CB

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SPECIALIZATION IN CYBER SECURITY (CS)
EXAMINATION : JANUARY- 2023
SEMESTER - I
Sub: Operating System (BCA-146-20/BCA-CS-146-20)

Date : 09/01/2023   **Total Marks : 60**   **Time: 10.00 am to 12.30 pm**

Instructions:
1. *All questions are compulsory unless and otherwise stated.*
2. *Bold figures to the right of every question are the maximum marks for that question.*
3. *Candidates are advised to attempt questions in order.*
4. *Answers written illegibly are likely to be marked zero.*
5. *Use of scientific calculators, Log tables, Mollier Charts is allowed.*
6. *Draw neat and labelled diagrams wherever necessary.*

Q.1.   **Fill in the blanks.**   **(5)**
1. The function of _____ file is - commands to the command interpreter.
   - a. object
   - b. source code
   - c. batch
   - d. executable
2. The extension for multimedia file is _____ .
   - a. .avi
   - b. .jpg
   - c. .cmd
   - d. .doc
3. To perform synchronization using semaphores, connect to an already existing semaphore is the _____ step.
   - a. Second
   - b. First
   - c. Last
   - d. Any
4. _____ one of the following is termed as Producer Consumer problem?
   - a. Bounded Buffer Problem
   - b. The Readers Writers Problem
   - c. Dining Philosophers Problem
   - d. wait and signal error
5. In the Readers writers' problem there are processes called _____ who may change the data in addition to reading, or instead of reading it.
   - a. readers
   - b. writers
   - c. clients
   - d. users

Q.2.   **State True/False.**   **(5)**
1. SCSI devices may be external as well as internal.
2. The long-term scheduler is in-charge of handling the swapped out-processes.
3. Round Robin is the preemptive process scheduling algorithm.
4. The operating system, executing in kernel mode, is given unrestricted access to both operating-system memory and users' memory.
5. The series of accesses between the open and close operations is a file session.

Q.3.   **Answer the following. (Solve any 5)**   **(10)**
1. What are real time operating systems?
2. Define multitasking & multithreading.
3. What are system calls?
4. Define kernel & shell.

5. What are features of operating systems?
6. List all services of operating systems.

Q. 4.   Answer the following in detail. (Solve any 6)   **(30)**
1. Explain difference between long term, middle term and short term schedulers.
2. What is a process? Draw and explain process state diagram.
3. Describe file access methods.
4. Briefly explain process synchronization in UNIX.
5. Describe virtual memory.
6. Difference between segmentation and paging.
7. Describe race condition in operating system.

Q. 5.   Answer the following in detail. (Solve any 1)   **(10)**
1. Explain page replacement policies.
2. Explain file system mounting and file system organization.

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