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**MASTER IN COMPUTER APPLICATIONS**  
**MODEL QUESTION PAPER**  
**END SEMESTER, SEMESTER-1**

**TIME: 2 HOUR**

**FM: 70**

**SUB: OPERATING SYSTEM**

**PAPER: CCMCA102**

**SECTION A**

**Direction: ALL QUESTIONS ARE COMPULSARY**

**10X2 = 20**

**1. Which scheduler selects which processes should be brought into the ready queue?**

- a) Real-term
- b) Long-term
- c) Mid-term
- d) Short-term

**2. Time quantum is defined in:**

- a) shortest job scheduling algorithm
- b) round robin scheduling algorithm
- c) priority scheduling algorithm
- d) multilevel queue scheduling algorithm

**3. If a page number is not found in the translation lookaside buffer, then it is known as a?**

- a) Translation lookaside buffer miss
- b) Buffer miss
- c) Translation Lookaside Buffer hit
- d) all above mentioned

**4. The size of virtual memory is based on which of the following?**

- a) CPU
- b) RAM
- c) Address bus
- d) Data bus

**5. If the page size increases, the internal fragmentation is also?**

- a) decreases
- b) increases
- c) remain constant
- d) none of these

**6. Which of the following is not a type of directory structure?**

- a) cyclic-graph directory structure
- b) Single-level directory structure
- c) Tree directory structure
- d) Stack directory structure

7. In which allocation method does the user size the file before creating the file?

- a) Contiguous
- b) Linked
- c) Indexed
- d) None of these

8. The PCB is identified by \_\_\_\_\_.

- a) Real-Number
- b) Binary Number
- c) Store block
- d) Integer Process ID

9. Which of the following statements is correct about virtual memory?

- a) It is a combination of the logical-memory and physical-memory
- b) It is a separation of user logical memory and physical memory
- c) It is a virtual network memory
- d) None of these

10. Which file is a sequence of bytes organized into blocks understandable by the system's linker?

- a) object file
- b) source file
- c) executable file
- d) text file

11. When an attempt is to make a machine or network resource unavailable to its intended users, the attack is called \_\_\_\_\_

- a) denial-of-service attack
- b) slow read attack
- c) spoofed attack
- d) starvation attack

12. The internal code of any software that will set off a malicious function when specified conditions are met, is called \_\_\_\_\_

- a) logic bomb
- b) trap door
- c) code stacker
- d) none of the mentioned

13. The time taken to move the disk arm to the desired cylinder is called the \_\_\_\_\_

- a) positioning time
- b) random access time
- c) seek time
- d) rotational latency

14. A floppy disk is designed to rotate \_\_\_\_\_ as compared to a hard disk drive.

- a) faster
- b) slower
- c) at the same speed
- d) none of the mentioned

15. Consider a disk queue with requests for I/O to blocks on cylinders.

98 183 37 122 14 124 65 67

Considering FCFS (first cum first served) scheduling, the total number of head movements is, if the disk head is initially at 53 is?

- a) 600
- b) 620
- c) 630
- d) 640

15. In the \_\_\_\_\_ algorithm, the disk arm starts at one end of the disk and moves toward the other end, servicing requests till the other end of the disk. At the other end, the direction is reversed and servicing continues.

- a) LOOK
- b) SCAN
- c) C-SCAN
- d) C-LOOK

16. Piece of code that only one thread can execute at a time is called

- a) Mutual Exclusion
- b) Critical Section
- c) Synchronization
- d) All of them

17. What is an embedded system?

- a) A program that comes wrapped in a box
- b) A program that is permanently part of a computer
- c) A computer that is part of a larger computer
- d) A computer and software system that controls a machine or appliance

18. Identify false statement

- a) You can find deleted files in recycle bin
- b) You can restore any files in recycle bin if you ever need
- c) You can increase free space of disk by sending files in recycle bin
- d) You can right click and choose Empty Recycle Bin to clean it at once

SEC- B

DIRECTION: Answer any 4 questions

5x4=20

1. What inconveniences that a user can face while interacting with a computer system, which is without an operating system?
2. What is the difference between internal fragmentation and external fragmentation?
3. What are the differences between multiprocessing and multiprogramming?
4. Define a virtual memory (VM). With a neat diagram, explain the working of a VM.
5. Describe process states with the help of process transition diagram.
6. What are differences between user level threads & Kernel supported threads?
7. Describe Resource Allocation Graph(RAG) explain with a deadlock and with a cycle but no deadlock.
8. Memory partitions of 100kb,500 kb,200 kb,300kb,600 kb are available how would 7 best, worst, first fit algorithm to place processes 212,417,112,426 in order. Which is the best algorithm?
9. consider the reference stream 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. How many page faults while using FCFS and LRU using 3 frames?
10. what is demand paging? When does a page fault occur?

SEC-C

Direction: Ans any 2 question

15x2=30

1. What is process scheduling and also discuss type of schedulers? What criteria affects the schedulers performance.
2. What are the differences between paging and segmentation? Also explain the paging hardware.
3. Define deadlock. Describe necessary conditions for a deadlock situation to arise.  
Explain the methods for deadlock prevention.
4. The queue of requests in FIFO is 86,147,91,177,94,150,102,175,130 What is the total head movement needed to satisfy the requests for the following Scheduling algorithms FCFS, SCAN, LOOK, C-SCAN
5. Name the different file allocation methods. Explain the linked allocation of file implementation with merits and demerits.?
6. For the following set of process find the average waiting time using Gantt chart 4 for i> SJF ii> Priority scheduling process. The process has arrived in the order p2, p1, p4, p3 and p5.

P no.	Burst time	Priority
P1	5	5
P2	3	4
P3	8	3
P4	2	1
P5	1	2