30. a.	Explain the various structure of page tables with a neat sketch.	12	3	3	4
	(OR)				
b.	Experiment the operation of segmentation with a neat sketch and suitable example.	12	4	3	4
31. a.	Explain the concept of demand paging with neat sketch and examine how the page faults are handled.	12	4	4	5
	(OR)				
b.	Implement the concept of first in first out, optimal page replacement and least recently used page replacement for the string = 4, 7, 6, 1, 7, 6, 1, 2, 7, 2. Size of frame is 3.	12	3	4	5
32. a.	Experiment the concept of disk scheduling algorithms with a suitable example.	12	3	5	3
	(OR)				
b.	Examine the various implementation of file systems with a neat sketch.	12	4	5	3

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Reg. No.															

MINOR CERTIFICATION EXAMINATION, JUNE 2023

Second Semester

18CSE001J – OPERATING SYSTEMS

(For the candidates admitted during the academic year 2021-2022 & 2022-2023)

Note:

(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.

(ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours Max. Marks: 100

PART – A (20 × 1 = 20 Marks)

Answer **ALL** Questions

	Marks	BL	CO	PO
1. _____ is responsible for managing resource for movement storage, processing and control. (A) Visual programming (B) Operating systems (C) High performance computing (D) Hypervisor	1	1	1	1
2. In simple batch system, the program instruction are given to the monitor using special language called _____. (A) Job control language (B) Serial processing program (C) Scheduler program (D) Object oriented program	1	1	1	1
3. _____ is passive entity stored on disk as executable file. (A) Process (B) Program (C) Heap (D) Stack	1	2	1	1
4. _____ scheduler can be added if degree of multiple programming needs to decrease (A) Short term (B) Medium term (C) JOB (D) CPU	1	2	1	1
5. _____ is abstract data type, where the internal variables only accessible by code within the procedure (A) Semaphore (B) Binary semaphore (C) Counting semaphore (D) Monitors	1	2	2	1
6. The amount of time to execute a particular process from the time of submission through the time of completion is called as (A) Throughput (B) Response time (C) Waiting time (D) Turnaround time	1	2	2	3
7. In _____, the priority of every lower priority process has to be increased after a fixed interval of time. (A) Aging technique (B) Starvation (C) Deadlock (D) Long-term scheduler	1	1	2	3

8. The rate monotonic scheduling algorithm schedules periodic tasks using stack priority policy with _____. 1 1 2 3
(A) Non preemption (B) Preemption
(C) Medium term scheduler (D) Process allocation

9. The address generated by the central processing unit is commonly referred to as a _____. 1 1 3 3
(A) Physical address (B) Memory address register
(C) Logical address (D) Addressing modes

10. The runtime mapping from virtual to physical addresses is done by the hardware device called _____. 1 1 3 2
(A) Memory management unit (B) Mani memory
(C) Secondary memory (D) Cache memory

11. _____ occurs when the total amount of empty space required to store the process is available in the main memory. 1 2 3 2
(A) Internal fragmentation (B) External fragmentation
(C) Peterson's solution (D) Paging

12. If a page is needed that was not originally loaded up, then a _____ is generated. 1 2 3 2
(A) Page fault trap (B) Page error trap
(C) Page mistake trap (D) Page correctness trap

13. An alternate approach to solve the paging problem which loads pages only as they are needed is called as 1 1 4 2
(A) Demand paging (B) Swapping
(C) Fragmentation (D) Compaction

14. Which page replacement algorithm undergo Belady's anomaly? 1 2 4 4
(A) Optimal page replacement algorithm (B) First in first out
(C) Least recently used (D) Most recently used

15. _____ is amenable to full statistical analysis 1 1 4 1
(A) First in first out (B) Least recently used
(C) Most recently used (D) Most frequently used

16. A process is busy with swapping pages in and out. This high paging activity is called _____. 1 1 4 3
(A) Thrashing (B) Spoofing
(C) Non paging (D) Non segmentation

17. _____ is the time taken to locate the disk arm to a specified track where the data is to be read or write. 1 2 5 3
(A) Rotational latency (B) Transfer time
(C) Seek time (D) Disk access time

18. Dividing a disk into sectors that the disk controller can read and write is called as _____. 1 2 5 1
(A) Low level formatting (B) High level formatting
(C) Medium level formatting (D) Virtual formatting

19. _____ is also called as relative access method. 1 1 5 1
(A) Indirect access method (B) Indexed access method
(C) Direct access method (D) Sequential access method

20. _____ represent an important criterion for evaluating any file system that supports file sharing. 1 2 5 4
(A) Consistency semantics (B) Consistency syntax
(C) Inconsistency semantics (D) Inconsistency syntax

PART – B (5 × 4 = 20 Marks) Marks BL CO PO
Answer **ANY FIVE** Questions

21. Examine the working of simple batch systems and differentiate the monitor point of view and processor point of view. 4 4 1 1

22. How the coordinating process can resolve from race condition? 4 4 1 1

23. Justify Peterson's solving in solving the critical section problem. 4 4 2 2

24. Implement the strategy to solve the readers and writers problem. 4 3 2 2

25. Demonstrate the memory partition allocation algorithm with suitable examples. 5 3 3 3

26. Implement the counting algorithm-least frequently used page replacement for the reference string = 0, 2, 0, 1, 0, 3, 2, 1, 3 with Frame size of 3. 5 3 4 3

27. Illustrate the continuous allocation of disk space with a suitable example. 5 3 5 5

PART – C (5 × 12 = 60 Marks) Marks BL CO PO
Answer **ALL** Questions

28. a. Examine the steps involved in the process creation and termination with a proper example. 12 4 1 1

(OR)

b. Describe the operation and significance of inter process communication in detail. 12 4 1 1

29. a. Implement the concept of monitors in solving the dinning philosopher problem with a neat pseudo code. 12 3 2 2

(OR)

b. List out the reasons for deadlock occurrences and explain the methods to handle deadlocks. 12 3 2 2