CSC 201

B.Sc. IIIrd SEMESTER EXAMINATION, 2023-24
COMPUTER SCIENCE
(Operating System)

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Date (तिथि) : _____

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1472

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Time : 1:30 Hrs.　　　　　　　　　　**Max. Marks : 75**
समय : 1:30 घण्टे　　　　　　　　　　**अधिकतम अंक : 75**

नोट : पुस्तिका में 50 प्रश्न दिये गये हैं, सभी प्रश्न करने होंगे। प्रत्येक प्रश्न 1.5 अंक का होगा।

Important Instructions :

1. The candidate will write his/her Roll Number only at the places provided for, i.e. on the cover page and on the OMR answer sheet at the end and nowhere else.

2. Immediately on receipt of the question booklet, the candidate should check up the booklet and ensure that it contains all the pages and that no question is missing. If the candidate finds any discrepancy in the question booklet, he/she should report the invigilator within 10 minutes of the issue of this booklet and a fresh question booklet without any discrepancy be obtained.

महत्वपूर्ण निर्देश :

1. अभ्यर्थी अपने अनुक्रमांक केवल उन्हीं स्थानों पर लिखेंगे जो इसके लिए दिये गये हैं, अर्थात् प्रश्न पुस्तिका के मुख्य पृष्ठ तथा साथ दिये गये ओ०एम०आर० उत्तर पत्र पर, तथा अन्यत्र कहीं नहीं लिखेंगे।

2. प्रश्न पुस्तिका मिलते ही अभ्यर्थी को जाँच करके सुनिश्चित कर लेना चाहिए कि इस पुस्तिका में पूरे पृष्ठ हैं और कोई प्रश्न छूटा तो नहीं है। यदि कोई विसंगति है तो प्रश्न पुस्तिका मिलने के 10 मिनट के भीतर ही कक्ष परिप्रेक्षक को सूचित करना चाहिए और बिना त्रुटि की दूसरी प्रश्न पुस्तिका प्राप्त कर लेना चाहिए।

1. One necessary condition for deadlock is _____, Which states that a process must be holding one resource and waiting to acquire additional resources.
   (A) Hold and Wait
   (B) Mutual Exclusion
   (C) Circular Wait
   (D) No Preemption

2. Suppose we have the following page accesses : 1 2 3 4 2 3 4 1 2 1 1 3 1 4 and that there are three frames within our system. Using the FIFO replacement algorithm, what is the number of page faults for the given reference string ?
   (A) 14
   (B) 8
   (C) 13
   (D) 10

3. Belady's anomaly states that _____.
   (A) Giving more memory to a process will improve its performance
   (B) As the number of allocated frames increases, the page-fault rate may decrease for all page replacement algorithms
   (C) For some page replacement algorithms, the page-fault rate may decrease as the number of allocated frames increases
   (D) For some page replacement algorithms, the page-fault rate may increase as the number of allocated frames increases

4. Which of the following operating system reads and reacts in actual time ?
   (A) Quick Response System
   (B) Real Time System
   (C) Time Sharing System
   (D) Batch Processing System

5. The Banker's algorithm is used :
   (A) To rectify deadlock
   (B) To detect deadlock
   (C) To prevent deadlock
   (D) To slove deadlock

6. A page fault occurs when :
   (A) The Deadlock Happens
   (B) The Segmentation Starts
   (C) The Page is Found in the Memory
   (D) The Page is Not Found in the Memory

7. Which is the first program run on a computer when the computer boots ?
   (A) System Software
   (B) Operating System
   (C) System Operations
   (D) None

8. The operating system is the most common type of _____ Software.
   (A) Communication
   (B) Application
   (C) System
   (D) Word Processing Software

9. Running multiple programs at the same time is called :
   (A) Multitasking
   (B) Foreground Tasking
   (C) Single Tasking
   (D) Symmetric

10. In a timeshare operating system, when the time slot assigned to a process is completed, the process switches from the current State to ?
    (A) Suspended State
    (B) Terminated State
    (C) Ready State
    (D) Blocked State

11. When a process is in a "Blocked" state waiting for some I/O service. When the service is completed, it goes to the _____.
    (A) Terminated State
    (B) Suspended State
    (C) Running State
    (D) Ready State

12. The FCFS algorithm is particularly troublesome for _____.
    (A) Operating systems
    (B) Multiprocessor systems
    (C) Time sharing systems
    (D) Multiprogramming systems
13. A deadlock avoidance algorithm dynamically examines the _____ to ensure that a circular wait condition can never exist.
    (A) Operating system
    (B) Resources
    (C) System storage state
    (D) Resource allocation state
14. Swapping _____ be done when a process has pending I/O, or has to execute I/O operations only into operating system buffers.
    (A) Must never
    (B) Maybe
    (C) Can
    (D) Must
15. If the page size increases, the internal fragmentation is also :
    (A) Decreases
    (B) Increases
    (C) Remains constant
    (D) None of these
16. Which of the following is a single-user operating system ?
    (A) Windows
    (B) MAC
    (C) MS-Dos
    (D) None of these
17. Which of the following is not application software ?
    (A) Windows 7
    (B) WordPad
    (C) Photoshop
    (D) MS-Excel
18. Which of the following is a condition that causes deadlock ?
    (A) Mutual exclusion
    (B) Hold and wait
    (C) Circular wait
    (D) No preemption

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19. Where are placed the list of processes that are prepared to be executed and waiting ?

    (A)   Job queue

    (B)   Ready queue

    (C)   Execution queue

    (D)   Process queue

20. What type of scheduling is round-robin scheduling ?

    (A)   Linear data scheduling

    (B)   Non-linear data scheduling

    (C)   Preemptive scheduling

    (D)   Non-preemptive scheduling

21. Which conditions must be satisfied to solve a critical section problem ?

    (A)   Bounded Waiting

    (B)   Progress

    (C)   Mutual Exclusion

    (D)   All of these

22. Which of the following operating system runs on the server ?

    (A)   Batch OS

    (B)   Kernel OS

    (C)   Real-time OS

    (D)   Network OS

23. What is the paging in the operating system ?

    (A)   Memory Management Scheme

    (B)   Network Management Scheme

    (C)   Internet Management Scheme

    (D)   None of the these

24. Which of the following scheduling algorithm is non-preemptive scheduling ?

    (A)   FCFS Scheduling

    (B)   Round-Robin Scheduling

    (C)   SRTF Scheduling

    (D)   None of these

25. Which of the following algorithms is used to avoid deadlock ?
   (A)   Dynamic Programming Algorithm
   (B)   Primality Algorithms
   (C)   Banker's Algorithm
   (D)   Deadlock Algorithm

26. Which of the following component does not belong to PCB (Process Control Block) ?
   (A)   CPU registers
   (B)   CPU scheduling information
   (C)   Operating System information
   (D)   Accounting information

27. Which of the following method is used to improve the main memory utilization ?
   (A)   Swapping
   (B)   Operating System
   (C)   Memory Stack
   (D)   None of these

28. Buffer is a _____.
   (A)   Permanent area
   (B)   Temporary area
   (C)   Small area
   (D)   Large area

29. Which of the following statement is correct about fragmentation ?
   (A)   It is software that connects the OS
   (B)   It is part of the software
   (C)   Loss the memory
   (D)   All of these

30. The PCB is identified by _____.
   (A)   Real-Number
   (B)   Binary Number
   (C)   Store Block
   (D)   Integer Process ID

31. What type of scheduling is SRTF scheduling ?
   (A)   Linear data scheduling
   (B)   Non-linear data scheduling
   (C)   Preemptive scheduling
   (D)   Non-preemptive scheduling

32. Which method is the best among file allocation methods ?
    (A) Linked
    (B) Contiguous
    (C) Indexed
    (D) None of the these

33. The operating system works between :
    (A) User and Computer
    (B) Network and User
    (C) One user to another user
    (D) All of the these

34. To access the services of operating system, the interface is provided by the _____.
    (A) System Calls
    (B) API
    (C) Library
    (D) Assembly Instructions

35. 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

36. 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

37. CPU fetches the instruction from memory according to the value of _____.
    (A) Program Counter
    (B) Status Register
    (C) Instruction Register
    (D) Program Status Word

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38. 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

39. Run time mapping from virtual to physical address is done by _____.
   (A) Memory management unit
   (B) CPU
   (C) PCI
   (D) None of the mentioned

40. Operating System maintains the page table for :
   (A) Each process
   (B) Each thread
   (C) Each instruction
   (D) Each address

41. In Unix, Which system call creates the new process ?
   (A) Fork
   (B) Create
   (C) New
   (D) None of the mentioned

42. A process can be terminated due to _____.
   (A) Normal exit
   (B) Fatal error
   (C) Killed by another process
   (D) All of the mentioned

43. The address of the next instruction to be executed by the current process is provided by the _____.
   (A) CPU registers
   (B) Program counter
   (C) Process stack
   (D) Pipe

44. Because of virtual memory, the memory can be shared among _____.
   (A) Processes
   (B) Threads
   (C) Instructions
   (D) None of the mentioned

45. In FIFO page replacement algorithm, when a page must be replaced _____.
    (A)   Oldest page is chosen
    (B)   Newest page is chosen
    (C)   Random page is chosen
    (D)   None of the mentioned

46. Which process state is described as the process waiting for some event to occur ?
    (A)   Running
    (B)   Blocked
    (C)   Ready
    (D)   Terminated

47. Which component provides an interface between users and the operating system?
    (A)   Kernel
    (B)   Shell
    (C)   File System
    (D)   RAM

48. The mechanism of allowing multiple tasks to run simultaneously on a single processor is known as :
    (A)   Multi-threading
    (B)   Multiprocessing
    (C)   Multitasking
    (D)   Multi-allocation

49. In a multiprogramming system, when one program is waiting for I/O, what does the CPU do ?
    (A)   Remains idle
    (B)   Executes another program
    (C)   Waits for the I/O to complete
    (D)   Powers down to save energy

50. Which type of resources the operating system is designed to manage ?
    (A)   Processor
    (B)   Memory
    (C)   Input / Output Devices
    (D)   All of the above

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