# BACHELOR OF COMPUTER APPLICATION
## FOURTH SEMESTER
## OPERATION SYSTEM
### BCA – 17
(Use separate answer scripts for Objective & Descriptive)

**Duration: 3 hrs.**             **Full Marks: 70**

### (PART A : Objective)

**Time: 20 min.**            Marks: 20

Choose the correct answer from the following:      $1 \times 20 = 20$

1. Which of the following file format supports in Windows 7?
   a) NTFS             b) BSD
   c) EXT              d) All of the above

2. _____ is a unique tag, usually a number, identifies the file within the file system.
   a) File identifier        b) BSD
   c) File type            d) None of the mentioned

3. File type can be represented by:
   a) File name          b) File extension
   c) File identifier       d) None of the mentioned

4. Virtual Memory is:
   a) Extremely Large Main memory.
   b) Extremely Large Secondary memory.
   c) An illusion of extremely large main memory.
   d) An illusion of extremely large secondary memory.

5. Operating System manages:
   a) Memory           b) Processor
   c) I/O devices        d) All of the above

6. Unix Operating System is an:
   a) Multi User Operating System      b) Time Sharing Operating System
   c) Multi Tasking Operating System    d) All the Above

7. In which type of the following OS, the response time is very crucial?
   a) Network Operating System       b) Real Time Operating System
   c) Batch Operating System        d) Unix Operating System

8. To avoid the race condition, the number of processes that may be simultaneously inside their critical section is:
   a) 8       b) 1       c) 16       d) 0

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### (PART B : Descriptive)

**Time: 2 hrs. 40 min.**          **Marks: 50**

#### (Answer any five (5) from the following)

1. What are thread and process? Why threads are called light weight process? What is process scheduling and why is it required?     (2+3+5=10)

2. What is deadlock? What are the necessary conditions for occurring deadlock? Explain resource allocation graph.     (2+3+5=10)

3. What do you mean by stable storage? What are the three operations to achieve stable storage? Explain.     (2+8=10)

4. Write two functions of operating system. What are the different types of operating system? Explain.     (2+8=10)

5. Explain the paging and segmentation methods.     (5+5=10)

6. a) What is memory management? Explain Logical and Physical Address Space.     (5)

   b) What is Process Control Block? Explain.     (5)

7. a) Explain the following disk scheduling algorithms:     (5)
   i) Scan scheduling       ii) FCFS scheduling

   b) Explain Dining Philosophers Problem.     (5)

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9. Process is:
   a) Program in High level language kept on disk.
   b) Contents of main memory.
   c) A program in execution.
   d) A job in secondary memory.

10. The strategy of allowing processes that are logically runnable to be temporarily suspended is called:
    a) Preemptive scheduling       b) Non preemptive scheduling
    c) Shortest job first            d) First come first served

11. To access the services of operating system, the interface is provided by the:
    a) system calls                 b) API
    c) library                      d) assembly instructions

12. In Unix, which system call creates the new process?
    a) fork                         b) create
    c) new                          d) none of the mentioned

13. Preemptive scheduling is the strategy of temporarily suspending a running process:
    a) before the CPU time slice expires.
    b) to allow starving processes to run.
    c) when it requests I/O.
    d) to avoid collision.

14. Every address generated by the CPU is divided into two parts:
    i) frame bit                   ii) page number
    iii) page offset               iv) frame offset

    a) i and ii        b) i and iii        c) ii and iii        d) iii and iv

15. PCB stands for:
    a) Program control block        b) Process control block
    c) Program content block        d) None of these

16. The heads of the magnetic disk are attached to a _____ that moves all the heads as a unit.
    a) spindle                      b) disk arm
    c) track                        d) none of these

17. The segment base contains the:
    a) starting logical address of the process.
    b) starting physical address of the segment in memory.
    c) segment length.
    d) none of these.

18. The wait-for graph is a deadlock detection algorithm that is applicable when:
    a) all resources have a single instance.
    b) all resources have multiple instances.
    c) both a and b.
    d) either a or b.

19. Semaphores are used to solve the problem of mutual exclusion.
    a) True          b) False

20. FIFO is preemptive scheduling algorithm.
    a) True          b) False

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