

國立交通大學試題紙

科目：作業系統(A)

日期：100年7月28日 第1頁 共1頁

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* 請將答案依題號順序寫入答案卷

答題時字跡需工整，否則不予計分。Write your answers legibly; otherwise you will get zero score.

1. Advanced disk file systems adopt extents when allocating disk space to files. Discuss the pros and cons of using extents.
2. When power interruption occurs, a computer system loses any data which are yet not written to non-volatile storage (i.e., the disk). Describe where in a Linux-based desktop such loss of data may occur (hint: consider user applications, libraries, operating systems, firmware, and hardware).
3. Explain the key differences between SAN (Storage Area Network) and NAS (Network-Attached Storage).
4. Consider that you have 100 pieces of 32 GB SDHC cards. Some files in the memory cards may have different file names but they are the same picture. Now copy all the picture files to a file server. To save disk space, find a way that efficiently prunes duplicated pictures.
5. Give a definition of real-time systems.

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6. Depict and compare the architectures of the VMware and Java virtual machine. What are the advantages and disadvantages of using VM?
7. Depict and explain the process state transition diagram in details. The meanings of each state and the transition should be explained in details.
8. What is the “thread-specific data”? Why we need this mechanism for threads?
9. What is the “symmetric multithreading (SMT)” technology? Explain the advantages of this technology and the caution that must be taken when scheduling processes over a machine with multiple CPUs that enable this technology at the same time.
10. For the bounded-buffer synchronization problem, we assume that there are n buffer slots in the shared buffer. Write a pseudo program for the producer process and a pseudo program for the consumer process. Explain why your producer and consumer programs work correctly for this bounded-buffer problem.