B.C.A. (Pt. -II)　　　　　　　　　　　　　　　　　**Ope. Sys.**

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B.C.A. (Part-II) EXAMINATION, 2021

(Faculty of Science)

(Three Year Scheme of 10+2+3 Pattern)

OPERATING SYSTEM

Time Allowed : Three Hours　　　　　　　　　　　　　　　　Maximum Marks : 100

No supplementary answer-book will be given to any candidate. Hence the candidates should write their answers precisely in the main answer-book only.

All the parts of one question should be answered at one place in the answer-book. One complete question should not be answered at different places in the answer-book.

Write your roll number on question paper before start writing answers of questions.

Question paper consists of **three** *parts.* **All three** *parts are* **compulsory.**

PART - I : *(Very short answer) consists of* **10** *questions of* **two** *marks each. Maximum limit for each question is upto* **40** *words.*

PART - II : *(Short answer) consists of* **5** *questions of* **four** *marks each. Maximum limit for each question is upto* **80** *words.*

PART - III : *(Long answer) consists of* **5** *questions of* **twelve** *marks each with an internal choice.*

PART - I

1. (a) Define the terminology of Operating System.　　　　　　　　　　　　10x2=20
   (b) Define real time operating system.
   (c) Explain FCFS scheduling.
   (d) Explain the term swapping in memory management.
   (e) Give list of four necessary conditions for deadlock prevention.
   (f) Why the primary memory is essential ?
   (g) Explain fixed partition in memory allocation.
   (h) Define the term relocation in memory management.
   (i) Explain the storage abstraction of sequential file.
   (j) Explain the term Directory in file systems.

PART - II

2. (a) What are interrupts ? How are they handled by the Operating System ?　　　5x4=20
   (b) Differentiate between pre-emptive and non pre-emptive scheduling.
   (c) What is Virtual memory and why it is used ?
   (d) Explain the tree structure of directory.
   (e) Explain the role of message passing in Distributed Computing.

PART - III

3. Why an Operating System is needed ? Explain all the functions of Operating System in detail.　　12

OR

Explain the types of Operating System in detail.　　12

4. What is race condition ? Explain how a critical section avoids this condition. What are the properties **12** which a data item should possess to implement a critical section ?

OR

Draw the state diagram of a process from its creation to termination, including all transitions and **12** briefly elaborate every state and every transition.

5. Why is segmented paging important as compared to a paging system ? What are the different pieces of **12** the virtual address in a segmented paging ?

OR

Explain the differences between : **2x6**
(a) Internal and External fragmentation.
(b) Paging and Segmentation.

6. Differentiate between protection and security. Explain the techniques used for protection of user files. **12**

OR

What criteria should be adopted for choosing type of file organization ? **12**

7. Explain how the Encrypting File System works. Discuss the importance of Encrypting File System. **12**

OR

Explain the following in brief : **6+6**
(a) Remote Procedure Call (RPC)
(b) Lock Synchronization Mechanism

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