**JAF-003-004301** Seat No. _____

# B. Sc. (IT) (Sem. III) (CBCS) Examination

**November - 2019**

## CS - 13 : Operating System

***(New Course)***

**Faculty Code : 003**

**Subject Code : 004301**

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

**1** Answer the following questions : **20**

(1) What is throughput with respect to processor ?

(2) Give abbreviations for the term 'page map table' and 'file map table'.

(3) What we call to a program in execution ?

(4) What is an abbreviation for process control block ?

(5) What is Demand Paging ?

(6) Semaphore can be used for solving _____.

(7) Give a name of visual (mathematical) way to determine the deadlock occurrence.

(8) Which scheduler controls the degree of multiprogramming ?

(9) The problem of external fragmentation arises in _____.

(10) Full form of DMA.

(11) Process will be in _____ state waiting for some I/O service.

(12) Physical memory is broken into fixed-sized blocks called _____.

(13) If a process is executing in its critical section, then no other processes can be executed in their critical section. This condition is called _____.

(14) Round robin scheduling falls under the category of Non preemptive ? (Yes / No).

(15) Time quantum is defined in _____.

(16) Orders are processed in the sequence they arrive if _____ rule sequences the jobs.

(17) The _____ table contains the base address of each page in physical memory.

(18) Which technique was introduced because a single job could not keep both the CPU and _____.

(19) Define operating system.

(20) Give the Formula of TAT and WT.

**2** (a) Answer the following questions : (any **three**) **6**

(1) Explain System Call.
(2) Explain two load balancing approaches.
(3) What is swapping ? Explain.
(4) Discuss file attributes.
(5) What is Deadlock ?
(6) Short note on process scheduling.

(b) Answer the following questions : (any **three**) **9**

(1) Short note on time multiplexing.
(2) Compare and Contrast process and thread.
(3) What are file operations ? Explain.
(4) Short note on bounded buffer problem.
(5) Draw and Explain PSTD.
(6) Give types of operating systems and explain any one.

(c) Answer the following question : (any **two**) **10**

(1) Explain PCB.
(2) Explain scheduler with diagram.
(3) List out process scheduling algorithm and explain RR with example.
(4) Explain critical section problem.
(5) Explain services of operating system.

**3** (a) Answer the following questions : (any **three**) **6**

(1) List file types and explain any one.
(2) What do you mean by absolute path and relative path ?
(3) Explain paging.
(4) What do you understand by process synchronization ?
(5) Give difference between system software and application software.
(6) Briefly explain Monolithic Structure.

(b) Answer the following questions : (any **three**) **9**

(1) Write short note on variable partition.
(2) What is fragmentation ? Explain ?
(3) Explain use of logical address and physical address.
(4) What is the importance of semaphore ?
(5) Short note on deadlock avoidance.
(6) Describe Best-fit, First-fit and Worst-fit.

(c) Answer the following question : (any **two**) **10**

(1) Explain FCFS and SSTF.
(2) Explain FIFO and LRU.
(3) Explain Directory structure with diagram.
(4) Give detailed note on operating system components.
(5) Give detailed note on Real time operating system.