PART – A Questions

1. What is meant by multiprogramming?

2. List the fields of the buffer header.

3. The inodes does not specify_____-

4. What is the syntax for the open system call?

5. Define pages

6. Define parent and child process.

7. List the three parts of the swapping algorithm

8. The UNIX system contains _____ & _____ device.

9. What is the use of the kill system call?

10. What is the significance of sockets?

11. State the meaning of *sleep* and *wakeup* states of a process.

12. List the various fields of a buffer header.

13. What is an *inode*? List any two contents of an *inode*.

14. What is the use of *lseek* system call? How does it differ from the *read* and *write* system calls?

15. What is context of a process? What does it contain?

16. How is a process created by a user (in the UNIX OS)?

17. List the three major steps performed by the swapping algorithm.

18. What are the two types of devices the UNIX system contains?

19. List any two system calls for messages.

20. Give the syntax of a *bind* system call used in sockets.

21. State any one advantage and disadvantage of buffer cache

22. What is meant by U-area or U-Block?

23. State the difference between in-core inode and buffer header

24. Define named and unnamed pipe

25. Difference between exception and interrupt

26. Define system boot

27. What is thrashing?

28. State the service provided by itocl system call

29. _____ system call facilitates debugging process

30. What is shared memory

31. Define shell programming.

32.   Write scenarios of retrieval of a buffer.

33.   How to convert pathname to an INODE?

34.   Give syntax for fork call.

35.   Define Context switch.

36.   What are the modes of process execution?

37.   What is disk driver?

38.   _____handles the memory hierarchy.

39.   List any two system calls for messages.

40.   What is critical region?

41.   What are the essential Unix Commands?

42.   Write the difference between Buffer Cache and Buffer headers.

43.   Draw the block diagram of file structure.

44.   Compare File System vs VM Systems.

45.   What are the states of a process?

46.   What do you mean by process hierarchy?

47.   Write the advantages and disadvantages of page size.

48.   How should page fault be handled?

49.   Define Socket.

50.   What is the significance of network communications?

51.   What are essential Unix Commands?

52.   Differentiate between Buffer Cache and Buffer headers.

53.   Draw the Block Diagram of File Structure.

54.   Compare File Systems Vs VM Systems.

55.   What are the States of a Process?

56.   What do you mean by process hierarchy?

57.   Write the advantages and disadvantages of page size.

58.   How to handle page fault?

59.   Define Socket.

60.   Write about Network Communications.

61.   What is meant by process?

62.   What are the contents of buffer header?

63.   What is the difference between in-core inode and buffer header?

64.   What is the syntax for write system call?

65.   The context of a process is a union of its _____, _____ and _____.

66.   What is the syntax for kill system call?

67.   Write the two types of page faults.

68.   What is the syntax for IOCTL system call?

69.   What is the purpose of shmget system call?

70.   What are the elements of semaphore in UNIX system V?

71.   What are the parts of the UNIX system?

72.   List the components of UNIX file system.

73.   When the kernel releases the inode, it decrements its _____.

74.   What is the purpose of Link system call? Write its syntax.

75.   What is PS? What is its purpose?

76.   What is the format of Kill system call?

77.   Write down the steps for swapping.

78.   What are the types of page faults?

79.   Write the syntax of Ptrace system call.

80.   _____ system call creates a new region of shared memory.

81.   _____ is an executable file.

82.   Buffer consists of _____ and _____.

83.   Name the different types of files.

84.   What is the Syntax for close system call?

85.   Context of a Process is the union of _____, _____ and _____.

86.   Name the parts of an executable file.

87.   The System can incur _____ and _____ types of page faults.

88.   UNIX System contains two types of devices namely _____ and _____.

89.   The Format of each element of oplist is _____, _____ and _____.

90.   What is the Syntax for bind?

91.   Name the two data structures that a kernel contains.

92. The kernel identifies each process by its process number, called the _____.

93. The _____ identifies particular inodes by their file system and inode number and allocates in-core inodes at the request of higher level algorithms.

94. Write down the syntax for open syntax call.

95. Define process identifiers.

96. What setpgrp system does?

97. What does a modify bit indicate?

98. The _____ table contains an entry for every page on a swap device.

99. Write down the syntax for ptrace system call.

100. The _____ system call creates a new region of shared memory or returns an existing one.

101. The Unix operating system was first developed in _____ language.

102. A Unix _____ is the core or key component of the operating system.

103. What does inode store?

104. Write the syntax for lseek system call.

105. What are signals?

106. What is a process?

107. Write the Syntax for ioctl.

108. What are the three input modes for terminals in Unix?

109. How is network communication done?

110. Mention the powerful tool for process tracing.

111. A buffer contains two parts: they are _____ and _____.

112. A process is _____.

113. Define Directory.

114. Give the syntax for creat system call.

115. A region is a _____.

116. _____ inform processes of the occurrence of asynchronous events.

117. What is Disk Driver?

118. A Clist is a _____.

119. A process attach _____to its virtual address space with _____ system call.

120. _____ allow arbitrary processes to exchange data and synchronize execution.

121. State the benefit of buffer cache.

122. What is the function of the 'who' command?

123. Write the syntax of the open system call.

124. What is the use of pipe implementation?

125.   What is the meaning of 'zombie' state?

126.   Mention the role of an interrupt vector.

127.   When does a page fault condition occur?

128.   State the function of 'ioctl'.

129.   Write the task of 'shmget'.

130.   Define sockets?

131.   What is kernel?

132.   Write the use of buffer cache.

133.   What is inode?

134.   Distinguish between library function and system call.

135.   What are the ways for normal termination of a process?

136.   What are signals?

137.   What is demand paging?

138.   What are sockets?

139.   What are IPC mechanisms?

140.   What is use of shared memory?

141.   What is the purpose of a System Call?

142.   Process in UNIX is created by _____ system call.

143.   Write a statement to change the owner of a file.

144.   What is the syntax of Open system call?

145.   Define Demand Paging.

146.   What is the purpose of Sleep statement?

147.   What are the two types of page faults?

148.   What is the syntax and purpose of Select system call?

149.   _____ system call creates a new region of a shared memory.

150.   Write the syntax of msgget.

151.   What is Internet?

152.   Define a Protocol.

153.   Expand HTTP.

154.   What is FTP?

155.   Expand UDP.

156.   What is Multiplexing?

157.   What is IGMP?

158.   What is the size of IP datagram?

159.   What is the purpose of RARP?

160.   Expand DHCP.

PART – B Questions

1.   List the system calls which help processes interact with file subsystem

2.   What is the role of DUP system call?

3.   List the set of process states.

4.   What are the data structures of kernel to support low-level memory management functions & demand paging?

5.   What is role of semaphores in UNIX system?

6.   List the various states of a process.

7.   Write the algorithm for conversion of a path name to an Inode.

8.   Explain the various steps of Interrupt handling.

9.   Explain the various data structures provided by the kernel for demand paging.

10.   What is a shared memory? What are the system calls associated with them?

11.   Illustrate with neat diagram the functionality of various kernel modules in unix

12.   Explain the algorithm for converting the path name to inode

13.   Write the algorithm involved in creating a new process and explain it

14.   Define map. Explain how utilized for swapping

15.   Explain message passing inter process communication mechanism

16.   How to read and write disk blocks?

17.   Write the difference between link and unlink in a file?

18.   Explain about process model.

19.   What are memory management policies?

20.   Define IPC.

21.   Write the advantages and disadvantages of Buffer Cache.

22.   Explain about INODE cache issues.

23.   Explain about thread model.

24.   Define reallocation.

25.   What are the conditions for mutual exclusion?

26.   Write the advantages and disadvantages of Buffer Cache.

27.   Explain about INODE cache issues.

28.   Explain about thread model.

29.   Define reallocation.

30.   What are the conditions for mutual exclusion?

31.   Write an algorithm for reading a disk block.

32.   What are the contents of super block?

33.   What are the steps needed for a context switch?

34.   What are the functions of line discipline?

35.   What is the purpose of bind and connect system call? Write its syntax.

36.   What are the characteristics of Unix file system?

37.   List the contents of disk inodes.

38.   Classify the signals.

39.   List the functions of a line discipline modules in Terminal Drivers.

40.   How is interprocess communication done using shared memory?

41.   What are the characteristics of a UNIX file system?

42.   Explain Dup System call.

43.   What are the functions of a Clock Interrupt Handler?

44.   What are the Elements of a Queue?

45.   What are the System Calls for messages?

46.   List down the combination conditions for the status of a buffer.

47.   Explain about file and record locking.

48.   When will a process goes to sleep?

49.   Name the three possible cases when freeing resources.

50.   Write down the pseudo code of the structure of debugging process.

51.   What is the difference between user mode and kernel mode?

52.   Define super block.

53.   Define process groups.

54.   What is the process of swapping out?

55.   Write about the system calls used for IPC.

56.   Write about Buffer header.

57.   Give details about stat and fstat.

58.   Write short notes on handling signals.

59.   What is Demand Paging?

60.   Give a brief note on Semaphore.
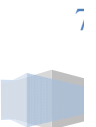
61.   Write short notes on process context?

62.   Mention the fields of a super block.

63.   Write a short note on Signals.

64.   What are the data structures involved in demand paging?

65.   List down the system calls associated with Messages.

66.   What is a shell script?

67.   What is the difference between unlink and rm?

68.   Write a short note on sleep command.

69.   What is use of biod process?

70.   Write any 4 system calls for sockets

71.   List out any 5 UNIX commands and write their syntax and purpose.

72.   What are the different categories of system calls?

73.   How are Interrupts handled?

74.   What are the contents of a pfdata table?

75.   Write an algorithm to share memory between processes.

76.   Write a note on protocol layers.

77.   What are the fields of UDP header?

78.   List down the services offered by transport layer.

79.   What is inside the router?

80.   What is an Ethernet?

PART – C Questions

1.   Explain the architecture of UNIX with a neat block diagram of the system kernel.

2.   Discuss the advantages and disadvantages of the buffer cache.

3.   Write a detailed note on INODES.

4.   List and explain the system calls for the UNIX file system and explain any two of   them.

5.   Explain about "SLEEP" process in UNIX system

6.   Discuss in detail about how a process is created in UNIX system.

7.   Explain the memory management policy of demand paging in UNIX system.

8.   Write about STREAM in I/O subsystem of UNIX system.

9. Explain the PROCESS TRACING in the inter process communication of UNIX system.

10. Discuss in detail about SOCKETS in the inter process communication of UNIX system.

11. Draw the block diagram of the kernel and explain its various subsystems.

12. Explain the various scenarios for retrieval of a buffer with its algorithm and neat diagram.

13. Explain algorithm of converting the Byte offset into Block number in file system.

14. Explain the concept of Pipes and its various operations with suitable algorithms.

15. Explain the various process states and its transitions in detail.

16. What are signals? Explain the algorithm of handling signals.

17. When does a kernel swap a process out? Explain in detail.

18. Explain the *open* system call for a device with its algorithm.

19. Explain the various system calls used for messages. Also explain the various steps   performed by the system call *msgsnd* with the algorithm.

20. Write in detail about sockets and its various system calls.

21. Explain the basic concepts related to process management in Unix

22. Briefly explain the various buffer cache mechanism adopted by Unix kernel

23. With neat diagram, describe the structure of index node and discuss how kernel manipulates it.

24. Explain how a file is mounted and unmounted from file structure

25. What is region? state any 3 region system calls that are invoked by a process, one when getting hold a region, one during execution and one while relinquishing it back.

26. What is the function of a clock interrupt handler? Detail any 3 function along with the   system calls and their data structures

27. Discuss the tasks of terminal derivers of Unix kernels with suitable algorithms

28. What is page fault? Discuss the page fault related to validity fault and details all the cases when the page is faulted.

29. Discuss the synchronization using semaphores in detail.

30. Describe what are sockets and their use in network programming.
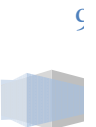
31.   Explain about Buffer concepts.

32.   Draw and explain the block diagram of system kernel.

33.   a. Explain in detail about file system.

        b. Describe about internal representation of files.

34.   Discuss any 4 system calls related to file.

35.   Explain in detail about process scheduling.

36.   Explain about process states.

37.   a. Write short notes on demand paging.

        b. Explain about I/O subsystem.

38.   Explain Page replacement policies.

39.   Explain in detail about sockets.

40.   How are messages used for interprocess communications?

41.   Explain the architecture of UNIX operating system.

42.   a. Explain the structure of the Buffer Pool.

        b. Write about reading and writing of Disk blocks

43.   Describe about System calls for the file system.

44.   Explain the structure of a regular file.

45.   Explain in detail about states of a processor.

46.   Write the algorithms for sleep and awake.

47.   Write short notes on:

        a. Swapping   b. Demand Paging

48.   Explain about page replacement policy.

49.   Explain about inter process communication.

50.   Explain how message queues are implemented in UNIX.

61.   Explain the architecture of UNIX operating system with neat block diagram
        and also explain the process state transition.

62.   What are the five typical scenarios the kernel may follow in getblk to
        allocate a buffer for a disk block? Explain the first two scenarios with suitable
        example.

63.   a. Explain the algorithm for conversion of a path name to an inode.
        b. Write an algorithm for freeing inode

64.   Write and explain an algorithm for opening and reading a file.

65. Write and explain an algorithm for allocating a region and attaching a region to a process.

66. Describe an algorithm for process creation.

67. a. Explain how the kernel puts characters onto a clist with suitable example

    b. Describe an algorithm for reading a terminal.

68. Describe an algorithm for swapper and explain the operation of swapping with suitable example.

69. a. What are the three mechanisms of unix system V IPC package? Explain the common   properties of those three mechanisms.

    b. What is the purpose of shmat and shmdt system call? Explain.

70. What is the purpose of sockets? Explain the various system calls used for socket mechanism.

71. a.   List any 4 Unix commands. Write their format and usage with example.

    b.   Write an algorithm to copy a file.

72. Explain the architecture of the Unix operating system.

73. a. Write an algorithm to convert the path name into inode.

    b. Write about super Block.

74. a. Write an algorithm to read the content of a file.

    b. Write an algorithm to change the current directory.

75. With a neat diagram, explain the process states and transition.

76. Briefly explain process scheduling.

77. Explain Demand Paging.

78. a. Write an algorithm for closing a device.

    b. How will you push a module into a stream?

79. What is semaphore? Write the algorithm for semaphore operations.

80. Explain about sockets.

81. Explain the process of Reading and Writing Disk Blocks with suitable algorithms.

82. Discuss the architecture of UNIX Operating System with necessary diagram.

83. What are inodes? How are they accessed and released?

84. Write the algorithm for Creating Pipes. How are open and close operations performed on pipes?

85. Explain Context of a Process.

86. Explain in detail how signals are handled using suitable algorithms.

87. Elaborate in detail about Demand Paging.

88. Write notes on Terminal Drivers.

89. Explain Semaphores.

90. Discuss in detail about Sockets.

91. Explain about state transitions in process with neat diagrams.

92. Explain about reading and writing disk blocks.

93. a. Write down the fields the disk inodes consists of.

    b. Explain about the directories with its layout

94. Explain in detail about file creation with algorithm.

95. a. Explain about interrupts and exceptions.

    b. Explain about copying data between system and user address space

96. a. Write down the algorithm for allocation of text regions.

    b. Write a program for using times.

97. Explain allocation of swap space with algorithm and diagram.

98. Write the algorithm for opening a device and closing a device.

99. Write down the algorithm for Semaphore operation.

100. Discuss in detail about sockets.

101. a. Explain in detail about UNIX System Architecture.

     b. Briefly explain about UNIX System Structure.

102. Explain in detail about Unix system concepts.

103. Explain in detail about the structure of regular file.

104. a. Briefly explain file creation concepts.

     b. Write short notes on File locking and Record Locking.

105. Describe the state transition that a process undergoes during its lifetime.

106. Discuss the context of a process in detail.

107. Write short notes on

     a. Allocation of swap space.

     b. Swapping processes out.

108. a. Explain briefly the concepts involved in driver interface.

     b. Write short notes on terminal drivers.

109. Explain the concepts in system V IPC.

110. How is network communication done in unix operating system.

111. Elaborate the architecture of UNIX Operating System.

112. Discuss about various Scenarios for Retrieval of a Buffer.

113. Write in detail about INODE.

114. Discuss about PIPES in detail

115. Depict the complete set of Process States and explain.

116. Explain about Fair Share Scheduler with suitable examples.

117. Write in detail about Swapping.

118. Explain in detail about Streams.

119. Explain in detail about Messages in System V IPC with sample coding.

120. Write in detail about all TCP Socket system calls with a client server implementation code.

121. Draw and explain the architecture of the Unix Operating System.

122. a. Describe about Process subsystem.

    b. Write an algorithm for reading a disk block.

123. Explain the structure of a regular file.

124. Develop an algorithm for reading a file. Discuss in detail about its working.

125. Elaborate on Lifetime of a process with a neat diagram.

126. Develop an algorithm for Process creation.

127. Describe the algorithm for allocating space from Maps.

128. Discuss the procedure for opening a device.

129. How is process synchronization done using semaphores? Explain.

130. Give the syntax and meaning of any five system calls associated with sockets.

131. Explain about UNIX architecture and its features.

132. Discuss about Shell Control Structure in detail.

133. Discuss about inode concepts in UNIX.

134. Explain about UNIX system calls file I/O.

135. Explain UNIX system calls for process management.

136. Discuss about Time system calls in UNIX.

137. Explain about Memory management in UNIX.

138. Explain about how Demand paging implemented in UNIX.

139. Give an account on IPC mechanisms in UNIX.

140. Explain about various Socket system calls for UNIX.

141. With a neat diagram explain the architecture of the UNIX operating system.

142.   a. Discuss the structure of a buffer header.

          b. Write an algorithm to allocate a buffer.

143.   a. List out the contents of a super block.

          b. Write an algorithm to convert a pathname to an inode.

144.   a. Write an algorithm for creating a file.

          b. What does disk inode contain?

145.   Write a process diagram to explain process states and transitions.

146.   Explain Signals. Write an algorithm for handling signals.

147.   Explain swapping with suitable example.

148.   Write algorithms to open a device and close a device.

149.   Explain Semaphores in detail.

150.   Explain Shared Memory in detail.

151.   Describe internet service provider and internet backbones.

152.   Explain the various transmission Medias.

153.   Explain domain name system.

154.   Describe transmission control protocol.

155.   Explain TCP congestion control.

156.   What are the principles of reliable data transfer? Explain the same.

157.   Explain link state routing algorithm and hierarchical routing algorithm.

158.   Compare virtual circuits and datagram networks.

159.   Explain error detection and correction techniques.

160.   Describe multiple access protocol.