

Roll No.

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Total No. of Pages : 02

Total No. of Questions : 07

B.Sc.(CS) (2013 & Onwards) (Sem.-4)

OPERATING SYSTEMS

Subject Code : BCS-405

M.Code : 72321

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and a student has to attempt any FOUR questions.

SECTION-A**1. Answer briefly :**

- a) What is the difference between Multiprogramming and Multiprocessing?
- b) What is the role of context switching in CPU scheduling?
- c) Define Throughput and Turnaround Time.
- d) List any two dissimilarities between Process and Thread.
- e) Define Non Pre-emptive Scheduling.
- f) Explain Mutual Exclusion.
- g) How Sequential files are different from Random access files?
- h) Write short note on Virtual Memory.
- i) What is the limitation of Access Control Lists?
- j) Differentiate between viruses and worms.

SECTION-B

2.
 - a) How operating system is used as a resource Manager?
 - b) Discuss different states of a Process.
3. Following is the information related to some processes :

Process	Burst	Priority	Arrival Time
P1	10	3	0
P2	8	2	2
P3	4	1	8
P4	8	2	16
P5	12	1	24
P6	4	3	30

Using the above information, Compute the average waiting time and average turnaround time for the following algorithm :

- a) Shortest Job First
- b) Pre-emptive Shortest Job First
- c) Priority scheduling
- d) Pre-emptive Priority Scheduling
- e) Round Robin (Time Quantum of 3 units)

Ignore the arrival time for Non pre-emptive algorithm.

4.
 - a) What is meant by Process Synchronization? Explain the role of Critical Section and Semaphores for Synchronization.
 - b) What is the role of Socket in Inter Process Communication?
5.
 - a) Compare LFU and Optimal Page replacement algorithm with the help of an example.
 - b) What are the attributes of a file? Explain structure of file system in detail.
6. Define Page Fault. What are the reasons for occurrence of page faults? Write the steps required for servicing page faults.
7.
 - a) Explain the role of I/O traffic controller, I/O device handler and I/O scheduler in device management.
 - b) What is denial of services? How we can handle such attacks?

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.