CS 314 Operating Systems, Spring 2018
Quiz #9 on April 24, 2018
List of the Possible Questions

#1: How is “MFT” in NTFS different from “FAT” (mention the most significant difference)?

#2: NTFS uses a tree structure instead of a linear linked-list (which is used in FAT) for managing the disk space for each file. What is the major reason why NTFS uses a tree structure instead of a linear linked-list?

#3: What is the primary difference between “B tree” and “B+ tree”? What is the primary reason NTFS uses “B+ tree” (instead of “B tree”)?

#4: What is the major advantage and disadvantage in using LRU memory page replacement algorithm (compared with using “FIFO page replacement algorithm”)?

#5: What is the major advantage in using NRU (Not Recently Used) page-replacement algorithm?

#6: What is the major advantage in using 2nd-chance page-replacement algorithm?

#7: What is “memory leak” and how does one happens?

#8: What is “(memory) garbage collection”? What type of memory do they “collect”?

#9: Why is “(memory) garbage collection” a problem?

#10: Why is the primary difference between “(memory) garbage collection (CS314)” and “memory compaction (CS286)”?

#11: What is the primary advantage in using a programming-language that does not perform “automatic garbage collection”?

#12: What are “real-time systems”?

#13: What is “hard real-time” system? What is “soft real-time system”?

#14: What is “determinism”?

#15: What is “responsiveness”?

#16: What make “determinism” hard to guarantee (mention two)?

#17: What make “responsiveness” hard to guarantee (mention two)?

#18: In many real-time process scheduling algorithms, determinism and responsiveness are in a trade-off relationship. Describe how they are in a trade-off relationship.

#19: What is “static real-time scheduling”?

#20: What is “dynamic real-time scheduling”? 
#21: What is “process migration” (how is it different from “process cloning”)? Make sure to describe its primary purpose.

#22: What is “process cloning” (how is it different from “process migration”)? Make sure to describe its primary purpose.

#23: What are the primary advantages and disadvantages in “process cloning” (compared with “process migration”)?

#24: What are the primary advantages and disadvantages in “process migration” (compared with “process cloning”)?

#25: What are the three essential decision-making factors for code migration and cloning?

#26: Mention three different actual metrics popularly used for “Transfer Policy”?

#27: Mention four different actual metrics popularly used for “Location Policy”?

#28: What does “migrated execution time” consist of (mention three components)?

#29: Which of followings can “process migration” migrate?

(a) Program codes  
(b) Program data  
(c) Local resources

#30: Which of followings can “process cloning” migrate?

(a) Program codes  
(b) Program data  
(c) Local resources

#31: What are “push-model migration/cloning” and “pull-model migration/cloning”?

#32: What are the primary advantages in “pull-model migration/cloning” (compared with “push-model”)?

#33: What is “weak mobility” (make sure to mention the two key differences from “strong mobility”)?

#34: What is “strong mobility” (make sure to mention the two key differences from “weak mobility”)?

#35: What is the primary advantage and disadvantage in “strong mobility” (compared with “weak mobility”)?

#36: What is “internal execution”?

#37: What is the primary advantage in “external execution” (compared with “internal execution”)?