VCD 23/11/2019 F.Y.B.Sc (I.T.) –OS –SEM-I – 75 -2½HRS

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions**made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.

Q1. Attempt any three. (15)

a. Explain steps for making a read system call.
b. Explain client-server model.
c. Explain real-time operating system.
d. What is process? What are various process states?
e. Explain the concept of barriers.
f. Explain round robin scheduling.

Q2. Attempt any three. (15)

a. Explain the structure of page table entry.
b. Explain FIFO page replacement algorithm with proper example.
c. Explain various ways of tracking memory usage.
d. Explain various phases of logical dump.
e. Explain various directory operations
f. Consider a reference string: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. The number of frames in memory is 4. Find out the number of page fault using optimal page replacement algorithm and LRU algorithm.

Q3. Attempt any three. (15)

a. Explain process of DMA transfer.
b. Explain SSF scheduling algorithm with example.
c. What is deadlock? Explain conditions for resource deadlock.
d. Explain Banker's algorithm for multiple resources with example.
e. Explain various ways of recovery from deadlock.
f. Explain two phase locking and starvation.

Q4. Attempt any three. (15)

a. Explain Type-1 and Type -2 hypervisors.
b. Explain characteristics of clouds.
c. Explain VMware-hosted architecture with components.
d. Explain Master-Slave and Symmetric multiprocessor operating systems.
e. Explain various network services in distributed systems.
f. Explain various elements of distributed system based on CORBA.

Q5. Attempt any three. (15)

a. Explain ext4 file system.
b. Explain concept of intents.
c. Explain operation of buddy algorithm in linux.
d. Explain various design goals of android.
e. Explain various attributes used in MFT records.
f. Explain I/O request packet.