PARUL UNIVERSITY
FACULTY OF IT & COMPUTER SCIENCE
BCA/IMCA Winter 2019 – 20 Examination

Semester: 4   **Date: 13/12/2019**
Subject Code: 05101252/05301252   **Time: 2:00 pm to 4:30 pm**
Subject Name: Operating System   **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Answer the followings.
A. Define the following.   **(05)**
1. Multithreading
2. Segmentation
3. Virtual Memory
4. Demand Paging
5. Deadlock.

B. Select any one answer from the given options. (Each of 01 marks)   **(10)**
1. Which of the following condition is required for deadlock to be possible?
   a) mutual exclusion
   b) a process may hold allocated resources while awaiting assignment of other resources
   c) no resource can be forcibly removed from a process holding it
   d) all of the mentioned

2. The LRU algorithm is_____
   a) Pages out pages that have been used recently
   b) Pages out pages that have not been used recently
   c) Pages out pages that have been least used recently
   d) Pages out of the first page in given area.

3. The main function of the command interpreter is
   a) to get and execute the next user-specified command
   b) to provide the interface between the API and application program
   c) to handle the files in operating system
   d) none of the mentioned

4. In priority scheduling algorithm, when a process arrives at the ready queue, its priority is compared with the priority of
   a) all process
   b) currently running process
   c) parent process
   d) init process

5. Page table length register indicates size of _____
   a) Page table
   b) Paging file
   c) Main memory
   d) Virtual memory

6. Which of the following is not the approach to handling deadlock_____
   a) Deadlock prevention
   b) Deadlock avoidance
   c) Detect & recover
   d) Virtual memory

7. When a thread waits indefinitely for some resource, but other thread are actually using it is called_____
   a) Starvation
   b) Demand paging
   c) Segmentation
   d) None

8. What is operating system?
   a) collection of programs that manages hardware resources
   b) system service provider to the application programs
   c) link to interface the hardware and application programs
   d) all of the mentioned

9. What are the requirements for the solution to critical section problem?
   a) Mutual exclusion
   b) Progress
   c) Bounded waiting
   d) All

10. Which scheduling algorithm allocates the CPU first to the process that requests the CPU first?
    a) first-come, first-served scheduling
    b) shortest job scheduling
    c) priority scheduling
    d) none of the mentioned

Q.2 Answer the followings. (Any Five) (15)
1. What is Operating System? Give any two functions of Operating System.
2. What do you mean by virtual memory and physical memory? Explain.
3. Write any two advantages of multiprogramming.
4. Write any two difference between Multitasking and Multiprocessing.
5. What is thread? Explain thread structure.
6. Give the functions of following UNIX commands: grep, cat.

Q.3 Answer the following. (Any three) (15)
1. What is deadlock? Explain the Banker's algorithm for deadlock avoidance.
2. What are the differences between Real Time System and Timesharing System?
3. What is Virtual Memory? Explain Demand Paging.
4. What is RAID? Explain Different RAID levels.

Q.4 Answer the following.
A. When does a page fault occur? Explain any two page replacement strategies/algorithms. (05)
B. 1. Explain any three file attributes and file operations in brief. (05)
   2. Explain any two types of operating system. (05)
                            OR
1. Explain any two advantages of Multiprocessing or Parallel System. (05)
2. Explain any two Disk Scheduling Algorithms with illustration. (05)