTEM

Part B 16 Marks

1. Define named and unnamed pipe
2. Define major and minor number
3. Define inode cache
4. List the data structures and their relationship when opening a regular
5. Explain file and record locking.
6. Explain on Lseek.
7. Define inode.
8. What is a system call and give 2 eg's.
9. Define pipe
10. Define dup.
11. Define close system call and their syntax.
12. Define Mounting system call and their syntax.
13. Define Un Mounting system call and their syntax.
14. Define write system call and their syntax
15. Define open system call and their syntax

Part B (16 Marks)

1. Discuss the concepts of pipes and DUP system call (16)
2. Explain how a file is mounted and unmounted from the file structure (16)
3. (a) Discuss the open system call and algorithm (8)

(b)Discuss the close system call and algorithm (8)

4. (a) Discuss the read system call and algorithm (8)

(b) Discuss the write system call and algorithm (8)

5. (a) Briefly explain file creation concepts (8)

(b) Short notes on File locking & Record Locking (8)

UNIT IV- THE STRUCTURE OF PROCESSES

Part A (2 MARKS)

1. Define signals
2. Define context of the process
3. Define system boot.
4. Define init process
5. What are the first 3 steps of process states and transition
6. What are the fields of process table
7. Define context switch
8. Define pages and page tables
9. What is mean by region
10. Define U area
11. Define interrupts
12. Define Exception
13. define Abort process
14. define process groups
15. Give one example of Exit

Part B 16 Marks

a process, one when getting hold a region, one during execution
and one while relinquishing it back (16)

2. Describe the state transition that a process undergoes during its lifetime (16)

3. (a) Every process maintains a private U area. Describe how 1. What is region? state any 3 region system calls that are invoked by
the
U area is maintained with the help of register triples. (8)

(b)Write short notes on Signals (8)

4. Discuss the context of a process in detail (16)

5. Write the algorithm involved in creating a new process and explain it (16)

6. Write and explain the algorithm for booting the system (16)

UNIT V- PROCESS SCHEDULING AND MEMORY MANAGEMENT POLICIES

Part A (2 MARKS)

1. Define scheduling
2. Define swapping
3. Define demand paging
4. Define system calls and give examples
5. Explain user priorities and kernel priorities
6. Examples of process scheduling
7. Define fair share group priorities
8. Explain real time processing
9. Define clock interrupts and function
10. Define map
11. Discuss briefly the parameter related to process scheduling

12. Write a brief note on the Page stealer process
13. What is the process of swapping process out.
14. Define Fork Swap
15. Define Expansion Swap

Part B 16 Marks

1. Explain process scheduling (16)
2. What is the function of a clock interrupt handler?
Details any 3 function along with the system calls and their data structures (16)
3. What are the data structures related to paging (16)
4. What is page fault? Discuss the page fault related to validity fault and
Details all the cases when the page is faulted. (16)
5. Write short notes on
    a. Allocations of swap space (8)
    b. Swapping processes out (8)
6. (a) Explain briefly the concepts involved in driver interface (8)
    (b) Write short notes on terminal drivers (8)
7. Write detail notes on disk drivers (16)