Printed Page:-   Subject Code:- BMCA0103
                                                  Roll. No:

Time: 3 Hours   Max. Marks: 100

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A   20

1. Attempt all parts:-

1-a.   Why Process communication is needed? CO1   1

   (a)   Share Information

   (b)   Speed up Computation

   (c)   Modularity

   (d)   All Mentioned Above

1-b.   In multiprogramming environment, the OS decides which process gets the   1
          processor when and for how much time. This function is called_____.
          CO1

   (a)   process scheduling

   (b)   process rescheduling

   (c)   traffic controller

   (d)   Processor Management

1-c.   Which of the following is true for Mutual Exclusion. CO2   1

   (a)   No process accesses and manipulates the data at the sam etime.

   (b)   If process P1 is executing critical section, then no other process can access critical section

   (c)   Several processes access and manipulate data concurrently

   (d)   None of the above

1-d.   Which of the following is not a classical problem in concurrency. CO2   1

 .

     (a)   sleeping barber problem

     (b)   dining philosophers probe

     (c)   walking waiting problem

     (d)   readers writers problem

1-e.   Program always deals with _____ (CO3)   1

     (a)   logical address

     (b)   absolute address

     (c)   physical address

     (d)   relative address

1-f.   In FIFO page replacement algorithm, a page must be replaced _____.   1
CO3

     (a)   oldest page is chosen

     (b)   newest page is chosen

     (c)   random page is chosen

     (d)   None of the mentioned

1-g.   Which among the following interacts directly with system hardware? CO4   1

     (a)   Shell

     (b)   Commands

     (c)   Kernel

     (d)   Applications

1-h.   The Linux command _____ is used to print the working directory.(CO4)   1

     (a)   print

     (b)   pwd

     (c)   pd

     (d)   ps

1-i.   Which command is used to moves the cursor down one line? CO5   1

     (a)   i

     (b)   j

     (c)   k

     (d)   l

1-j.   which extension is used to save the shell script___. CO5   1

     (a)   .sh

     (b)   .ps

     (c)   .bs

     (d)   .ls

2. Attempt all parts:-

2.a.   Define client server system. CO1   2

2.b.   Explain Hold and Wait. CO2   2

 .

2.c.	Define variable size partitioning. CO3	2
2.d.	What do you mean by ownership of a file? CO4	2
2.e.	Write some advantages of shell scripting. CO5	2

SECTION-B   30

3. Answer any <u>five</u> of the following:-

3-a.	Explain batch operating system. Write advantages and disadvantages of batch operating system. CO1	6
3-b.	What are system calls? Explain the different categories of the system calls. CO1	6
3-c.	Explain the use of semaphore with example. CO2	6
3-d.	Explain producer consumer problem in detail. CO2	6
3.e.	Explain FCFS Disk Scheduling Algorithm with example. CO3	6
3.f.	Differentiate between the redirection operator and append operator in Linux with examples. CO4	6
3.g.	Explain in detail how a condition is tested in any kind of loops (for, while etc.). Elaborate with example. CO5	6

SECTION-C   50

4. Answer any <u>one</u> of the following:-

4-a.	Explain different types of operating system in detail. CO1	10
4-b.	Differentiate Pre-emptive and Non-preemptive scheduling giving the application of each. Justify it with the help of the example of SJF & SRTF. CO1	10

5. Answer any <u>one</u> of the following:-

5-a.	Discuss various strategies of handling deadlock. CO2	10
5-b.	Why is inter process communication important and why do we need to synchronize our processes? CO2	10

6. Answer any <u>one</u> of the following:-

6-a.	Explain the concept of paging with suitable diagram. CO3	10
6-b.	Explain how file system protection and security is handled by operating system? CO3	10

7. Answer any <u>one</u> of the following:-

7-a.	Differentiate between Linux and Windows operating system in detail. (CO4)	10
7-b.	Explain the components of Linux in detail. Also elaborate their importance. CO4	10

8. Answer any <u>one</u> of the following:-

8-a.	Discuss the arithmetic operators that are used in Linux with examples. CO5	10
8-b.	Illustrate the different ways in which a new file can be created. Explain with the help of examples. CO5	10