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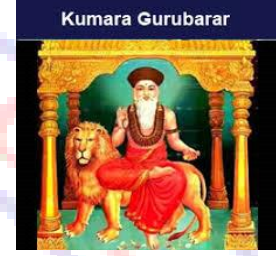
QUESTION BANK

Title of the Paper

OPERATING SYSTEM

Course: III B.Sc. (CS)
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DEPARTMENT OF COMPUTER SCIENCE

CORE COURSE VII
OPERATING SYSTEMS

Unit I Introducing Operating Systems

Introduction - What Is an Operating System-Operating System Software -A Brief History of Machine Hardware -Types of Operating Systems -Brief History of Operating System Development-Object-Oriented Design

Unit II Memory Management

Early Systems: Single-User Contiguous Scheme -Fixed Partitions-Dynamic Partitions-Best-Fit versus First-Fit Allocation -Deallocation - Relocatable Dynamic Partitions. Virtual Memory: Paged Memory Allocation-Demand Paging-Page Replacement Policies and Concepts -Segmented Memory Allocation-Segmented/Demand Paged Memory Allocation - Virtual Memory-CacheMemory

Unit III Processor Management

Overview-About Multi-Core Technologies-Job Scheduling Versus Process Scheduling-Process Scheduler-Process Scheduling Policies-Process Scheduling Algorithms -A Word About Interrupts-Deadlock-Seven Cases of Deadlock - Conditions for Deadlock-Modeling Deadlock-Strategies for HandlingDeadlocks –Starvation-Concurrent Processes: What Is Parallel Processing-Evolution of Multiprocessors-Introduction to Multi-Core Processors-Typical Multiprocessing Configurations--Process Synchronization Software

Unit IV Device Management

Types of Devices-Sequential Access Storage Media-Direct Access Storage Devices-Magnetic Disk Drive Access Times- Components of the I/O Subsystem-Communication among Devices-Management of I/O Requests

Unit: V File Management

The File Manager -Interacting with the File Manager -File Organization - Physical Storage Allocation -Access Methods-Levels in a File Management System - Access Control Verification Module

Unit – I
Choose the correct answer

1. What is operating system?
   - *a.* collection of programs that manages hardware resources
   - *b.* system service provider to the application programs
   - *c.* link to interface the hardware and application programs
   - *d.* all of the mentioned

2. To access the services of operating system, the interface is provided by the _____
   - *a.* System calls
   - *b.* API
   - *c.* Library
   - *d.* Assembly instructions

3. Which one of the following is not true?
   - *a.* kernel is the program that constitutes the central core of the operating system
   - *b.* kernel is the first part of operating system to load into memory during booting
   - *c.* kernel is made of various modules which can not be loaded in running operating system
   - *d.* kernel remains in the memory during the entire computer session

4. Which one of the following error will be handle by the operating system?
   - *a.* power failure
   - *b.* lack of paper in printer
   - *c.* connection failure in the network
   - *d.* all of the mentioned

5. What is the main function of the command interpreter?
   - *a.* to get and execute the next user-specified command
   - *b.* to provide the interface between the API and application program
   - *c.* to handle the files in operating system
   - *d.* none of the mentioned

6. By operating system, the resource management can be done via _____
   - *a.* time division multiplexing
   - *b.* space division multiplexing
   - *c.* time and space division multiplexing
   - *d.* none of the mentioned

7. If a process fails, most operating system write the error information to a _____
   - *a.* log file
   - *b.* another running process

      c. new file
      d. none of the mentioned

8. Which facility dynamically adds probes to a running system, both in user processes and in the kernel?
      a. DTrace
      b. DLocate
      c. DMap
      d. DAdd

9. Which one of the following is not a real time operating system?
      a. VxWorks
      b. Windows CE
      c. RTLinux
      d. Palm OS

10. The OS X has _____
      a. monolithic kernel
      b. hybrid kernel
      c. microkernel
      d. monolithic kernel with modules

Answers: 1.d 2.a 3.c 4. d 5. a 6. c 7. a 8. a 9.d 10. b Short

question (2 Marks)

11. What is an opearting system?
12. What are operating system services?
13. Describe the operating system operations?
14. Describe the operating system functions?
15. Explain simple batch system?
16. Explain time sharing operating system?
17. List out any four process control system calls?
18. What is resources manager?
19. What is batch processing?
20. Describe distributed operating system?

Paragraph Questions (5 Marks)

21. What are the various objectives and functions of Operating systems?
22. What are the major activities of an operating systems with regard to process management?
23. Differentiate distributed systems from multiprocessor system?
24. Explain the basic instruction cycle with appropriate diagram?
25. Explain batch processing?
26. Briefly explain virtual machines?

27. Explain about multiprogramming and time sharing operating system?
28. Explain time sharing?
29. Explain about system calls?
30. What is os user interface?

Essay Type Questions (10 Marks)

31. Explain objectives and function
32. Discuss the Simple Operating System Structure.
33. Describe the User /computer interface.
34. What are different types of operating system? Explain them in detail
35. Explain os resource manager.
36. Explain operating system functions and services in detail
37. Explain the Serial processing.
38. Explain the History of Operating Sytems.
39. Explain in detail about Time sharing system.
40. Describe about operating System Development

Unit - II
Choose the Correct Answer

1. The systems which allow only one process execution at a time, are called
_____

    a. uniprogramming systems
    b. uniprocessing systems
    c. unitasking systems
    d. none of the mentioned

2. In operating system, each process has its own _____
    a. address space and global variables
    b. open files
    c. pending alarms, signals and signal handlers
    d. all of the mentioned

3. In Unix, Which system call creates the new process?
    a. Fork
    b. Create
    c. New
    d. none of the mentioned

4. A process can be terminated due to _____
    a. normal exit
    b. fatal error
    c. killed by another process
    d. all of the mentioned

5. A Process Control Block(PCB) does not contain which of the following?
    a. Code
    b. Stack

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    c. Bootstrap program
    d. Data

6. The number of processes completed per unit time is known as _____
    a. Output
    b. Throughput
    c. Efficiency
    d. Capacity

7. The state of a process is defined by _____
    a. the final activity of the process
    b. the activity just executed by the process
    c. the activity to next be executed by the process

8. the current activity of the process The minimum number of frames to be allocated to a process is decided by the _
    a. the amount of available physical memory
    b. operating System
    c. instruction set architecture
    d. none of the mentioned

9. When a page fault occurs before an executing instruction is complete if

    _____
    1. the instruction must be restarted
    2. the instruction must be ignored
    3. the instruction must be completed ignoring the page fault
    4. none of the mentioned

10. Consider a machine in which all memory reference instructions have only one memory address, for them we need at least _____ frame(s).
    a. One
    b. Two
    c. Three
    d. none of the mentioned

Answers: 1. b 2. d 3. a 4. d 5. c 6. b 7. d 8. c 9. a 10. b

Short question (2 Marks)

11. Define process.
12. What is process threats?
13. What is Internal Fragmentation?
14. What do you mean by Concurrency?
15. What are Pages and Frames?
16. What is the use deadlock?
17. What is the basic method of Segmentation?
18. What is deadlock?
19. What is Demand Paging?

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20. What is a Reference String?

Paragraph Questions (5 Marks)

21. Discuss Process control.
22. What is concurrency and what is its purpose?
23. Explain various attributes in threats.
24. Explain about process allocation?
25. Explain about first fit, best fit, worst fit, next fit algorithms?
26. Explain about advantages and disadvantages of deadlock?
27. Explain about process management?
28. Explain about the software support.
29. Differentiate local and global page replacement algorithm.
30. What is virtual memory? Mention its advantages
.

Essay Type Questions (10 Marks)

31. Briefly explain process control and description.
32. Explain about concurrency.
33. Explain how paging supports on mutual exclusion.
34. Write about the techniques for prevention.
35. What is thrashing and explain the methods to avoid thrashing?
36. Explain the basic concepts of deadlock in detail.
37. Explain Dekkers Algorithms
38. Write short notes deadlock detection.
39. Explain deadlock strategy
40. Explain detection and avoidance.

Unit - III
Choose the Correct Answer

1. CPU fetches the instruction from memory according to the value of
_____
   - **a.** program counter
   - **b.** status register
   - **c.** instruction register
   - **d.** program status word

2. A memory buffer used to accommodate a speed differential is called
_____
   - **a.** stack pointer
   - **b.** cache
   - **c.** accumulator
   - **d.** disk buffer

3. Which one of the following is the address generated by CPU?
   - **a.** physical address
   - **b.** absolute address
   - **c.** logical address

d. none of the mentioned

4.Run time mapping from virtual to physical address is done by _____
- **a.** Memory management unit
- **b.** CPU
- **c.** PCI
- **d.** None of the mentioned

5.What is Address Binding?
- **a.** going to an address in memory
- **b.** locating an address with the help of another address
- **c.** binding two addresses together to form a new address in a different memory space
- **d.** a mapping from one address space to another

6.Binding of instructions and data to memory addresses can be done at _____
- **a.** Compile time
- **b.** Load time
- **c.** Execution time
- **d.** All of the mentioned

7.If the process can be moved during its execution from one memory segment to another, then binding must be _____
- **a.** delayed until run time
- **b.** preponed to compile time
- **c.** preponed to load time
- **d.** none of the mentioned

8.Physical memory is broken into fixed-sized blocks called _____
- **a.** Frames
- **b.** Pages
- **c.** backing store
- **d.** none of the mentioned

9.Logical memory is broken into blocks of the same size called _____
- **a.** Frames
- **b.** Pages
- **c.** backing store
- **d.** none of the mentioned

10.Every address generated by the CPU is divided into two parts. They are _____
- **a.** frame bit & page number
- **b.** page number & page offset
- **c.** page offset & frame bit
- **d.** frame offset & page offset

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Answers: 1. a 2. b 3. c 4. a 5. d 6. d 7. a 8. a 9. b 10.b

Short question (2 Marks)

11. Define memory management?
12. What is meant by Requirments.
13. What is paging?
14. What segmentation?
15. Define Address?
16. What is virtual memory?
17. What are goals of memory protection?
18. What is fetch?
19. What are different methods for handling memory management ?
20. What is Access control?

Paragraph question (5 Marks)

21. What is a memory ?explain different types of memory management.
22. Explain partition and its types ?
23. Differentiate between paging and threads
24. Explain combined paging?
25. Explain the memory scheduling criteria
26. Write the resource allocation for memory?
27. Explain about page buffering.
28. Explain about segment Avoidance
29. Explain about necessary conditions of placement policy
30. Explain about resident set?

Essay Type Questions (10 Marks)

31. Write about the various types of memory management.
32. What is the important feature of memory partition?
33. Explain fixed partition.
34. Explain placement algorithm.
35. Explain virtual memory.
36. Explain Addressing and paging systeml.
37. Explain goals and principles of fetching policy in detail
38. Describe policy and its types.
39. Explain segmentation.
40. Explain memory management and resident set.

Unit - IV
Choose the Correct Answer

1. The process of dividing a disk into sectors that the disk controller can read and write, before a disk can store data is known as _____
   a. Partitioning
   b. swap space creation

      c. low-level formatting
      d. none of the mentioned

2. The data structure for a sector typically contains _____
      a. Header
      b. data area
      c. trailer
      d. all of the mentioned

3. The header and trailer of a sector contain information used by the disk controller such as_____and _____
      a. main section & disk identifier
      b. error correcting codes (ECC) & sector number
      c. sector number & main section
      d. disk identifier & sector number

4. The two steps the operating system takes to use a disk to hold its files are _____and _____
      a. partitioning & logical formatting
      b. swap space creation & caching
      c. caching & logical formatting
      d. logical formatting & swap space creation

5. In_____information is recorded magnetically on platters.
      a. magnetic disks
      b. electrical disks
      c. assemblies
      d. cylinders

.
6. The heads of the magnetic disk are attached to a_____that moves all the heads as a unit.
      a. Spindle
      b. disk art
      c. track
      d. none of the mentioned

7. The set of tracks that are at one arm position make up a _____
      a. magnetic disks
      b. electrical disks
      c. assemblies
      d. cylinders

8. I/O hardware contains _____
      a. Bus
      b. Controller
      c. I/O port and its registers
      d. All of the mentioned

9. The data-in register of I/O port is _____
     a. Read by host to get input
     b. Read by controller to get input
     c. Written by host to send output
     d. Written by host to start a command

10. The host sets _____ bit when a command is available for the controller to execute.
     a. Write
     b. Statuss
     c. Command-ready
     d. control

Answers: 1.c 2.d 3.b 4. 5.a 6.b 7.d 8.d 9.a 10.c

Short question (2 Marks)

11. Define I/O scheduling.
12. What is FIFO?
13. Define file
14. mention any 4 file functions
15. What are the informations associated with an open file?
16. What are the allocation methods of a disk space?
17. List various layers of a file system
18. Define seek time
19. Define Spooling
20. What is the use of FEEDBACK?

Paragraph question (5 Marks)

21. Explain about kernel I/O subsystem and.
22. Explain about Round robin in detail..
23. Explain about free space management with example.
24. What are the various disk space allocation methods. Explain in detail..
25. Discuss in detail about Reading a file and Writing to a file
26. write a short note on file modes.
27. Describe about share scheduling.
28. Discuss about short process.
29. Explain about Flash Memory Storage
30. State about Evaluation.

Essay Type Questions (10 Marks)

31. write about Management of I/O Requests
32. Write about I/O Devices in the Cloud
33. Explain about scheduling.
34. Describe about I/O function.

35. write about Access Times an example.
36. Discuss about Optical Disc Storage
37. Explain about Solid State Storage
38. Write note on Components of the I/O Subsystem
39. Explain about Communication Among Devices
40. Explain about logical structure.

Unit – V

Choose the Correct Answer

1. Destruction of files for malicious reasons such as access by fraudulent people is classified as being
  a. modified
  b. accessed
  c. destroyed
  d. unauthorized access

2. In files, if order of operation on two or more files are similar, then operation will be
  a. complex
  b. simple
  c. sequential
  d. combinational

3. Search in which record is checked and read for desired items in file linearly is classified as
  a. combinational search
  b. linear research
  c. linear search
  d. quadratic search

4. Field which is used to identify specific record and can't be duplicated is classified as
  a. key field
  b. duplicate field
  c. copied field
  d. original field

5. Access in which records are accessed from and inserted into file, is classified as
  a. direct access
  b. sequential access
  c. random access
  d. duplicate access

6. Smallest piece of data that could be deal separately is classified as
  a. file record
  b. item
  c. data column

   d. bug

7. File code which engineers add to file name and limit access to few users is called
   a. limited code
   b. access code
   c. code protection
   d. physical code

8. Large collection of structured data that can be used in different applications is called
   a. database management
   b. management system
   c. database
   d. data storage system

9. Preparation of disc for subsequent file storage is classified as
   a. disc format
   b. disc address
   c. disc footer
   d. disc header

10. In microcomputers files, inquiry programs used for simple purposes are classified as
   a. storage package
   b. database package
   c. organized package
   d. hardware package

Answers: 1. a 2.b 3.c 4.a 5.b 6.b 7.b 8.c 9. 10.b

Short question (2 Marks)

11. What is a File?
12. List the various File Attributes
13. What are the various File Operations?
14. What is the information associated with an Open File?
15. What are the different Accessing Methods of a File?
16. What is Directory?
17. What are the operations that can be performed on a Directory?
18. What are the most common schemes for defining the Logical Structure of a Directory?
19. Define UFD and MFD
20. What is a Path Name?

Paragraph questions (5 Marks)

21. Explain about Physical Storage Allocation.
22. Discuss the criteria for choosing a file organization

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23. Explain about Access Controls.
24. Describe indexed file, indexed sequential file organization
25. Explain hash files organization
26. Discuss the objectives for file management systems
27. Explain the file system Architecture
28. Explain about file attributes, file operations, and file types?
29. Explain about single-level, two-level directory structure
30. Explain about file system mounting, file sharing?

Essay Type Questions (10 Marks)

31. Explain different free space management techniques in detail.
32. Explain the Concept of file.
33. Explain the Concept of Access methods
34. Explain the Concept of File sharing
35. Explain the Concept of File Attributes
36. Explain the Concept of File types
37. Explain disk structure in detail.
38. Explain swap space management in detail.
39. Explain different Disk scheduling algorithms SCAN,CSCAN.CLOOK
40. Give overview of mass storage structure in detail
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