Day: Wednesday   Time: 02.30 PM TO 05.30 PM
Date: 22/05/2019   Max. Marks: 60
                    S-2019-2725

N.B.:

1) All questions are **COMPULSORY.**
2) Use of non- programmable calculator is **ALLOWED.**
3) Figures to the right indicate **FULL** marks.
4) Draw a neat and labeled diagram **WHEREVER** necessary.
5) Assume suitable data, if necessary.

Q1. What are the various components of Operating system structure? Explain the simple and layered approach of the operating system in detail. **(10)**

OR

Q1. Define Operating system. Explain system generation operations. Compare kernel based and microkernel based operating system functions. **(10)**

Q2. In a multi-programming and time-sharing environment, several users share the system simultaneously. This situation can result in various security problems. **(10)**
    i) What are two such problems? Explain.
    ii) Can we ensure the same degree of security in time-shared machines as in a dedicated machine? Justify your answer.

OR

Q2. What is the producer consumer problem? How it can illustrate the classical problem of process synchronization. Explain in detail. **(10)**

Q3. What is deadlock? Consider the deadlock situation that could occur in the dining philosopher's problem when philosophers obtain the chopsticks one at a time. Discuss how the four necessary conditions for deadlock indeed hold in this scenario? What are the solutions for the problem? Explain. **(10)**

OR

Q3. Write a detailed description about deadlocks and its characterization. **(10)**

Q4. What is thrashing and explain what causes it? How does the system detect thrashing? What can a system do to eliminate this problem? **(10)**

OR

Q4. Consider the following page reference strings: 1,2,3,4,1,2,5,1,2,3,4,5 for a memory with 3 frames. How many page faults would occur for the following replacement algorithm: **(10)**
    i) LRU replacement
    ii) FIFO replacement.
    iii) Optimal Replacement.

Q5. Discuss various issues involved in selecting appropriate disk scheduling algorithm. **(10)**

OR

Q5. What is mean by Locality of reference? Explain in detail about Free space management with neat diagram. **(10)**

Q6. Explain the architecture and application I/O interface with diagram in detail for Android OS. **(10)**

OR

Q6. Give the Procedure for setting VMware on Linux host and adding Guest operating system. **(10)**

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