



Seat No. : _____

TP-112
BCA Sem.-III
May-2013

CC-204 Fundamentals of Operating System

Time : 3 Hours]

[Max. Marks : 70

Instruction : Write new question from new page.

1. (A) (1) What is Operating System ? Discuss batch and interactive operating systems. **4**
(2) What is parallel processing ? Explain loosely coupled configuration. **3**

OR

- (1) Discuss the following :
- Test- and-Set
 - Wait and Signal
- (2) What is Job scheduling and Process scheduling ?
- (B) (1) Using Shortest Remaining Time (SRT) policy find out the average turnaround time as per the details given : **4**

Arrival time	Process	CPU cycle time
0	A	6
1	B	3
2	C	1
3	D	4

- (2) Discuss Process Control Block (PCB). **3**

OR

- (1) Discuss Operating System software.
(2) Explain any one non-preemptive scheduling policy.

2. (A) (1) What is Deadlock ? Discuss any one case of Deadlock. **4**
(2) Explain the types of device. **3**

OR

- (1) Explain the different components of I/O subsystem.
(2) Discuss any one strategy for deadlock handling.
- (B) (1) Explain polling and interrupts. **4**
(2) The arm takes 1 ms to travel from one track to the next, and that arm is originally positioned at track 15 moving toward the low-numbered tracks, compute how long it will take to satisfy the following requests : 4, 30, 12, 25, 7 and 14 using FCFS scheduling policy. **3**

OR

- (1) What is RAID ? Explain any two RAID levels.
(2) Discuss Direct Memory Access (DMA).
3. (A) (1) Explain how internal fragmentation occurs. **4**
(2) Explain with diagram fixed partition. **3**

OR

- (1) Discuss any two page replacement policies.
(2) Discuss Demand paging.
- (B) (1) Given that main memory is composed to two page frames and that a program requests pages in following order : A B A C A B D B A C D **4**
Using FIFO and LRU page replacement methods, do page trace analysis and find failure ratio and success ratio for each.
(2) Explain Virtual memory. **3**

OR

- (1) What are segments ? Explain segmented memory allocation.
(2) Explain the difference between page and segment.

4. (A) (1) Discuss contiguous and indexed storage allocation. **4**
(2) List the responsibilities of File Manager. **3**

OR

- (1) Discuss access control matrix and capability lists methods for controlling file access.
(2) Discuss sequential and direct record organization.
- (B) (1) Discuss any two intentional attacks. **4**
(2) What is Data compression ? **3**

OR

- (1) Discuss Trojan horses and bombs.
(2) What is system survivability ?
5. (A) Fill in the blanks : **7**
- (1) _____ is translation of messages from its original form to an encoded form.
(2) _____ is defined as the capability of a system to fulfill its mission in presence of attacks, failures or accidents.
(3) _____ is the technique used to save spaces in files.
(4) _____ is similar to a password but protects a single file while a password protects access to a system.
(5) _____ is a part of a program that must complete execution before other processes can have access to the resources being used.
(6) _____ is a situation in which two or more processors operate in unison.
(7) Lack of process synchronization can result in two extreme conditions _____ and _____.

(B) State whether True or False :

7

- (1) Cryptography is the process of making long term archival storage copies of the files on the system.
 - (2) An unintentional attack is any breach of security of data that was not the result of a planned intrusion.
 - (3) Program files contain instructions and data.
 - (4) Buffers are temporary areas residing in main memory, channels and control units.
 - (5) A shared device can be assigned to only one job at a time.
 - (6) Shortest remaining time is a non-preemptive scheduling algorithm.
 - (7) Each process in the system is represented by a data structure called Program Control Block (PCB).
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